

**UCLA**  
**Department of Environmental Health Sciences**  
**Self-Review Report**

January 29, 2010

## TABLE OF CONTENTS

<b><u>Topic</u></b>	<b><u>Page</u></b>
List of Abbreviations.....	4
Executive Summary.....	5
I. Introduction.....	5
II. General Information	
1. History.....	5
2. Mission/Goals.....	6
3. Organization.....	7
Governance.....	9
Administration.....	9
4. Faculty	
Demographics.....	11
Recruitment.....	13
Research.....	13
Multidisciplinary Centers.....	15
Community Outreach/Involvement.....	17
III. Bylaws.....	18
IV. Undergraduate Programs.....	18
V. Graduate Program	
1. Admissions.....	18
2. Recruitment.....	19
3. Curriculum.....	20
PhD Program .....	20
DrPH Program.....	20
MPH Program .....	21
MS Program .....	21
Industrial Hygiene Program .....	21
3. Graduate Student Financial Support.....	21
4. Post Graduate Survey.....	22
VI. Report on Articulated, Concurrent and Self-Supported Programs.....	22
VII. Comparison to Previous Review.....	23
VIII. Resources	
1. Infrastructure.....	24
2. Operational Budget and Instructional Support.....	25
IX. Concluding Remarks from the Chair.....	25

<b><u>Figures</u></b>	<b><u>Page</u></b>
Figure 1 – Department of EHS and associated IDPs and COEH faculty organization chart.....	8
Figure 2 - Administrative Support Chart for Academic Programs at time of last review (2000-2001).....	10
Figure 3 – Administrative Support Chart for Academic Programs (2009-2010).....	10
Figure 4 – Student enrollment per year from 1999-2000 to current.....	19

<b><u>Tables</u></b>	<b><u>Page</u></b>
Table 1 – Faculty Distribution at time of last review (2000) and Current.....	11
Table 2 – Faculty Profile and Research Interests.....	12
Table 3 – Faculty areas of Specialization as they relate to major subtopics in EHS.....	14
Table 4 – Number of grants and total research dollars.....	14
Table 5 – Faculty Productivity Index 2007, <i>Chronicle of Higher Education</i> .....	15
Table 6 – Major (>\$1 million) Centers Housed in EHS.....	17
Table 7 - Number of courses offered per subtopic in 4 major EHS degree programs.....	20
Table 8 - EHS Operating Budget and Instructional Support.....	25

<b><u>Appendices</u></b>	<b><u>Page</u></b>
1. Faculty Highlights/Accomplishments.....	A-1
2. Samples of Alumni questionnaire responses.....	A-9
3. EHS Deleted Courses.....	A-16

<b><u>References</u></b>	
1. 2008 ES&E IDP Annual Report.....	R-1
2. 2009 Molecular Toxicology IDP Self-Review.....	R-44
3. 2009 COEH Program Report (completed prior to leadership change).....	R-58
4. Bylaws .....	R-169
5. Urban Planning concurrent degree proposal.....	R-183
6. 2009 Independent Department Review .....	R-197
7. Faculty <i>Curriculum Vitae</i> .....	R-200

## List of Abbreviations

ABET/ASAC - Applied Science Accreditation Commission of the Accreditation Board for Engineering and Technology  
ACCION – Academic and Community Collaborative to Improve our Neighborhood  
ALERT – Assessment of Local Environmental Risks Training  
ARCO – Atlantic Richfield Company  
CARB – California Air and Resources Board  
CBOs – Community Based Organizations  
CDC – Centers for Disease Control and Prevention  
CDPH – California Department of Public Health  
CINVESTAV – *Centro de Investigaciones Avanzadas*  
COEH – Center for Occupational and Environmental Health  
DEnv – Doctor of Environmental Science and Engineering  
EHS – Environmental Health Sciences  
EHSAFAC - Environmental Health Sciences Admissions and Financial Aid Committee  
EOH – Environmental and Occupational Health  
EPA – Environmental Protection Agency  
ERC – Southern California Education and Research Center  
ESE – Environmental Science and Engineering  
DrPH – Doctor of Public Health  
IDPs – Interdepartmental Degree Programs  
IMSS – Mexican Institute for Social Security  
IHP – Industrial Hygiene Program  
INSP – National Institute of Public Health, Mexico  
IOE – Institute of the Environment  
Mol Tox – Molecular Toxicology  
MPH – Masters of Public Health  
MS – Master of Science  
MSO – Department Administrative [Management Services] Officer  
NCEH – National Center for Environmental Health  
NIH – National Institutes of Health  
NIOSH - National Institute for Occupational Safety and Health  
OEHN - Occupational and Environmental Health Nursing  
OM – Occupational Medicine  
OSHA – Occupational and Safety Health Administration  
PhD – Doctor of Philosophy  
PI – Principal Investigator  
SCPC – Southern California Particle Center  
SPH – School of Public Health  
STPP – Sustainable Technology and Policy Program  
TSRTP – Toxic Substances Research and Training Program  
UNAM – *Universidad Nacional Autonoma de Mexico (UNAM)*  
UCB –University of California, Berkeley  
UCLA – University of California, Los Angeles  
USC – University of Southern California

## **EXECUTIVE SUMMARY**

This self review focuses on the academic programs of the department of Environmental Health Sciences (EHS) in University of California, Los Angeles (UCLA)'s School of Public Health (SPH). The following are the main findings of this review:

1. Given the breadth and importance of EHS, the department needs to grow in size and breadth while retaining its core areas of expertise such as air pollution, toxicology and industrial hygiene. In the face of severe budget constraints, more adjunct and in residence faculty must be recruited, especially young faculty.
2. The merger of the Center for Occupational and Environmental Health (COEH) and EHS must strengthen both groups. Grant support should become more substantial. At the same time collaboration with other departments within the SPH and University must increase.
3. Student enrollment must be increased, in part through better marketing, and a more balanced curriculum, and more faculty recruitment.

## **I. INTRODUCTION**

Since the department last submitted its self-review in 2000, there have been three chairpersons: Dr. Curt Eckhert (term completed in 2007), Dr. Hilary Godwin (2007-2008), and Dr. Richard Jackson (current Chair). In September 2008, the then EHS Chair, Dr. Godwin accepted the position of Associate Dean for Academic Programs in the SPH. The vacated Chair position was then filled by Dr. Richard Jackson in October 2008. Two months later, on December 12, 2008 the UCLA Graduate Council notified Dr. Jackson of the scheduled academic Senate review during the 2009-2010 year with the required self review report due during the 2008-2009 academic year. Dr Jackson requested an extension that was denied. Dr. Jackson, faculty and staff developed the review, including discussion at four faculty meetings, and at the EHS and COEH retreats. The faculty recommended that the Chair prepare a draft of the Self Review for discussion and comment by faculty, students and staff. This draft was discussed for the first time at a meeting of faculty, student representatives and staff held on January 11, 2010, and further drafts have been circulated via email

## **II. GENERAL INFORMATION**

### **1. History**

EHS is one of the five academic departments of the SPH. The other departments are Community Health Sciences, Epidemiology, Biostatistics, and Health Services. The department began as a division shortly after the founding of SPH in 1961 and became a department in 1989.

The field of EHS is undergoing rapid evolution due to rising public and policy awareness of the importance and impact of the environment on health and the economy, as well as to the impact of humans on the environment. The depth of this awareness ranges from world leaders, for example, convening in Copenhagen to discuss responses to climate change, all the way to undergraduates making decisions about career options, and to schoolchildren advocating for recycling. This awareness is not only vertical, it is horizontal: ranging from governments to corporations to average citizens. The breadth and intensity of this awareness bring opportunities and also raise challenges for those who teach and those who practice environmental public health. Just 10 years ago there was much less public awareness of the rapidity and intensity of global climate change, the importance of the built environment to health, the prevalence and

power of endocrine disruptors in the environment, and the reality of pervasive burdens of toxic chemicals in the bodies of all humans and most creatures on the planet. No longer is environmental health the pure bailiwick of laboratory scientists or occupational clinicians, it elicits headlines on the front page of virtually every newspaper every day throughout the world. Students coming into EHS must learn the fundamental logic processes, sampling and analysis procedures, exposure assessment methodologies, toxicology, disease transmission mechanisms, potential remedies, legal and economic impacts, policy and law, and mechanisms associated with potential and known adverse effects. The goal is to help them to be leaders in the future. This transition of the field must profoundly influence the department's own self-definition, its recruiting, and its future.

## 2. Mission/Goals

The mission of the department of EHS has changed much since the last review in 2000. At that time, it was:

*The mission of the UCLA Department of Environmental Health Sciences is to advance our understanding of how physical, chemical and biological factors affect human and ecological health and to use this knowledge to improve the quality of the environment.*

After extensive discussions in 2009, EHS developed a new mission statement to better capture our role in training leaders and the importance of environment to health:

*Our mission is to develop and transmit knowledge about the links between health and the environment, and to educate scientists and public health leaders who can design science-based policies to address current and future environmental health challenges.*

### Short term Goals

- To redevelop the EHS curriculum to reflect current and future research areas of the field and the challenges of the 21st century, for example climate change, globalization, policy, biomonitoring, endocrine disruptors, sustainability, and other areas.
- To increase the number and diversity of faculty, including in terms of age, gender and experience.
- To improve communication and collaboration among faculty and staff.
- To augment our teaching capacity by increasing the number of faculty appointments. To recruit Assistant Professors in major research areas like environmental policy, environmental microbiology, sustainability, and ergonomics as the current budget crisis abates and to utilize adjunct professors as an additional measure for filling in curriculum gaps.
- To increase the number, diversity, and quality of our students. To aggressively improve recruiting and the web presence of EHS and COEH
- To provide high quality internship experiences for our students, with monitoring, evaluation and follow up
- To keep track of our alumni to assess the effectiveness of their training at UCLA and to develop constituency support.
- To develop better linkages with other SPH departments, and with other UCLA schools, in particular, Health Sciences.
- To assure that environmental health training significantly impacts the training of nursing, dental, pharmacy, medical, pediatric and other health care providers.
- To increase co-operation among Environmental Science and Engineering (ESE), Molecular Toxicology (Mol Tox), COEH, other interdepartmental degree programs

(IDPs), and the rest of the Department, and to assure the Southern California Education and Research Center (ERC) is renewed and supported.

- To assure that the EHS, COEH, and ESE activities collaborate effectively in terms of academic actions, staff appointments, grantsmanship, and fiscal management.
- To inculcate a culture of sustainability in our Department and School, including the physical plant. Moving as much as possible to a paperless office where most documents are developed, shared, and archived electronically with minimal use of paper resources.

#### Long-term goals

- To have EHS at UCLA at the top tier of EH programs in the United States.
- To raise the visibility of the Department and the School in the Los Angeles region and to increase our community engagement.
- To substantially increase Center and training grants coming into EHS.
- To attract substantial philanthropic support for EHS.

#### Strategies

Our strategies to achieve our mission and goals are to:

- Attract, retain, and develop a student body that is diverse, well-prepared for the challenges of the 21st century, and confident in the knowledge, content and major skills of environmental health sciences.
- Create a curriculum that develops a well-rounded student body that is the rival of any other school in the country or in the world.
- Create and maintain a research enterprise within the department that advances and develops knowledge, that enriches our students' education, and that creates a substantial income stream and support for the department and its graduate students.
- Attract, support and retain diverse faculty of the highest distinction, research ability, and leadership.

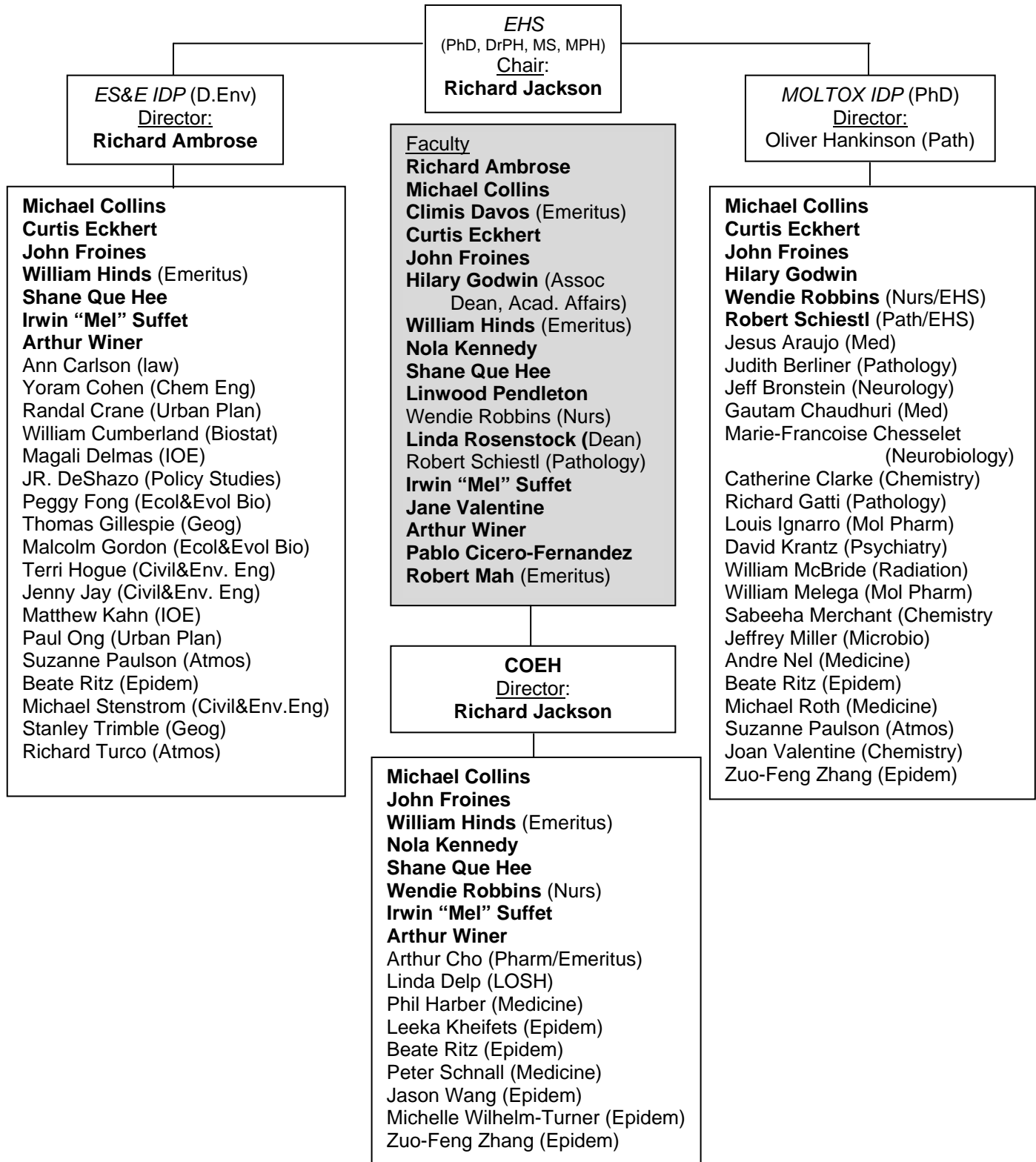
### **3. Organization**

The EHS Department currently offers Masters of Public Health (MPH), Master of Science (MS), Doctor of Philosophy, (PhD), and Doctor of Public Health (DrPH) degrees. In addition, EHS also houses two IDPs: the ESE Program which confers DEnv degrees and the Mol Tox IDP PhD Program. Although the ESE and Mol Tox IDPs are housed in EHS, this report and review will focus on the degrees conferred directly by EHS. For additional information on the two IDPs, see Reference 1 and 2 for the 2008-2009 ESE annual report and the 2009 Mol Tox Self-Review Report, respectively.

EHS also houses the COEH, a state of California legislatively mandated Center whose goal is to train occupational and environmental health professionals, conduct research, and provide service in the fields of occupational and environmental health. See Reference 3 for a 2009 COEH Program Report.

EHS also houses the National Institute for Occupational Safety and Health (NIOSH) ERC whose mission is to train occupational health professionals at the Masters and Doctoral levels. The ERC also has links to UCLA School of Nursing, UCLA School of Medicine and the University of California, Irvine.

**Figure 1. Department of EHS and associated IDPs and COEH Faculty Organization Chart**  
*Bolded names indicate primary appointment in EHS.*



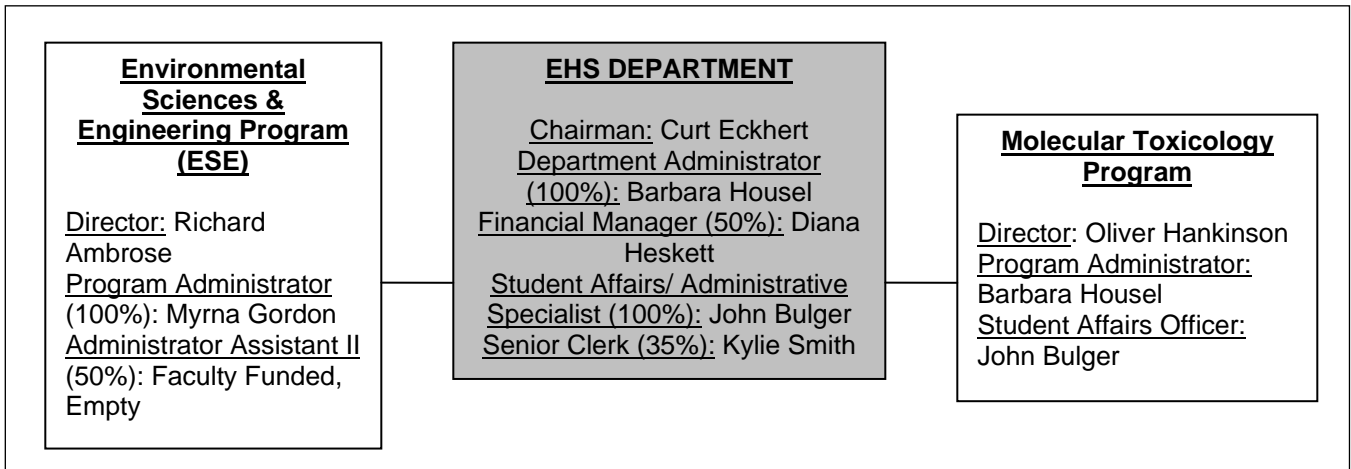


Governance: The governance of the Department is through a set of 2 standing committees: Curriculum and Admissions/Financial Aid. In addition, ad hoc committees are created as needed. Recent committees include Space Survey Committee and Laboratory Equipment Committee. Three EHS Student representatives are selected each year by their peers. They are encouraged to attend faculty meetings as well as to weigh in on Departmental issues. Their input was also sought during this review. Departmental meetings are held monthly with an all day retreat scheduled at least once a year.

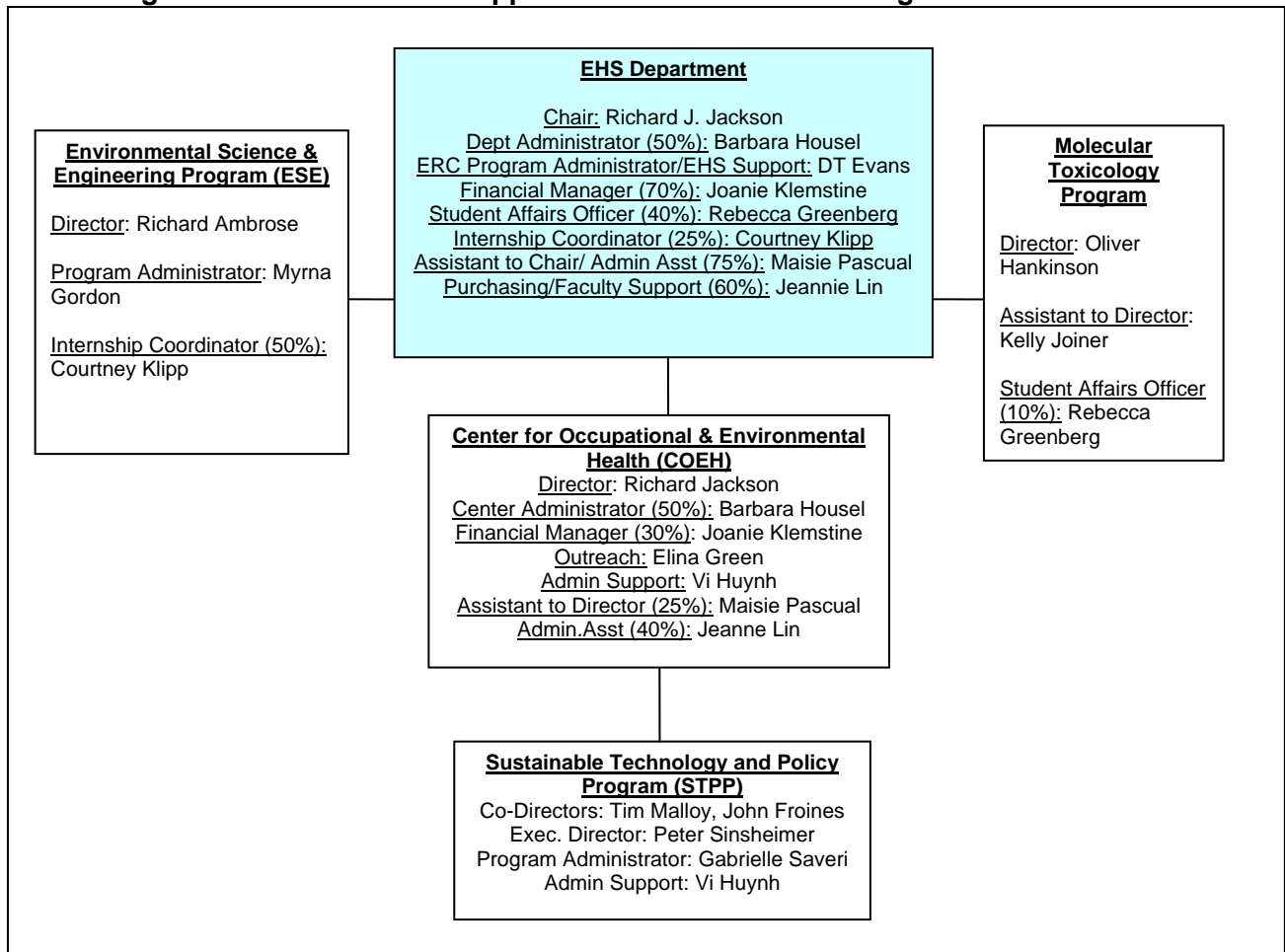
Administration: In fiscal year 2002-03, following a State budget crisis, funding for SPH-funded staff was reduced from 3 FTE to 2.5. These staff members provide support to the training and research mission of the department and assist faculty with administrative, research and teaching needs. Since the last review the University has implemented new automated online systems dealing with personnel, student records, purchasing, contracts & grants, and other administrative processes. As a result, there is greater responsibility on department staff as preparers and reviewers. Since most research projects restrict funding of administrative staff, the department staff must provide substantial expertise, training and support to faculty Principal Investigators (PIs) and their project staff, from pre-award activities, financial forecasting, monitoring adherence to agency policies and through closing of awards.

As of July 1, 2009 the Chair of EHS assumed the responsibility of the COEH as its new Director. As a result of this transition the administrative staff increased and the composition changed. The current structure is an MSO (Department Administrative [Management Services] Officer) funded 50% from 19900 (permanent state) funds and 50% from internal SPH funds. A 100% Administrative Analyst (Fund Manager) funded by COEH 19900, 50% Student Affairs Officer and 100% of the ESE Program Manager funded through other internal school funds. Assistant to the Chair and Director at 100% supported by Department funds and an Administrative Assistant (Purchasing/Faculty support) 100% funded by COEH, Education and Research Center Administrator funded 75% from grants and 25% from COEH, Administrative Analyst (EHS/COEH/STPP administrative support) funded 90% from COEH and 10% research projects. Also with the change in directorship, EHS acquired the services of the 100% COEH Outreach Coordinator who has played an important role in establishing the department's website and developing community outreach. We were also fortunate to be able to combine resources (50% ESE, 25% EHS and 25% Epi) to fund a new Internship Coordinator. Figures 2 and 3 illustrate the administrative structure of EHS at the last review and currently, respectively.

**Figure 2: Administrative Support Chart for Academic Programs at time of last review (2000-2001)**



**Figure 3: Administrative Support Chart for Academic Programs 2009-2011**



#### 4. Faculty

**Demographics:** The Department has 11 state-funded tenure-track faculty (Table 1) who consist of 10 Full Professors and 1 Associate Professor. Five of the faculty are women; one is African American and one is Asian-Australian male. Six state-funded tenure-track faculty from other departments hold joint appointments with EHS; two of them teach in the Mol Tox IDP and one lectures in our 200B course. One faculty member is in the “In-Residence” track, which is an Academic Senate appointment with all the rights of a tenure-track faculty member but without a state-funded salary line. Two other faculty (one is Latino) hold adjunct appointments, 1 holds a lecturer appointment and 5 faculty had visiting appointments in the department during the period of July 1, 2001 and September 30, 2009. Faculty with state-funded tenure-track lines are expected to teach at least three formal courses per year, although they are permitted to “buy out” one course per year with extramural research funding. Other faculty are expected to make significant contribution to the educational mission of the department. A few teach up to three or four classes per year (typically with support from a training grant), others offer one class annually, and the rest provide service as guest lecturers and/or offer other educational assistance.

**Table 1: Faculty Distribution at time of last review (2000) and Current**

Department Faculty and Rank	2000 (last review)	Current
Tenure-eligible, EHS home department	11 (1 Asst Professor, 3 Assoc Professors, 7 Professors)	11 (1 Assoc Professor, 10 Professors)
Other tenure-eligible, joint appointments	1 Assistant Professor	8 (1 Assoc Professor, 7 Professors)
In Residence	1 Assistant Professor	1 Assistant Professor
Adjunct	2 (1 Assistant Professor, 1 Professor)	2 (1 Assistant Professor, 1 Assoc Professor)
Lecturer and Field Supervisors	2 (1/2 Lecturer, 1 ½ Field Supervisors)	1
Visiting Professor	1 Professor	0
Emeritus Professors	1 Professor	4 Professor

The Department faculty is multidisciplinary and thus attracts students from a variety of backgrounds. Current faculty hold doctoral degrees in science disciplines (chemistry, biology), public health (environmental health, epidemiology), engineering, medicine (pediatrics, medicine), nursing, and the biological sciences (nutrition).

**Table 2: Faculty Profile and Research Interests**

<b>CORE FACULTY</b>	<b>Rank</b>	<b>Home Dept</b>	<b>Interests</b>
Richard Ambrose	Professor	EHS	environmental biology, ecology of coastal areas, resource management policy
Michael Collins	Professor	EHS	developmental toxicology, teratology, gene-gene/gene-environment interactions
Curtis Eckhert	Professor	EHS	toxicology, ecotoxicology, biology of boron
John R. Froines	Professor	EHS*	industrial hygiene, exposure assessment, occupational health, toxicology, air pollution
Hilary Godwin	Professor	EHS	toxicology, environmental chemistry, lead poisoning
Richard J. Jackson	Professor	EHS	biomonitoring, built environment and health, environmental health policy, children's health, community environmental health
Shane Que Hee	Professor	EHS*	industrial hygiene, environmental and analytical chemistry, multi-elemental analysis, bioassay directed chemical analysis
Wendie Robbins**	Associate Professor	Nursing*	toxicology, reproductive health, reproductive and environmental epidemiology, gene-environment interactions
Linda Rosenstock	Professor	EHS	occupational safety and health
Robert Schiestl**	Professor	Pathology	toxicology, carcinogenesis DNA damage and repair, gene-environment interactions
Mel Suffet	Professor	EHS	water quality, environmental chemistry- analysis, fate and treatment of hazardous and odorous chemicals
Jane L. Valentine	Associate Professor	EHS	water quality, environmental health, environmental measurements, exposure assessments
Arthur Winer	Professor	EHS	air pollution, exposure assessment, atmospheric chemistry
<b>ADJUNCT/JOINT FACULTY</b>			
Jared Diamond	Joint Professor	Geography	geography and human society, biogeography
Pablo D. Cicero-Fernandez	Adjunct Assistant Professor	EHS	air pollution, exposure assessment, atmospheric chemistry
Oliver Hankinson	Joint Professor	Pathology	carcinogenesis, toxicology
Scott Layne	Joint Professor	Epidemiology	building and utilizing high-throughput automated lab and database systems for infectious disease research and vaccine development
Andre Nel	Joint Professor	Medicine	pollutants, nanotoxicology
Linwood Pendleton	Adjunct Associate Professor	EHS	economics of environmental goods and services in coastal zone
Beate Ritz	Joint Professor	Epidemiology*	occupational and environmental toxins, air pollution, carcinogens
Zuo-Feng Zhang	Joint Professor	Epidemiology	cancer epidemiology, carcinogenesis
<b>EMERITUS</b>			
Arthur Cho	Professor Emeritus	EHS	chemical pharmacology
Climis A. Davos	Professor Emeritus	EHS	environmental policy
Robert Mah	Professor Emeritus	EHS	engineering & Applied Sciences
William Hinds	Professor Emeritus	EHS	airborne particles, nanoparticles
<b>IN-RESIDENCE</b>			
Nola Kennedy	Assistant Professor	EHS	occupational exposure assessments, aerosol behavior, air pollution

\* COEH FTE

\*\* Although primary appointment is in other department, faculty member has full voting rights for all actions in EHS.

Recruitment: The Department has recently been involved in two recruiting efforts. One is for an air pollution aerosol scientist, a position offered at the Assistant Professor level. The selected candidate has accepted the School's offer and we expect to finalize the recruitment for a July 1, 2010 start date. The unfilled position is that of the head of the NIOSH sponsored ERC. As this report is being prepared, two high level candidates are being brought in for interviews and to offer seminars. One other has already visited. The two previous candidates for this position did not accept our offer. EHS follows all appropriate campus guidelines in hiring and promotion in an effort to promote diversity.

Research: EHS is a leader in the health effects of air pollution and vehicular emissions, industrial hygiene, toxicology (including ecotoxicology and risk assessment), children's health and the environment, environmental biology and chemistry including water quality, built environment and health, agriculture and pesticide issues, teratology and carcinogenesis, environmental health policy, globalization, as well as other areas. Particular areas of research that need to be strengthened include: more depth on the health effects of climate change, effects of endocrine disrupting chemicals, implications and priority setting of biomonitoring of body burdens of chemicals, "green chemistry", health effects of globalization, health aspects of life cycle analysis, transportation as health policy, environment antecedents of injuries and of chronic diseases, mental health aspects of the environment, cost-accounting of environmental health threats and remedies, health implications of sustainability interventions, health impact assessment, radiation and physical hazard threats, and practical issues of management of environmental health threats.

**Table 3: Faculty areas of specialization as they relate to major subtopics in EHS**

	Air quality	Env biology	Env chem	Indus Hygiene	Tox	Water quality	Env mgmt	Occu Health	Env policy	Epi/ carcino	other
<b>CORE FACULTY</b>											
Ambrose		x				x					
Collins					x		x				
Eckhert		x			x						
Froines	x			x	x			x	x		
Godwin			x		x						
Jackson			x		x				x		
Que Hee	x		x	x	x			x		x	x
Robbins					x					x	x (reproductive health)
Rosenstock								x			
Schiestl					x					x	
Suffet			x			x					
Valentine						x					
Winer	x		x								
<b>JOINT/ADJUNCT</b>											
Diamond											x (geography & human society)
Cicero	x		x								
Hankinson					x					x	
Layne										x	
Nel	x										
Pendleton		x					x				
Ritz	x							x		X	
Zhang										x	
<b>EMERITUS</b>											
Cho			x								
Davos									x		X(economics)
Mah											x(microbiology)
Hinds	x			x							
<b>In-Residence</b>											
Kennedy	x							x			

**Table 4: Number of grants and total research dollars**  
*Only grants with EHS Faculty as Principal Investigators have been included*

	Number of grants	Total Funding Amount
2000-2001	33	\$2,099,222
2001-2002	35	\$3,192,048
2002-2003	42	\$3,291,996
2003-2004	36	\$2,307,842
2004-2005	34	\$3,030,914
2005-2006	36	\$3,726,137
2006-2007	33	\$4,762,784
2007-2008	34	\$4,487,613
2008-2009	27	\$3,910,241
2009-2010	26	\$4,600,915 ( <i>projected</i> )

EHS faculty members are productive. The following table obtained from the 2007 Chronicle of Higher Education lists top Environmental Health Science Universities and their correlating faculty productivity index.

**Table 5. Faculty Productivity Index 2007, *Chronicle of Higher Education***

	Institution *	Faculty Scholarly Productivity Index	Number of faculty	Percentage of faculty with a book publication	Books per faculty	Percentage of faculty with a journal publication	Journal publications per faculty	Percentage of faculty with journal publication cited by another work	Citations per faculty
1	U. of California at Berkeley	1.22	15	.27%	.4	93%	15.4	93%	140.13
2	Columbia U.	1.18	14	.14%	.29	86%	19.5	86%	210.54
3	U. of California at Los Angeles	1.1	18	.17%	.89	94%	11.33	94%	120.72
4	Johns Hopkins U.	1.07	50	.12%	.32	96%	10.02	94%	120.29
5	U. of Iowa	.68	26	.46%	1.35	96%	8.15	96%	46.54
6	U. of Pittsburgh main campus	.07	20	0%	-	90%	7.3	90%	71.95
7	U. of Michigan at Ann Arbor	-.07	20	.15%	.2	100%	7.6	100%	41.63
8	U. of Minnesota-Twin Cities	-.18	25	.12%	.24	92%	6.84	88%	75.64
9	U. of Alabama at Birmingham	-.38	12	0%	-	75%	15.83	67%	113.14
10	New York U.	-.53	52	.04%	.1	87%	6.33	87%	58.71

	Institution *	Citations per faculty	Citations per paper	Percentage of faculty getting a new grant	New grants per faculty	Total value of new grants per faculty	Average amount of grant	Percentage of faculty with an award	Awards per faculty
1	U. of California at Berkeley	140.13	7.05	40%	.6	\$380475	\$634124	13%	.13
2	Columbia U.	210.54	8.75	43%	1	\$1583277	\$1583277	7%	.14
3	U. of California at Los Angeles	120.72	8.59	17%	.39	\$179457	\$461461	17%	.33
4	Johns Hopkins U.	120.29	9.43	34%	.36	\$185639	\$515665	8%	.12
5	U. of Iowa	46.54	4.57	27%	.42	\$174081	\$411463	12%	.12
6	U. of Pittsburgh main campus	71.95	8.18	45%	.5	\$153637	\$307274	0%	-
7	U. of Michigan at Ann Arbor	41.63	4.29	10%	.1	\$37069	\$370688	5%	.05
8	U. of Minnesota-Twin Cities	75.64	8.8	16%	.2	\$39650	\$198249	4%	.04
9	U. of Alabama at Birmingham	113.14	5.95	17%	.25	\$149750	\$599000	0%	-
10	New York U.	58.71	7.32	15%	.33	\$126982	\$388417	0%	-

\* An institution may appear more than once if the discipline is related to more than one department.

Appendix 1 lists highlights from the *curriculum vitae* of faculty. They represent an impressive spectrum, representing the quality and productivity in both research and teaching for the department. Work is peer recognized and serves to not only further the education of the students at UCLA but often the community around us and the scientific community at large.

**Multidisciplinary Centers:** EHS is home to many multi-disciplinary and multi-campus Centers. The following are a few examples:

1. **Southern California Particle Center (SCPC).** Directed by EHS Professor Dr. John Froines, the SCPC (1999-2011), brings together outstanding scientists to conduct high priority research to elucidate the underlying basis for health effects associated with exposure to ambient particulate matter. The SCPC brings together faculty from UCLA, UC Irvine, University of Southern California (USC), University of Madison-Wisconsin, Michigan State University and the University of Tsukuba, Japan. Total amount of funding is \$18,365,579 from the Environmental Protection Agency (EPA)

2. The UCLA **Fogarty** (1995-2010) Program in Occupational and Environmental Health, also directed by Dr. Froines has focused on the development of training and research related to environmental and occupational health (EOH) needs in Mexico. Since its inception in 1995, significant numbers of Mexican students, professionals and government officials have received valuable information and training in EOH. Faculty collaborators derive from USC, UC Irvine, the California Air Resources Board, the National Institute of Public Health (INSP) in Mexico, *Centro de Investigaciones Avanzadas* (CINVESTAV), *Universidad Nacional Autonoma de Mexico* (UNAM), and the Mexican Institute for Social Security (IMSS). Total funding is \$1,939,095 from the National Institutes of Health (NIH).

3. **The Sustainable Technology and Policy Program (STPP)** is a new program which brings together faculty and scientists from Law, Public Health, and Public Policy with the goal of establishing an inter-disciplinary program of policy, research, education, and outreach supporting adoption of a precautionary approach to chemical policy in California and nationally. STPP brings together researchers from those schools and other across the UCLA campus in a unique, action-oriented initiative is Co-Directed by EHS faculty member Dr. John Froines and Tim Malloy (UCLA Law School). Funding derives from The Wellness Foundation, The Robert Wood Johnson Foundation, The California Air Resources Board, as well as seed funding from the UCLA Vice Chancellor, and the Deans for the Schools of Public Health and Law.

4. The **NIOSH Southern California Education and Research Center (ERC)** consists of 11 programs. Three are traditional academic programs: occupational medicine (OM), industrial hygiene, and occupational and environmental health nursing (OEHN). These programs typically have 4, 12 and 13 trainees respectively. Other programs are Continuing Education, Outreach, Center Administration, Pilot Collaborative Research Training with the Southern California Injury Prevention Research Center, Hazardous Substances Academic Training Pilot/Small Project Training, and Targeted Research Training. These programs represent a coordinated, interdisciplinary set of professional education, continuing education, research and outreach activities that has a positive impact on the region's and nation's occupational health and safety practice. Begun in 1989 at USC, the ERC was directed by EHS faculty member, Dr. William Hinds from 1999-2009. Dr. Hinds retired on July 1, 2009. Dr. John Froines took over as interim Director until a new Director could be identified.

The primary goals of the ERC are 1) to educate professionals in the various disciplines of occupational health and safety, 2) to provide continuing education for professionals and others in occupational safety and health fields, 3) to proliferate occupational health and safety activity through outreach to regional institutions and organizations, and 4) to foster research on issues important to occupational health and safety.



**Table 6. Major (>\$1 million) Centers Housed within EHS**

Name	Director	Total Current Period Funding	Center Type
NIOSH Southern California Education and Research Center (SCERC)	J. Froines (interim)	\$3,810,000	Research, Training, Education, Service
Southern California Particle Center (SCPC)	J. Froines	\$7,999,999	Research
Sustainable Technology and Policy Program	J.Froines/T.Malloy Co-Directors	\$1,900,000	Research, Education, Service
Center for Occupational and Environmental Health	R.J. Jackson	\$1,500,000	Research, Education, Training, Service

Community Involvement/Outreach – EHS maintains a strong commitment to outreach efforts connected to all activities of COEH and affiliated special programs, centers and research. Outreach efforts are currently being restructured beginning with the redesign of the COEH, STPP and EHS websites as mechanisms to articulate to the public the wide swath of efforts EHS faculty undertake and to engage the public in them. One of the priorities of EHS in the coming year is to use innovative means to share research results and develop/strengthen linkages to both the UCLA community and the community beyond the UCLA campus.

A central component of all research efforts that EHS has embarked upon is the inclusion of community based organizations or interest groups as strong partners in projects. Examples of projects include:

**1. Academic and Community Collaborative to Improve Our Neighborhood**

(ACCION) is a new project directed by Dr. John Froines and funded by the California Endowment. ACCION is collaboration between UCLA and two community based organizations, *Proyecto Pastoral* and *Union de Vecinos*, working to improve issues of traffic, air pollution, pedestrian safety and other built environment impacts within the community of Boyle Heights in East Los Angeles. Home to one of the largest Latino communities in the United States, Boyle Heights is an area with rich history, but also significant challenges. Over the next two years through the efforts of ACCION, UCLA researchers will work with community groups to develop measurements of impact as it relates to air pollution, traffic and pedestrian injuries and create maps of these impacts within the Boyle Heights community. (\$323,820)

2. In collaboration with the UCLA Center for Health Policy Research, the **Assessment of Local Environmental Risks Training** (ALERT), also directed by Dr. Froines, uses a community-based education model to foster trust and collaboration between environmental health researchers and community-based organizations (CBOs). ALERT builds the knowledge and skills of CBOs in understanding environmental health data, performing a community-based environmental health assessment, and establishing partnerships with researchers who are prepared to work with CBOs from diverse communities on environmental health concerns through the development of an environmental health action plan for policy change with a focus in air pollution. (\$500,000 from NIH)

3. The **AQMD Railyard Project**, led by Dr. Froines seeks to chemically and biologically characterize the air pollutants to which communities adjacent to rail yards are exposed and to educate local communities about the potential health risks from these facilities by sharing research results. (\$280,872)

4. Dr Jackson is hosting a PBS special on built environment and public health (contracted by the **Media Policy Center** in Santa Monica to Oregon Public Broadcasting) that is to air this fall. Work on a companion book is underway and should bring substantial positive visibility to UCLA, SPH and EHS.

### **III. BYLAWS**

EHS follows the bylaws established by the University and the SPH and its own faculty. In addition, the department has established bylaws governing Academic Programs and Degrees which were approved by the faculty and the Senate back in 1992 (Reference 4). Our current curriculum committee will have the task of reviewing and making recommendations to the faculty based on the changes in the department's curriculum and academic structure.

### **IV. UNDERGRADUATE PROGRAM**

In 2006, an Environmental Science undergraduate program housed in the Institute of the Environment (IOE) was established. The IOE is a Center for Multidisciplinary Instruction and through its local, national, and international programs. The IOE employs innovative, cross-disciplinary approaches to address critical environmental challenges- including those related to climate change, water quality, air pollution, biodiversity, and sustainability – with the goal of achieving stable human coexistence with the natural systems on which society depends. EHS faculty were integral in the development of the undergraduate program. The first component, the Environmental Science Major, provides students with disciplinary breadth in areas important to environmental science. The second component, a minor/concentration, provides in-depth knowledge in one of eight environmental science areas, one of which is associated with EHS. There are 14 currently enrolled in the Environmental Health concentration with indications that the number could easily increase to 20-25, possibly more if additional undergraduate-oriented courses are offered that could satisfy EHS requirements.

Environmental Health Sciences 100, taught by EHS faculty members Dr. Curtis Eckhart and Dr. Hilary Godwin, saw increased popularity. It is currently offered in the fall and spring quarters with plans to add a summer session as well. Other EHS undergraduate courses include: EHS C135, 203, C125, C140, C152C, C157 and C164. The School of Public Health has organized a minor for seniors to act as a recruitment tool to Public Health (including EHS). There are plans to develop a Public Health major.

### **VI. GRADUATE PROGRAM**

#### **1. Admissions**

All applicants to EHS must first apply to the UCLA - SPH prior to December 1<sup>st</sup> in the year preceding the anticipated Fall quarter start date. However, late applications are accepted. The applicant must submit specified materials in a two-step process: completing the UCLA Graduate Division Application and the SOPHAS Application. SOPHAS is a centralized application system to which approximately 35 Schools of Public Health subscribe. Materials necessary for submission include the application, official transcripts, GRE scores, personal

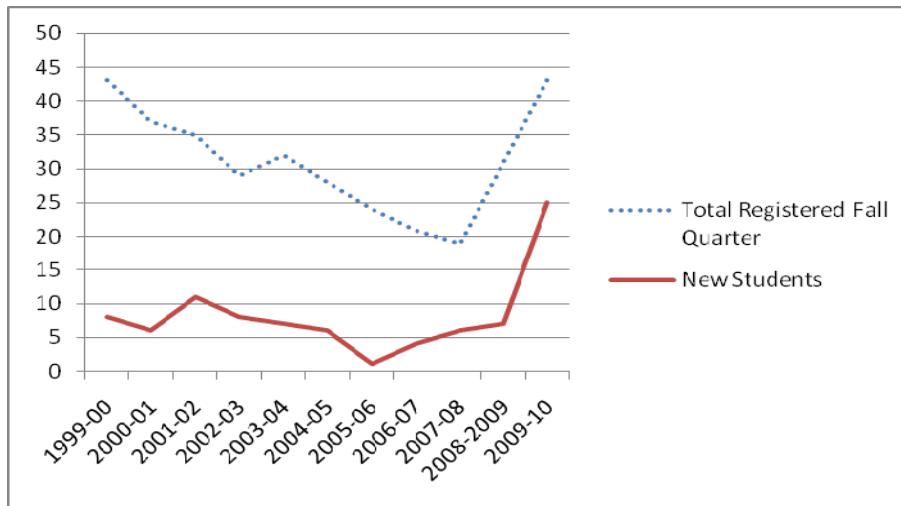
statement, three letters of recommendation, a personal CV/resume and, if applying for a doctoral program, a writing sample of previous scholarly work.

The central SPH Student Affairs Office, which oversees recruiting and admissions, collects and processes all the collected data into an on-line reviewer portal. At that point in the process, individual departments within the SPH manage the applications and assign faculty reviewers for each on-line file. Each Department has a Student Affairs Officer who responds to student inquiries regarding their application status. Applications to the master's program are reviewed by the Environmental Health Sciences Admissions and Financial Aid Committee (EHSAFAC). Doctoral applications are available for review by the entire EHS Faculty, but a decision can be made once the majority of the faculty has entered their decision. There must be a willing faculty advisor for a doctoral applicant to be accepted. Once admissions decisions are made at the departmental level, the central Student Affairs Office, in conjunction with the UCLA Graduate Division, manages the applicants by extending official offers, monitoring acceptances, and managing wait-lists through matriculation to the School. If applications are received by the December 1<sup>st</sup> due date, applicants are informed of their status by March 1<sup>st</sup>. If applications are received after December 1<sup>st</sup> a rolling process continues until all spaces within the School are filled. The EHSAFAC also assign funds from Graduate Division and Atlantic Richfield Company (ARCO).

## 2. Recruitment

Figure 4 represents the total number of students enrolled each year in EHS since the last review as well as the number of new students (*Information obtained from Graduate Division and SPH Assistant Dean for Student Affairs*).

**Figure 4: Student Enrollment from 1999-2000 to Current**



The Department has made aggressive efforts to emphasize recruiting with greatly increased personal contact with potential students by the Department Chair, the Associate Dean for Academic Affairs Hilary Godwin, and by faculty. In fall 2008, there were only seven incoming EHS Masters level students. One year later, in fall 2009, the Department admitted 25 students. This trend has continued with a January 2010 report from UCLA Graduate Division showing

EHS applications up 136% (with additional applications not yet processed) from this time in 2009.

In addition to the increased personal contact, the Department has also made substantial improvements to its web presence through the creation of a dynamic webpage due to launch in Spring 2010 and through a popular Facebook page that provides a means for dialog and discourse between students and faculty.

### 3. Curriculum

A graduate education in Environmental Health includes training in the fundamental broad core of knowledge in the field through course, laboratory and field work, and understanding in one of the subtopic areas through a combination of advanced courses and independent research.

Subtopic areas were identified and data from the top three major EHS academic degree programs as well as UCLA were gathered from web sites and compiled in the table below, illustrating the total number of classes offered in each topic.

**Table 7. Number of courses offered per subtopic in top major EHS degree programs.**

	Harvard	Columbia	U. of Michigan	Johns Hopkins	U. of Washington	Chapel Hill- NC	UC Berkeley	UCLA
Basic Env. Sciences/ Core Introductory Courses	2	2	1	5	4	4	4	6
Toxicology- Environmental/Molecular	5	6	16	11	14	15	2	4
Air Chemistry/ Quality	7	1	5	5	3	5	1	1
Water Chemistry/ Quality	2	2	3	1	2	14	0	3
Management/ Economics/Leadership	4	8	2	0	0	3	0	0
Industrial Hygiene/Occupational Health	17	3	14	11	17	5	4	13
Env. Health Hazard (Risk) Assessment	5	0	0	1	17	7	6	3
Global Environment/Climate Change	1	2	0	3	0	2	3	1
Env. Health Policy and Law	0	0	4	5	6	6	5	1
Disaster Emergency/Refugees	0	0	0	2	0	0	0	0

**PhD Program:** The PhD in EHS is an advanced research degree that emphasizes depth of knowledge and research skills. The dissertation must demonstrate ability for independent scholarly investigation. Students select a course of study upon consultation with their guidance committee. Interdisciplinary research is encouraged.

**DrPH Program:** The DrPH is a schoolwide degree and the highest professional degree for the public health generalist. Students are expected to focus on public health practice and to acquire broad knowledge related to professional skills. The dissertation is of an applied, practical, problem-solving nature and must demonstrate ability for independent investigation.

EHS is one of the areas of specialization. Students are encouraged to do interdisciplinary research.

*MPH Program:* The MPH is a schoolwide professional degree in the field of public health. EHS is one of the areas of specialization. Students are expected to focus on public health practice and to acquire a broad knowledge related to professional skills. A minimum of 62 units is required to complete the degree. Teaching experience is not required

*MS Program:* The MS in EHS is a research-oriented degree that includes the preparation of a thesis or comprehensive examination/major written report. Students may focus on such areas as air quality, environmental biology, environmental chemistry, environmental management/policy, industrial hygiene, toxicology, and water quality.

*Industrial Hygiene Program (IHP):* Considered a subtopic within EHS, the primary academic objective of the UCLA IHP is to train professional and research industrial hygienists at the Masters and Doctoral levels. The MS and MPH programs are two-year programs with a total of 79 and 85 units, respectively. The program is geared towards producing scientifically sophisticated graduates capable of performing at an advanced professional level and moving into leadership positions. The PhD program provides advanced training in a research area of industrial hygiene. Training includes classroom instruction, laboratory exercises, field trips, internships, and thesis research. The MS and MPH programs in Industrial Hygiene are fully accredited by the Applied Science Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET/ASAC).

Industrial hygiene students may also take a minor in hazardous substances. The minor serves to expand and formalize training in the area of hazardous substances for industrial hygiene students. Curriculum development and student support are provided through our Hazardous Substance Academic Training Grant. Funding for this program comes from National Institute of Environmental Health through the NIOSH and the ERC. This minor is open to all IH students in good standing with a GPA of 3.0 or better. NIOSH eligible students pursuing this minor receive additional financial support.

### **3. Graduate Student Financial Support**

EHS provides funding to incoming and continuing students from a variety of sources. Students are funded through UCLA Graduate Division fellowships, private fellowships, SPH Fellowships, faculty grant funds, ARCO funds and ASE appointments. The EHSAFAC determines how these funds are allocated to the students. In addition, the Department also has some training grants, such as the ERC and the Toxic Substances Research and Teaching Program (TSRTP), which are available to qualified students. Students in the IHP are funded by the ERC and also have the opportunity once a year to compete for the Tony Norton Fellowship.

The EHSAFAC determines how its funds are allocated in the Winter quarter of each academic year. Doctoral students are given first priority, followed by MS, and then MPH students. The Department pays full fees for doctoral students and the remaining funds are allocated to continuing and entering master's students. Continuing students must have at least a 3.5 cumulative UCLA GPA to qualify for Departmental funding. The funding for entering students is based on their undergraduate GPA, the GRE/MCAT, references, and statement of intent. In addition, students are also funded

The adequacy of student funding has decreased over the years due to state budget cuts that have impacted other universities throughout California. This has limited the support that we can provide to our incoming and continuing students. As a result of these budget cuts, the Department has had to heavily rely on our internal funding sources, such as ARCO, which no longer leaves a surplus of these funds to rely on for future years.

#### **4. Post Graduate Survey**

EHS applicants are generally motivated by security, idealism, and service. They are logical thinkers, intellectually curious, and enjoy coming up with solutions to problems that benefit society at large. Our applicants want to develop and exercise technical expertise, and like the mix of qualitative and quantitative approaches to problems that can be found in an environmental health sciences career. Graduates of the department pursue careers as researchers, educators, managers, policymakers, and/or practitioners, and can be found in private industry, county departments, regional agencies, state departments and boards, and federal agencies.

The Winter 2009 graduate council survey on enrolled students had a 63% return rate (12 surveys out of 19) and found that EHS students rated the Department “very satisfied” or “satisfied” in key areas such as guidance from faculty, the value of department requirements in facilitating your educational and professional goals, the level of financial assistance received, and the overall quality of faculty mentoring in the program. Two areas with the lowest scores include the space available in the department for student use (41.7%) and the inclusion of graduate students in departmental governance (41.7%). EHS has been proactive in addressing these issues. As mentioned earlier in this report, EHS has increased the number of student representatives to 3. Student representatives are invited to monthly departmental meetings and focus groups are being planned to obtain student input on curriculum development. In regards to the lack of student space, as mentioned in the Infrastructure section, a large workspace with desks and computers will be created for student use.

As mentioned, EHS has made it a priority to create an effective alumni base. As part of this goal, questionnaires were sent to alumni by the new internship/outreach coordinator. Samples of alumni responses are in Appendix 2.

#### **VI. REPORT ON ARTICULATED, CONCURRENT, AND SELF-SUPPORTING PROGRAMS**

During the 2009-2010 academic year, a proposal for a MPH in Environmental Health Sciences and the Master of Arts (MA) in urban planning concurrent degree program was approved by the SPH FEC and submitted to the Graduate Council. The proposal had been jointly and enthusiastically developed by faculty in these two programs in response to rising student and faculty interest in the professional and scholarly intersections between Urban Planning and Public Health. The Graduate Council returned the application due to a concern that the program described in the proposal appeared to require more time for students to complete the requirements for both degrees than would be required of students pursuing both degree programs separately. This apparent concern reflected the way that the course requirements were described and the concern was addressed. In addition, the proposal has been refined and improved to better link the curricula in the two programs and allows students to complete the two degree programs concurrently in less time than it would take to do so separately, but without compromising the academic integrity of either program.

In early January 2010, the revised proposal (Reference 5) was submitted to the SPH Faculty Executive Committee (FEC) for review.

## VII. COMPARISON TO THE PREVIOUS REVIEW

When the Department began in 1989, Environmental Toxicology was a Master's track and doctoral students who focused in Toxicology who wanted a doctorate obtained a doctorate in Environmental Health Sciences. The latter is still possible in 2010, except that in 2009 all Master's tracks were abolished. However, the response to the EHS Self-Review of 1992 indicated need to bolster the Environmental Toxicology area since it was a truly unique subdiscipline of environmental health, and all the current faculty in that area were part-time practitioners in the subdiscipline. To comply, this led the Department and the Dean of SPH to recruit a new faculty member in that subdiscipline ---Michael Collins- and to seek links with other units of the UCLA campus interested in a doctoral program in Toxicology that led around 1999 to attempts to form the Molecular Toxicology doctoral program before the Self-review of 2000 was submitted, as detailed in Reference 2 for the Molecular Toxicology Self Review Document for 2009.

During the six years that followed the year 2000 eight year review the curriculum remained static, the incoming student numbers declined, the number of grants were in decline, academic productivity was steady (albeit productive enough to rank third in *The Chronicle for Higher Education's* 2007 ranking), the average age of the faculty increased, and there was little turnover of faculty except for the arrival and subsequent departure of one junior faculty member (Linwood Pendleton of ESE).

In 2006, Dr. Hilary Godwin was recruited from Northwestern University in Chicago, bringing a very diverse research portfolio, a high level of dynamism, and productivity. In 2008 Dr. Godwin was promoted to Associate Dean for the SPH and Richard Jackson was recruited from the University of Michigan and previously UC Berkeley. Jackson, who had extensive management experience in government but lacked managerial experience within the UCLA system, had served for 2 1/2 years with distinction as an adjunct professor at the University of California Berkeley SPH.

One of Jackson's first actions after getting to know the EHS and affiliate faculty, the other departments of the UCLA SPH, and the other programs (in particular IOE and the Department of Urban Planning) was to invite a distinguished informal review group to offer advice to him and the Dean of the SPH on how to improve EHS. The group included Richard Fenske of the University of Washington, Patricia Buffler of UC Berkeley SPH, and John Spengler of the Harvard SPH. Their recommendations are attached in Reference 6.

Their most significant finding was that while the department possessed substantial excellence and assets, the department was fragmented and did not operate at the highest level of collaboration and potential productivity. One specific challenge was the relationship between EHS and the COEH. COEH is a state funded activity that developed by the state of California in the late 1970s and early 1980s as a result of serious health effects on workers from pesticides and other chemicals. The program was put in place in Northern California with UC Berkeley as the lead and, and one in Southern California with UCLA as the lead. The program in Northern California at the SPH in Berkeley has had relatively seamless coordination between COEH and the UC Berkeley SPH EHS. This was less so in Southern California.

Stimulated by this assessment and in part because it reinforced her own views, the Dean of the SPH announced a move to consolidate the leadership of both EHS and COEH, under the new EHS Chair. This brought the intellectual, personnel, and fiscal assets of COEH under department control. Because this change was relatively abrupt and had personal implications, it resulted in a rather challenging summer for all persons involved. The positions and funding have begun to be sorted out. Administrative support that was previously dedicated to COEH projects and faculty have been redirected and challenged to take on the overall work of environmental and occupational health. This increased support has been beneficial to EHS and has increased the effectiveness and efficiency of departmental processes.

Another disquieting factor was the 2009-2010 compression of EHS space because of increasing numbers of SPH faculty in a fixed amount of space. (see Section VIII.1).

## **VIII. RESOURCES**

### **1. Infrastructure**

Faculty research laboratories and offices are located in the SPH, which is part of the Center for Health Sciences complex. In 2009, the SPH conducted a school-wide space redistribution resulting in a net loss of 2,376 sq foot of office and laboratory space. An Ad Hoc Laboratory Space and Planning Committee was established and a Departmental wide space survey was done. Guidelines were established to redistribute the remaining space. Guidelines included:

- SPH full-time faculty who have no other primary office on campus or in UCLA-rented space near campus should have first priority for academic offices. Ladder rank faculty have first priority for prime (e.g. window) office space.
- Faculty who have primary offices in offsite Centers or other departments may have a second office in the school if all other departmental space needs have been met or may be assigned shared office space onsite.
- Faculty and programs with external funding shall be allocated space commensurate to the research effort and external funding. Lab Space committee recommendations should be implemented
- Where possible, more "interaction space" should be allocated for both students and faculty within the school.
- Offices and computer space for students should be shared both within departments and across departments to the greatest extent possible.
- Students should be encouraged to use the shared study space within the Biomedical Library.
- Because space is a critical resource, Department Chairs or Space Committees should work with occupants to develop a plan to scan critical documents, eliminate unnecessary items, and move unused equipment or files to offsite locations.

These new guidelines will ensure that space will be used most efficiently. To further meet the goals of the department, a workspace is being created for students consisting of a number of study spaces, tables, chairs and computers. This new student workspace is adjacent to office space housing the EHS Student Affairs officer and the EHS Internship Coordinator. This new area will also provide for increased cohesion between students in EHS, the two IDPs and the IHP.

### **2. Operational Budget and instructional support**



**Table 8: EHS Operating Budget and Instructional Support**

<b>ENVIRONMENTAL HEALTH SCIENCES</b>			
<b>Operating Budget</b>			
<b><u>19900 General Funds</u></b>			
	FTE's	Amount	
Faculty Salaries			
EHS/ESE	9.0		947,450
Staff Salaries			
MSO	0.5		37,500
			<b><u>TOTAL 19900</u>    <u>\$984,950</u></b>
<b><u>SPH Funds</u></b>			
Staff Salaries	Total FTE's		
Includes: MSO, SAO (EHS), ESE Program Administrator, Internship Coordinator	2.3		123,388
TA's/Special Readers			15,000
Student Travel			600
Supplies & Other Expenses			25,000
Includes: EHS, ESE Program			
			<b><u>TOTAL SPH</u>    <u>\$163,988</u></b>
<b><u>COEH 19900 Funds</u></b>			
Staff Salaries	FTE's		
Includes: Financial Mgr, Admin Support, Outreach	4.0		246,760
Temp Staff/TA's/Special Readers			25,323
Supplies & Other Expenses			29,895
			<b><u>TOTAL COEH</u>    <u>\$301,978</u></b>
<b><u>TOTAL ALL FUNDING SOURCES</u></b>			<b><u>\$1,450,916</u></b>

**IX. CONCLUDING REMARKS FROM THE CHAIR**

EHS has made major progress in recruiting more incoming students (7 to 25 in one year) though it must sustain this over time—key to this are good reviews by current students. A major reason for this was more aggressive recruiting and recognition that suitable students were applying to other departments of the SPH and there was no effective transfer mechanism. This has been rectified. A makeover of the EHS/COEH website is underway to enhance visibility, a better sense of timeliness, and a better description of faculty expertise.

Over the last year the management structure has been organized with a goal of facilitating grants management, fiscal accounting, academic personnel actions, curriculum and other activities.

Courses that were not offered have been removed (Appendix 3) and new courses added including: Case Studies in Environmental Health (Richard Jackson); Children's Health and

Environment (Michael Collins); Built Environment and Health (Richard Jackson); Environment Health Law and Policy (Timothy Malloy and Peter Sinsheimer); Environmental Public Health Practice (James Gibson and Thomas Hatfield) and a summer course Introduction to Environmental Health. We will be looking to create courses on: Climate Change and Health (likely joint with IoE); Environmental Justice and Health (likely joint with CHS); Global Environmental Health including port, trade, and transport issues; Agriculture policy as health policy (likely with CHS); Health Impact Assessment (jointly with CHS); Cancer Epidemiology (jointly with Epi); Reproductive Epidemiology(same); Neurological Disease Epidemiology (same); Sustainability and Health (joint with IoE); Communication for Environmental Health Leaders; Ethics and Societal Values in Environmental Health.

The hire of a new assistant professor with expertise in aerosol science is nearing completion. The search for the ERC director is still continuing. An internship coordinator has been hired who is actively engaging students and alumni, and we intend to place all our students in good internships with solid supervision. The Chair very much wants to increase the presence of adjunct, visiting and “in residence” faculty to enhance the curriculum. The joint degree program between public health and urban planning is in place.

Space reallocation and office clean up including removal of outdated chemicals, laboratory equipment, and old paper documents is underway—a challenging task. In keeping with good environmental sustainability policy, we are committed to scanning of old documents, to use where possible electronic materials, and to recycle aggressively. We are creating a shared office space for a full time equivalent Student Affairs Officer and the Internship Coordinator. In addition, a work and study area is being built for student work and gathering.

There is much to be done but the trajectory for EHS is positive. This will require ongoing work and strategic planning efforts by faculty and staff, new sources of funding, new personnel, and an abundance of spirit, but this will be done. We will meet our mission: *to develop and transmit knowledge about the links between health and the environment, and to educate scientists and public health leaders who can design science-based policies to address current and future environmental health challenges.*

**APPENDIX 1**  
**EHS Faculty**  
**Highlights/Accomplishments**

**Ambrose:**

- Current Grant:  
Minerals Management Service, Project Period: 5/30/02-4/30/10  
*Determining Long-Term Changes in Species Abundances and Community Structure in Southern California Rocky Intertidal Habitats*  
Total Direct Costs \$690,511
- Honor: Commendation from California Senate for service to Santa Monica Bay Restoration Commission
- U.S. Army Corps of Engineers Environmental Advisory Board, Chair of Technical Advisory Committee for the Santa Monica Bay Restoration Commission.
- Recent Publications:  
Smith, J.R., P.Fong and R. F. Ambrose. 2009. Spatial patterns in recruitment and growth of the mussel *Mytilus californianus* (Conrad) in southern and northern California USA, two regions with differing oceanographic conditions. *Journal of Sea Research* 61: 165 – 173.  
Myers, M.R. and R.F. Ambrose. 2009. Differences in benthic cover inside and outside marine protected areas on the Great Barrier Reef: influence of protection or disturbance history? *Aquatic Conservation: Marine and Freshwater Ecosystems* 19: 736-747.  
Willette, D.A. and R.F. Ambrose. 2009. The distribution and expansion of the invasive seagrass *Halophila stipulacea* in Dominica, West Indies, with a preliminary report from St. Lucia. *Aquatic Botany* 91:137-142.  
Rothenberg, S.E., M.B. DeRose, C. Lin, M.E. Kirby, B.W. Bird, R.F. Ambrose and J.A. Jay. *In press*. The impact of over 100 years of wildfires on mercury levels and accumulation rates in two lakes in southern California, USA. *Environmental Geology*.  
Coffman, G.C., R.F. Ambrose and P.W. Rundel. Wildfire promotes dominance by the invasive Giant Reed (*Arundo donax*) in riparian ecosystems. *Biological Invasions*.

**Collins:**

- Associate Scientist, California Institute of Technology (2008 – present)
- Professor, Department of Environmental Health Sciences, Interdepartmental Program in Molecular Toxicology, Jonsson Cancer Center and Interdepartmental Program in Environmental Science and Engineering, School of Public Health, University of California at Los Angeles (2002 – present).
- Recent Awards:  
James G. Wilson Publication Award, Teratology Society (2008)  
Best paper in reproductive and developmental toxicology in *Toxicological Sciences*, Society of Toxicology (2008)
- Highlight grant: National Institute of Environmental Health Sciences (NIH)  
Murine strain sensitivity to cadmium teratogenesis  
Total direct costs: \$1,000,000  
Project Period 4/1/01 – 3/30/07

**Eckhart:**

- Current Grant:  
UC Toxic Substances, Research and Training Program, California NanoSystems Institute  
“UCLA and UCSB Lead Campus in Nanotoxicology”  
Funding \$1,250,000  
Project Period: 07/01/06 – 06/30/13
- Recent Publication:  
Henderson K, Stella SL Jr, Kobylewski S, Eckhart CD (2009) Receptor Activated Ca<sup>2+</sup> Release Is Inhibited by Boric Acid in Prostate Cancer Cells. *PLoS ONE* 4(6): e6009. doi:10.1371/journal.pone.0006009

**Froines:**

- Current Grants:  
-Director, Asthma and Outdoor Air Quality Consortium Advisory Board, SCAQMD. 2003 to present

-Director, The California Endowment, 6/1/09-5/31/11

Total costs \$383,820

-Primary Investigator, South Coast Air Quality Management District Toxicologic Pathways of Rail Yard Emission Exposure on Non-Cancer Health Impacts, 2009-2010

Total costs \$280,872

-Director, Sustainable Technology and Policy Program. 2009-present

-Chair, California Air Resources Board

Physicochemical and toxicological assessment of the semi-volatile and non-volatile fractions of PM from heavy and light-duty vehicles operating with and without emissions control technology.

Project period 01/01/06-12/31/09

Direct Costs: \$254,545

-US EPA Southern California Particle Center RD-83241301-0 (PI)

Project Period 10/1/99-9/30/11

Direct costs: \$18,365,579

- Recent publications:

Fanning E, Froines J, Utell M, Lippmann M, Oberdorster G, Frampton M, Godleski J, and Larson T. Particulate matter (PM) research centers (1999-2004) and the role of interdisciplinary center-based research. *Environ Health Perspect* **117**(2):167-74, 2009.

Krudysz M, Moore K, Geller M, Sioutas C, Froines J. Intra-community spatial variability of particulate matter size distributions in southern California/Los Angeles. *Atmospheric Chemistry and Physics Discussions* **9**:1-15, 2009.

#### Godwin:

- Associate Dean for Academic Programs for the UCLA School of Public Health
- coPI and Director of Education and Outreach for University of California Center for Environmental Implications of Nanotechnology, a new \$25M center funded by the National Science Foundation and Environmental Protection Agency.
- Engaged in collaborative research with faculty from the UCLA School of Law and the Sustainable Technology Policy Program that is funded by the Robert Wood Johnson Foundation and California's Department of Toxic Substances Control.
- coDirector of the UCLA Global Bio Lab for Infectious Disease Surveillance at UCLA (located in the California Nanosystems Institute).
- PI of Public Health Traineeship Grant from HRSA (\$186k in funds for AY2009-2010, including supplemental ARRA funds)
- Elected AAAS Fellow, 2009.
- Recent publication of note: "The University of California Center for the Environmental Implications of Nanotechnology" Godwin, H. A.; Chopra, K.; Bradley, K. A.; Cohen, Y.; Harthorn, B. H.; Hoek, E. M. V.; Holden, P.; Keller, A. A.; Lenihan, H.; Nesbit, R. ; Nel, A. E. *Environ. Sci. & Tech.*, 2009, *43* 6453-6457.

#### Hankinson:

- 16<sup>th</sup> International Conference on Cytochrome P450, Okinawa, Japan (Plenary Speaker), June 2009
- 18<sup>th</sup> International Symposium on Microsomes and Drug Oxidations, Beijing, China, May 2010
- 9<sup>th</sup> International Meeting of the Society for the Study of Xenobiotics, Istanbul Turkey, September 2010
- Recently Awarded Grants:

Carcinogen Activation and Screening in Variant Cells

5R01CA28868-25-29 (Hankinson) 12/01/05 – 3/31/10

NIH/NCI

Total Costs \$1,697,850

-Function and Regulation of Human Cytochrome P4502S1

1R01ES015384-01-05 (Hankinson) 09/28/06 - 07/31/11

NIH/NIEHS

Total Costs \$1,347,500

-Function and Regulation of Human Cytochrome P4502S1  
 1RO1ES015384-04-S1 (Hankinson) 09/25/09 - 07/31/11  
 NIH/NIEHS ARRA Competitive Revision  
 Total Costs \$462,000

-Training grant in "Molecular Toxicology"  
 5T32ES015457-01 (Hankinson) 07/01/08 – 06/30/13  
 NIH/NIEHS  
 Total Costs \$1,090,230

-UCLA Center for Biological Radioprotectors  
 U19 AI-67769 (McBride) 08/03/05 - 07/30/10  
 NIH/NIAID  
 Total Costs to Hankinson \$75,000 (3/10/07-3/9/09)

**Hinds:**

- Honors:
  - American Industrial Hygiene Association, Donald E. Cummings Memorial Award, June 2009.
  - American Association for Aerosol Research, David Sinclair Award, October 29, 2009.
- Recent Grants:
  - South Coast Air Quality Management District – Asthma Consortium, The Roles of Pollutant Components in the Development of Asthma 04/01/08 - 03/30/09. Total Direct Costs: \$47,485
  - NIOSH - Southern California NIOSH Education and Research Center, Project period 07/01/04 -06/30/09, costs: \$1,358,248/year  
 PI for entire center and for the following programs:
 

Industrial Hygiene Program	\$169,289/year
Pilot Project Research Training Program	\$106,974/year
Center Administration NIOSH ERC	\$82,269/year
  - California Air Resources Board "Cardiovascular Health Effects of Fine and Ultrafine Particle during Freeway Travel" 06/20/05– 01/31/10 \$640,674 (total)
  - California Wellness Foundation - Identifying and Preventing Workplace Injury and Illness of Service Workers in the Tourism Industry. 7/1/06-6/30/09 (\$80,000)
  - California Wellness Foundation - Occupational health and safety training for health care providers with low-income patients. (7/1/06-6/30/09) (\$80,000)
  - OSHA - Training small business owners to prepare for an Asian flu pandemic. (10/1/07-9/30/08) (\$259,796)
- Recent Publications:
  - Zhu, Y., Eiguren-Fernandez, A. Hinds, W.C., and Miguel, A. H., "In-Vehicle Exposure to Ultrafine Particles on Los Angeles Freeways," *Environ. Sci. & Technol.*, 41, 2138-2145 (2007).
  - Zhu, Y., Fung, D.C., Kennedy, N., Hinds, W.C., and Eiguren-Fernandez, A. "Measurements of Ultrafine Particle and Other Vehicular Pollutants inside a Mobile Exposure System on Los Angeles Freeways." *J. Air & Waste Mgmt. Assoc*, 58: 424-434 (2008).
  - Yifang Zhu, Qunfang Zhang, David C. Fung, Nola Kennedy, and William C Hinds, "Analysis of Factors Affecting Concentrations of Ultrafine Particles and Associated Pollutants on Freeways" submitted to *Atmospheric Environment*, February 24, 2009.

**Jackson:**

Certificate of Excellence in Teaching: UCLA SPH 2009;  
 Outstanding Teacher& Mentor: UC Berkeley SPH 2007  
 "Champion of Environmental Health" CDC 2003; Director NCEH, 1994-2003  
 Distinguished Executive for all of DHHS awarded by the President 2004  
 Former California State Public Health Officer 2005-5  
 Coauthor: *Urban Sprawl and Public Health* 2003  
 UCLA Oppenheim lecture – Institute for the Environment 2008

Lifetime Achievement Award: New Partners for Smart Growth  
 Hero's Award: Breast Cancer Fund 2006  
 Public Member: Board of Directors, American Institute of Architects  
 Chair: NAS/IOM Committee on Health Impact Assessment 2010  
 Member: NAS/IOM committee on Sustainability  
 Member: NAS/IOM Roundtable on Environmental Health  
*Agriculture Policy is Health Policy. Journal of Hunger & Environmental Nutrition, 2009*  
*Preparing the US Health Community for Climate Change, Reviews of Public Health 2008.*  
*Environment Shapes Health - Including Children's Mental Health, Journal of the American Academy of Child and Adolescent Psychiatry, 2008*  
 Host: PBS Special "Built Environment and Health - For Fall 2010

**Kennedy:**

- nominated for ASPH/Pfizer Award for Teaching Excellence, July 2009
- UCLA Public Health Student Association Teaching Assistant of the Year, 2000
- Publications:  
*Jennerjohn, N., Eiguren-Fernandez, A., Fung, D.C., Hirakawa, K.S., J.D., Hinds, W.C., Kennedy, N.J.: Design, Demonstration and Performance of a Versatile Electro-spray Aerosol Generator for Nanomaterial Research and Applications. submitted March 2009 to Nanotechnology, accepted with revision June 2009.*  
*Que Hee*

**Que Hee:**

- Recently Awarded Grants:  
 NIOSH/CDC                                   09/01/09-08/31/12  
*Whole Glove Permeation/Penetration of Organic Liquids with a Dextrous Robot Hand,*  
 Total Direct Costs:                   \$1,060,110
- EHS Admissions and Financial Aid Committee, 2002-2010;
- SPH Education, Policy and Curriculum Committee 2008-2010;
- Awards:
- Distinguished Professor, National Taiwan University, School of Public Health, Institute of Environmental Health;
- Best publication in industrial hygiene 2008 awarded in 2009 by the Michigan Industrial Hygiene Society for *A Moving Robotic Hand System for Whole-Glove Permeation and Penetration: Captan and Nitrile Gloves.* J. Occup. Environ. Hyg. 5(4) (April): 257-270, 2008. Robert Phalen (student) and Shane Que Hee
- American Industrial Hygiene Association, 2004 Critics Choice, 7<sup>th</sup> Annual AIHA Publications Award, 2005. For *Biological Monitoring: A Practical Field Manual*, edited by Shane Que Hee;
- The Biological Monitoring Committee Service Award in Recognition of Exemplary Contribution to the Committee and the BEELs Project Team, Biological Monitoring Committee, American Industrial Hygiene Association June, 2007;
- AIHA Outstanding Project Team Award as part of the Exposure Assessment and Safety Committee Dermal Project Team, June 2008.
- Recent Publications  
 Kennett, D.J., Kennett, J.P., West, A., Mercer, C., Que Hee, S.S., Bement, L., Bunch, T.E., Sellers, M., and Wolbach, W.S., "Nanodiamonds in the Younger Dryas Boundary Sediment Layer", Science 323: p94 , 2009.  
 Kennett, D.J., Kennett, J.P., West A., West,G.J., Bunch,T.E., Culleton B.J., Erlandson,J.M.,Que Hee, S.S., Johnson, J.R., Mercer,C., Shen, F., Sellers, M., Stafford, Jr.,T.W., Stich, A., Weaver, J.C., Wittke,J.H., and Wolbach, W.S., "Shock-synthesized Hexagonal Diamonds in Younger Dryas Boundary Sediments", Proc. Nat. Acad.Sci., 106:12623-12628, 2009

Xu, W. and Que Hee, S.S., "Permeation of a Metalworking Fluid Through a Latex Glove Under Field Use Conditions", *Bull. Environ. Contam. Toxicol.*, 84: 5-7, 2010

**Ritz:**

- Professor and the Vice Chair of the Department of Epidemiology at the UCLA School of Public Health with co-appointments in Environmental Health Sciences and Neurology at UCLA;
- Co-directs the UCLA Center for Gene-Environment Studies in Parkinson's disease (Centers for Neurodegenerative Sciences – CNS funded by NIEHS). She received funding from NIH for 1) a study of pesticide exposures in Parkinson's disease in California (NIEHS-R01); 2) a study of occupational exposures and gene-environment interactions in Parkinson's Disease in Denmark (NIEHS-R01); 3) a study to explore the effects of sunlight exposures and Vit D on Parkinson's disease (NIEHS-R03); 4) a study to identify environmental and genetic predictors of PD motor and non-Motor progression (U54 NINDS UDALL Parkinson's Disease center); 5) to assess the feasibility of a California Parkinson's Disease Registry (DoD); and 6) MJ Fox foundation funding to participate in two consortia collaborations to identify gene-environment interactions in PD.
- In 2009 she received an award from the American Parkinson's Disease Association for outstanding contributions to the medical and scientific communities and for her work towards the advancement of Parkinson's disease research.
- Continued her studies of air pollution and adverse birth outcomes and asthma in children in Southern California; her efforts and collaborations in this area were supported by funds from the NIEHS (RO1, R03, R21), the California Air Resources Board and EPA.
- In 2007, she received the Robert M. Zweig M.D. Memorial Award (Clean Air Award) from the South Coast Air Quality Management District (AQMD)
- In 2007 she was appointed as a Collegium Rammazini Fellow
- Since 2007 member of the WHO global burden of disease program working group for outdoor air pollution and adverse birth outcomes, the Environmental Exposures Working Group for the PhenX project of genome wide association research at NIH, the NAS/IOM Committee on Gulf War and Health Phase 4, and the U.S. EPA CO standard setting panel for (CASAC: Carbon Monoxide National Ambient Air Quality Standards)

**Robbins:**

- Head of Occupational and Environmental Health Nursing Program, part of the School of Public Health-based Southern California Education and Research Center
- Highlight grant award since last review:  
National Institute for Occupational Safety & Health (NIOSH)  
Director, Occupational & Environmental Health Nurse Training  
Program, Southern California ERC  
2001-2007      Total Direct Costs: \$2.4 million

**Rosenstock:**

**Schiestl:** *Associate Professor*

- Highlight Recent Publications/ Press release:  
1) Westbrook, M., W. Bo, J. Braun, and R.H. Schiestl (2009) *Intestinal mucosal inflammation leads to systemic genotoxicity in mice. **Cancer Res.** 69(11): 4827-34* (included in UCLA JCCC press release)  
2) Trouiller, B., P. Solaimani, A. Westbrook, R. Reliene, and R.H. Schiestl (2009); *TiO2 Nanoparticles Induce Genetic Instability and Oxidative Damage In Vivo in Mice, **Cancer Research*** (joint press release b/w UCLA JCCC and SPH)
- Awards: Jonsson Comprehensive Cancer Center, Helene Brown Award, 2006
- Highlighted grant award since last review:  
NASA Total Direct Costs: \$970,875 Project Period: 05/04/005 – 08/14/09  
*Effect of Space Radiation on degenerative tissue disease genetic instability and oxidative DNA damage in Ataxia Telangiectasia deficient mice.*



**Suffet:**

- Awards;  
Elected to the Hall of Fame Award of the International Activated Carbon Association – 2010  
Professorial Visiting Fellow, Water Research Center, School. of Civil and Environmental Engineering, Faculty of Engineering New South Wales University, Sydney, Australia 2009-2012  
Postdoctoral Research Associate – CIRSEE, Suez-Environmental Laboratories, Le Pecq, France. Air Pollution - NOZE – Air Pollution Nuisance Odor Project, 2006  
International Water Assn., Distinguished Service Award, Off-Flavors Group Award, 2005.  
Certificate of Merit for “Outstanding Material Content and Presentation” (Janel Grebel), American Chemical Society, Div. of Env. Chemistry, 2004.  
Golden Spigot Award, Distinguished Service Award, American Water Works Association, Water Quality Division, 2003  
A. P. Black Annual Research Award, American Water Works Association, 2002. “In recognition of research in the field of organic contaminants and taste and odor in water  
Standard Methods of Water and Wastewater - Am. Public Health Assoc., Am. Water Works Assoc. & Water Env. Assoc. Chairman of Joint Task Force - Flavor Profile Analysis - 18<sup>th</sup>- 20<sup>th</sup> Edition, 1992 - 2004.
- Recent Grants:  
California State Water Resources Control Board, Los Angeles Region.  
Co-PI M. Strnstrom, Dept. Civil and Env. Eng. “Determination of the Primary Source of Chlorinated Pesticides entering Echo and Peck Lake in Los Angeles, CA” 2007-2008, \$100,000  
MH3 Corporation via Fort Collins Colorado Water Department, Characterization of Dissolved Organic Matter in Colorado, Drinking Water Sources and Treatment Plants of the Upper Cache la Poudre, Horsetooth Reservoir and Associated Components of the Colorado-Big Thompson Project  
\$75,000 gift, Project Period 2007-2009

**Valentine: Associate Professor**

- Member, Canadian Water Network Expert Panel. Networks of Centers of Excellence Program

**Winer: Distinguished Professor**

- Awards:
  - Luskin Scholar 2009
  - Haaggen-Smit Award 2006
  - American Lung Association Clean Air Award 2004
  - Excellence, Coalition for Clean Air, 2004
  - ISI Highly Cited Researcher in Environmental Field, 2003
  - Carl Moyer Award for Scientific Leadership and Technical Excellence Coalition for Clean Air, 2004
- Highlight grant award since last review :
  - “Investigation and Characterization of Pollutant Concentrations and Gradients in the Ports, West and Downtown Areas of Los Angeles, CA Using an Instrumented Mobile Platform” CA EPA/ARB, Effective Dates: 09/20/05—6/30/2010  
Total Direct Costs: \$428,000  
\* 2007 Second-Class Prize of Scientific & Technology Awarded by Fujian Province, China (Dr. Lin Cai and Dr. Zhang) on selenium intake and esophageal cancer in Chinese Population
- Recent publications:  
Kozawa, K. H., S. A. Fruin and A. M. Winer, 2009. “Near-Road Air Pollution Impacts of Goods Movement in Communities Adjacent to the Ports of Los Angeles and Long Beach,” Atmospheric Environment, 43: 2960-2970.

Hu, S., S. A. Fruin, K. Kozawa, S. Mara, S. Paulson and A. M. Winer, 2009. "Characterization of Aircraft Emission Impacts in a Neighborhood Adjacent to a Local Airport in Southern California." *Environmental Science and Technology*, 43: 8039-8045.

**APPENDIX 2**  
**Sample responses from EHS alumni**  
**questionnaires**

## What are the strengths of the EHS program?

*"I liked the IH part of program. I thought some of the faculty were nice, but I wasn't too pleased with the EHS program, rather I was pleased with my IH department."*

*"The department is small, which makes it easier to get to know your professors, who are all very personable. You can feel that they want what is best for the students and that they work hard for us."*

*"It is an excellent program that works very closely with the students. The professors are interested and concerned and very helpful."*

*"Having taken the M.S. route, I was required to prepare a thesis. My thesis was based upon a USEPA-funded stormwater treatment study and required the collection of field data and analysis. Preparing the thesis required the application of scientific principles, taught in the classroom, to real problems. Dr. Mel Suffet was my advisor, and he was supportive, engaging, and nurturing through the entire process. In general, the faculty was amazing and the courses were informative, exciting, and relevant."*

*"Great professors and very informative courses. Lots of individual attention. Small class size and ability to work with other students. Very good scholarship and fellowship availability."*

*"The faculty is great, the program let me take classes outside the department and helped me meet faculty that matched my interests."*

*"I have to admit, I'm not well informed about the EHS program. I know John Froines and his toxicology work have been a cornerstone of the department for many, many years. Also, Dick Jackson is a highly respected environmental health scientist with extensive public experience. Froines and Jackson are definite strengths because it is critical to have scientists that have experience working with the public sector. Both of these scientists are well respected and well known in the public, which also is important. They get involved in related community issues and projects. Other faculty are also highly respected, but the department is relatively small in light of the importance of the department."*

*"Very high faculty to student ratio. Great ability to meet, collaborate, and share with other EHS faculty and students. I found faculty very will to share equipment, chemicals as well as time and knowledge with me. This was fundamental for me to complete my research. Departmental funding for students was very strong. This is a huge asset allowing students (especially PHD students) to focus more on their course work and research."*

*"The faculty and their research, I think, is the biggest strength. I really liked how the faculty were willing to talk to you. I also think the 200 A/B class was good. Small class sizes."*

*"I really liked the 200 series. The mix of topics is great. The professors are great."*

*"I felt that some of the strengths of the EHS program were the professors and their knowledge on the subjects there were lecturing on. I felt they understood the material and were easily approachable. Other strengths, particularly regarding the MPH program included how open the class schedule requirements were. I finished my required classes relatively quickly which freed up space for me to explore other departments within the School of Public Health. I also enjoyed the fact that most (if not all) bases of environmental problems were covered (air, water, toxicology) which allowed me to brief view into these fields."*

## EHS Alumni sample questionnaire responses, 2010

*"Please note that I was in the IH training program, so most of my answers will reflect my experience in this area. [Strengths]: availability of professors; small class sizes; commitment of professors to nurture individual student growth; professor expertise; good admin support system; EHS 200 series provided a good overview of the topics."*

*"The strength of the program came from the excellent faculties and research opportunities. Just to name one, Dr. Godwin was superb and most helpful in both of these areas. Not only was she able to understand what I was looking for in as a graduate student, she was also able to recommend courses that allowed me to have a focus in areas that I was interested in. In instances where she could not help/guide me, she able provided me with valuable student resources as an alternative option. Truly, she is an asset to the Department of EHS. Although not named, other faculties were just as helpful.*

*In addition, Dr. Jackson was actively involved with the student body. I can recall writing a graduation speech where after consulting with Dr. Jackson, I was able to overcome my writer's block and complete my speech exactly the way I want it."*

*"The small class sizes; the professors that I have approached for guidance (Godwin, Jackson and Froines) have been very supportive; Air Quality (my area of interest) is strong and has faculty who are leaders in their field."*

### **What are the weaknesses?**

*"I felt like the EHS program was a bit of a disappointment. I liked my program specifically, which was IH, however I felt like EHS as a whole suffered. The department rarely encouraged students interact with other departments, and as we were such as small group, it made it hard to meet people and extend our knowledge beyond the EHS focus. Also, the professors were not that interested in the students, unless the student was doing research for them. Even the EHS faculty seemed uninterested. There was nowhere where the students could study/hangout before or after classes other than the dingy library that was on the complete opposite side of the building. The program offices were very segregated and separated in the building; it never made sense to me why they were so separated."*

*"As much as I liked that the department is small, it may be too small. I worry because of the lack of classes offered in the EHS department. There was a lack of organization within admin sometimes, which was frustrating. Everyone was nice, but sometimes I felt like I was going in circles when I needed to address an issue. Also, organizing summer internships was difficult, from what I hear. I did an MS, so I didn't have to do one, but my peers had a hard time with that. But I guess they've addressed that problem, since now [the Internship Coordinator is] here. Yay!"*

*"Some of the courses were too easy because they included nursing students and therefore were made less technical. I would like to see the program better marketed so that more students would get IH degrees."*

*"The greatest weakness was the rigidness of the course requirements (core and specialty). There were certain courses that were not interesting or relevant to my goals."*

*"Separation of different specializations within EHS. For example, I had very little interaction with the Toxicology students. IH is a big component of EHS, but students pursuing other degrees than MPH are not given much attention."*

*"The program is not integrated with other departments enough and the students are not aware of/associated with the professors research interests."*

## EHS Alumni sample questionnaire responses, 2010

*"As an ESE alum, I never had a great deal of connection with the EHS program other than through Froines. I still don't have much of a connection with the program, but I have seen Jackson at numerous academic and public meetings on various environmental topics. I haven't been well informed on EHS curricula, student success and other issues other than through the numerous articles in the School of Public health publication. I don't have a good overview of the work that everyone is doing in the department or how the classes offered have changed since I was taking classes over 20 years ago. I'm well informed of the ESE program, but not much else. As for ESE, Rich Ambrose is as conscientious a director as you will ever find. Also, he's a strong scientist. Winer and Suffit are superb scientists with amazing records, but they are near retirement. ESE has strong graduates, a strong curriculum, and an approach that produces problem solvers. ESE is severely underfunded and understaffed which is a shame in a world where environmental health and sciences are becoming a more important part of university education, the ESE program is smaller than when I was a student in 1986. What a lost opportunity."*

*"Some courses (Like biostatistics) are not useful for most students who have a science-based undergraduate degree. I think it would be better to have a stats review going all the way through multivariate ANOVA simple linear regression in one 10 week course and then have another 10 week course going into more advance statistics. Some core courses I think could be more effective if they were update/reorganized."*

*"The classes aren't challenging enough. There are also not enough EHS electives offered. When I was in the program, the internship/400 field studies requirement was very weak. I was disappointed by this. It was really hard to find an internship that fitted what I was looking for, especially without any staff support. I didn't feel prepared for a job after graduation."*

*"Not much community and legislative involvement. I would have like to seen more social activism opportunities. However I think my lack of involvement is more reflective of me then of the opportunities."*

*"Some of the weaknesses were some of the required classes were not too informative. Overall, I was happy with the program. Some of the other SPH requirements were not specifically relevant to what I was interested in studying. The internship portion was a little difficult because it was the first year that EHS undertook this requirement. I had a difficult time finding places to apply to."*

*"EHS annual intake/class is small compared to HS, CHS and even Biostats. Makes it difficult to interact with other students, esp in IH program; would appreciate more classes that focused on current events and topics - but again, may be limited because of IH program; several classes used lecture materials that were clearly at least 10 years old, again updates may be appropriate; need more classes that promotes active learning as opposed to remembering and reciting concepts. This may require more "series" classes where first class is theory, followed by application of theory/concept; low emphasis on policy, few classes related to Env. policy."*

*"As a graduate student, I felt the only weakness was in the organization of the curriculum. Some of the courses were not up-to-date and I had trouble finding alternative courses to satisfy the requirements. Since then, Dr. Godwin and the Department of EHS have provided a complete program overhaul and from the sound of it, it is very impressive."*

*"The MPH program does not cover all aspects required to get my REHS; lacked exposure to emergency preparedness and food safety; there should be more collaborations with the rest of SPH; lack of community involvement."*

## What did you like/dislike?

*"I didn't enjoy how there was no room to add electives. I didn't enjoy how the program did not encourage students to explore the other facets of public health. I also wished the program were more social. I enjoyed the classes that allowed me to see other aspects of EHS as opposed to simply IH. I liked when we had parties but hated that we were always in the middle of the hallway or cramped inside the EHS office, which by the way we were kicked out of by Dr. Jackson. (Students were no longer allowed to congregate, use the IH computer, or gather in the office as we were allowed to before, hence my suggesting finding a nice room for students to do so. The graduate lounge in the basement is pathetic. It is in the BASEMENT! and dirty...plus the furniture is nasty...unappealing and impractical when all of our classes are on the 4th, 5th, or 6th floors.)"*

*"I liked the nurturing environment I was in. I liked the small class size. I liked the flexibility in my schedule/program to explore my interests and take a lot of classes outside of the department, or even outside the school of public health."*

*"I did not like that IH students got special treatment. I thought it was unfair that they had special privileges in the EHS office and their internships were set up for them. Well, maybe the internships were not set up for them, but they definitely had more guidance and support with getting the internships than everyone else. I also thought it was unfair that they received stipends while other students in EHS did not. Yes, their program is more specific and they had less flexibility in the classes that they took, but it just didn't seem right. Everyone knew their department had more money, and it was almost rubbed in all of our faces. Though that might be due to the students, so it wasn't really the dept at fault."*

*"I was also disappointed in the lack of classes in the EHS dept. I know Pendleton leaving was a huge blow to EHS, but the lack of policy classes is a weakness. I'd also like to see Ecotoxicology being taught. (These are also ESE comments)."*

*"I liked how small the department is."*

*"Like: faculty, friendly environment, overall experience. Dislike: lack of research requirement, many of the non-EHS required courses, lack of expansive career center."*

*"As a student, I enjoyed taking classes in the EHS department like environmental toxicology with Froines and Cho. Honestly, that was one of the best classes I ever took. I took environmental epidemiology (Haile), environmental management/economics (Davos) and a lot of ESE classes. That was about it during my time as a doctoral student. Also, I taught in the department for two quarters. It was a coastal pollution class about a decade ago. The department was not very helpful in promoting class enrollment. Honestly, I just don't have the connection and affinity for EHS that I should. I'm still well connected to ESE and now I spend most of my time at the University with the IoE. IoE's focus on working with the community to help solve environmental problems is very appealing to me. ESE has that approach as well. I haven't felt that way about EHS, but it may be because I'm not a toxicologist or industrial hygiene practitioner."*

*"I really liked my research experience and collaboration/relationships built with my cohort of students. I disliked the desks/chairs in the non-lecture hall rooms. They gave me muscle spasms in my back."*

*"I liked the faculty and the opportunities I got to TA classes in other departments like Chemistry and Biochemistry. I really liked my advisor, Curt Eckhert. He offered good advice and helped me with the 400 field studies requirement."*

*"I liked the faculty, I disliked not having a space for the students to gather at."*

*"I liked the flexibility of the schedule to explore electives. I also liked being able to take one class in many of the disparate fields that make up environmental health. I also liked that the schedule allowed time for me to also have a job that was related to this field ( I feel this is not particularly true of other students but it was for me). Again, finding an internship was tough and the one I ended up committing to was not one I was particularly interested in. However, it ended up being useful for other aspects of the public health field, such as policy work."*

*"I truly loved every part of my experience at UCLA and would not want to change it in any way. There are no dislikes on my part other than the cost of attendance and lack of available scholarships and grants."*

*"When I was looking for my MPH internship, my advisor (Godwin) was very helpful; small class size allowed for insightful discussions."*

### **How satisfied are you with your overall experience in the EHS Department?**

*"On a scale of 1-10...about a 4 for the EHS Department. For IH about a 7."*

*"I'm very satisfied. I've learned a lot, and I've met a lot of interesting people. This program has definitely opened more doors for me in terms of my career and my future. And if I hadn't done this program, I doubt I'd be in a doctoral program right now."*

*"Fantastic."*

*"Yes. In the end my goal was to gain a better understanding (scientific, political, etc.) about environmental issues, and to apply those principles as a working professional."*

*"Very satisfied."*

*"On a scale of 1-10 (10 being the best) I feel like my experience was a 7.5."*

*"Not very satisfied over all. I believe that the potential for the department has not been realized. Environmental health is such a critical societal need and UCLA should really be at the forefront in environmental health research (which IS strong), but there should be even greater public involvement and breadth on EH issues."*

*"Very Satisfied."*

*"Average. Based on my experience, I should have probably chosen to go to a different school or program. I didn't feel intellectually challenged in the MPH program. I would have liked a more rigorous course load."*

*"On a scale of 1-10, 10 being the highest I would rate my experience as a 9."*



## EHS Alumni sample questionnaire responses, 2010

*"Overall, I was very satisfied with my experience in the EHS department. My cohort was very knowledgeable and friendly. The classes were mostly taught by really great professors."*

*"I'm satisfied with the program, particularly the IH program. I feel that the skills (report writing, technical knowledge etc) I received in the program have certainly aided me up to this point in my career. The program offers the flexibility for students to choose which areas they are interested in and this ensures that students perform well and can develop their own interests."*

*"Overall, I am very satisfied. I would recommend this program and UCLA to anyone who is interested in the field of Public Health."*

*"Overall, I am satisfied with my experience in the EHS department. I enjoyed my time here and felt that my educational experience was worthwhile."*

### **Other comments?**

*"The fighting and tensions amongst faculty often played out for all the students to see/feel...I felt that this was a disappointment and needs to be handled privately. I also felt like there needed to be a greater attention paid to the current students so that we felt like we were wanted and appreciated by our faculty."*

*"Though I am satisfied with my experience in the EHS dept at UCLA, there is always room for improvement. I think it's good to get feedback from former students, and I really do hope this helps."*

*"I have kept in touch with certain students and faculty members. It would be great to catch up with others. A network (e.g. Facebook.com) would be helpful to maintain personal and professional relationships."*

*"Richard Ambrose is an excellent advisor and mentor."*

*"My best experience was working in Dr. Eckhert's lab. He also advised me to take some of the ACCESS classes, which were challenging, but I felt I learned a lot. I also enjoyed Health Services 100 and Biostatistics 100B. EHS 200A/B was also good."*

# **APPENDIX 2**

## **EHS Deleted Courses**

**EHS/Mol Tox Courses - Deleted in Spring 2009**

EHS 211	Science and Politics of Environmental Regulation: Coastal Pollution -- Sources and Solutions
EHS 230	Environmental Management
EHS 231	Environmental Decision Systems Analysis
EHS 232	Environmental Policy Decision Making
EHS 234	Critical Readings in Environmental Policy for Scientists and Engineers
EHS 243	Embryology and Teratology
EHS 244	Reproductive and Developmental Toxicology
EHS 259B	Occupational Ergonomics Laboratory
EHS 259E	Occupational Safety and Health Program Management
EHS 259F	Accident Investigation and System Safety
EHS 266	Nonpoint Pollutant Sources and Transport Phenomena
Mol Tox 242	Toxicodynamics

**REFERENCE 1**  
**2008 ES&E IDP Annual Report**

UCLA Interdepartmental Program in

**ENVIRONMENTAL SCIENCE & ENGINEERING**

*ANNUAL REPORT*  
2008-2009

School of Public Health  
University of California  
Los Angeles, California 90095-1772

September 2009

## Table of Contents

<b>SUMMARY .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>3</b>
Focus and Brief History of the IDP .....	3
Governance Structure.....	4
<b>TEACHING.....</b>	<b>5</b>
Core Faculty.....	5
Participating Interdepartmental Faculty: 2008-09 .....	6
Courses Taught .....	7
<i>Problems Courses</i> .....	<i>11</i>
Changes, Issues, and Problems .....	11
<b>STUDENTS .....</b>	<b>12</b>
Admissions Process .....	12
Student Enrollment .....	12
Internships.....	14
Graduating Students.....	14
Changes, Issues, and Problems .....	16
<b>FINANCIAL ISSUES .....</b>	<b>18</b>
Core Budget .....	18
ESE Endowment .....	18
Student Support.....	18
<i>Stipend Support in 2008-09</i> .....	<i>18</i>
<i>Research Salary Support in 2008-09</i> .....	<i>19</i>
<i>Fellowship Awards to ESE Students in 2008-2009</i> .....	<i>20</i>
Changes, Issues, and Problems .....	20

<b>ADMINISTRATIVE STRUCTURE AND SPACE .....</b>	<b>22</b>
Support Staffing.....	22
Location and Spatial Structure.....	23
Changes, Issues, and Problems .....	23
<b>OTHER ISSUES AND PROBLEMS .....</b>	<b>25</b>
Response to the 2004-05 Academic Senate Review.....	25
The Independence of the Interdepartmental Program.....	26
Conclusion .....	28
<b>APPENDIX A: CORE FACULTY ACTIVITIES .....</b>	<b>29</b>
Research Papers .....	29
Presentations .....	32
<b>APPENDIX B: HOST INSTITUTIONS FOR ESE INTERNS.....</b>	<b>35</b>
<b>APPENDIX C: CURRENT EMPLOYERS OF ESE GRADUATES .....</b>	<b>36</b>

## Summary

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The Environmental Science and Engineering (ESE) Program is an interdepartmental doctoral program that trains students to address complex, multi-disciplinary environmental challenges. The ESE Program's goal is to develop leaders in environmental problem-solving, and the accomplishments and roles of its graduates at the regional, state and national level attest to its success in achieving that goal. Given the extent and severity of environmental problems in the world today, the training provided by the ESE Program has never been more relevant or important.

The 2008-09 academic year was a period of continued achievement and recognition for the ESE Program. The Program's fundamentals remain strong, with active and engaged faculty and excellent students who are working on critical environmental problems. However, the Program is facing severe challenges that could threaten its continued viability. For example, the decline in core ESE faculty, essential to the Program's success, continues. The decline began at the end of the 2006-07 academic year, when core ESE faculty member Associate Professor Linwood Pendleton resigned his appointment at UCLA and the Dean of the School of Public Health (SPH) chose not to search for a replacement core ESE faculty member. In addition to Professor Pendleton's resignation, Professor Arthur Winer announced his intention to retire at the end of the 2009-10 academic year (in approximately 9 months).

Enrollment in the ESE Program remained about the same level as in 2007-08, with 26 enrolled students and the number of active students (including those on leave) in the mid-30s. Although the entering class for 2008-09, four students, is typical of recent entering classes, admissions are lower than they were from 2000-2004. Total enrollment began declining in 2003, from a total of 57 to about 30 doctoral students. This decline can be attributed to two main causes: (1) the reduction of continuing core ESE faculty from four to two, and (2) the increasing cost of financial packages for incoming students due to both increasing university fees and the imposition of a professional differential fee in 2006. For example, the cost of covering the SPH professional student differential fee (currently \$4,859 per year) for ESE students during their first two years is about \$40,000 per year in total, approximately the cost of financial support for two entering domestic students per year, or 6 students total to date.

The ESE Program continues to address issues raised during the 2004-05 Academic Senate review of the Program. During the past several years, various discussions occurred concerning the long-term sustainability of the ESE Program, and in particular the Program's relationship with the Institute of the Environment (IoE), as recommended by the Senate review. In October 2008, the ESE Interdepartmental Committee voted to initiate actions to transfer the Program from SPH into the IoE. In response, the Dean of SPH requested that the Director of ESE work with the Chair of Environmental Health



Sciences (EHS) to explore ways to keep the Program in SPH. The ESE Director has met with the EHS Chair several times this past year, but to date no action has occurred.

At the end of the 2008-09 academic year, the Dean of SPH reassigned 90% of ESE's space to other departments in the School. The School plans to have ESE become consolidated into existing EHS space. ESE students are to be housed in a single student room with EHS master's and doctoral students. At this point, it is unclear how ESE administration will be housed. There are also newly raised questions about the job responsibilities of ESE support staff that have not been resolved. The current staff position (the program administrator) has been assigned directly to the ESE Program for more than 20 years, but the SPH administration has proposed reassigning some portion of effort for supporting the EHS department.

Like most interdepartmental programs, the Environmental Science and Engineering Program has an administrative home within a department. However, as an *interdepartmental* program it serves a much broader audience than the host department; the active ESE faculty hold appointments in 12 different departments in six different schools. Moreover, as an interdepartmental program ESE's curriculum and policies are established by an Interdepartmental Committee (IDC). The independence of the ESE Program has been respected by the Dean of SPH and Chairs of EHS for most of the past 20 years. However, the current SPH and EHS administrations seem to have a different perspective on the proper role of ESE. In issues concerning the replacement of ESE core FTE, space, staffing, and leadership, the SPH and EHS administrations view the ESE Program in the context of the EHS department rather than as an independent academic unit with an academic position equivalent to that of a department. The ESE Program has had a long, mutually respectful, collaborative relationship with the EHS Department. ESE core faculty are active contributors to the EHS department. The ESE Program welcomes increased involvement of environmental health faculty and greater incorporation of health issues into the Program. However, the ESE Program is *not* an environmental health program. The ESE Program has a broader mandate to train students in all aspects of environmental science, engineering and policy. An *expansion* of ESE to include more faculty or activities would strengthen the Program, but a consolidation into Environmental Health Sciences would undermine ESE's mission, its obligations to other departmental participants, and its ability to train students to address the full range of environmental problems required by society.

The ESE Program is at a critical juncture. With the reduction of continuing core faculty and increasing costs of financial packages needed to recruit and retain students, the Program is unlikely to be able to return to the robust enrollment numbers it had six years ago. Furthermore, the dramatic loss of dedicated ESE space, the pending 50% reduction in core faculty, and uncertainties regarding staff support present significant threats to the independence and future of the ESE Program.

## Introduction

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### Focus and Brief History of the IDP

The Environmental Science and Engineering (ESE) Program is an interdepartmental program that trains students to solve environmental problems. The sole degree given is the Doctor of Environmental Science and Engineering (D.Env.). Two salient features include the broad multidisciplinary training and the fact that the degree is a professional doctorate, reflecting the intent that graduates of the program be environmental professionals. ESE students complete their dissertations while working at an outside host institution. The ESE Program's goal is to train leaders in environmental problem-solving, and the accomplishments of its graduates attest to its success in achieving that goal. ESE alumni previously have held or currently hold leadership positions in organizations such as Heal the Bay, the U.S. Army Corps of Engineers Regulatory Branch, the South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, the Sanitation Districts of Orange County, and the Santa Monica Bay Restoration Commission. In addition, a number of ESE graduates have taken faculty positions at leading universities, including the University of Southern California, University of Colorado, and University of Wisconsin, Madison.

Plans for the ESE Program were announced by Willard Libby (Nobel Laureate in Chemistry) in 1970. The ESE Program was established in 1973. The Program was initially administered under three deans: Letters and Science (with the Physical Sciences dean taking the lead), Engineering and Applied Sciences, and Public Health. Space was provided in Earth and Space Sciences, later also in Engineering and Chemistry. Administrative support was provided by the Institute of Geophysics and Planetary Physics (supplemented by contract and grant funds). Faculty FTE (3.5) were provided by the Chancellor's Office, Letters and Science, and SEAS; hired faculty were adjunct rather than tenure-track.

In 1981, a special committee to the Graduate Council recommended the ESE Program be moved into the School of Public Health and the Chair of the ESE Program hold a tenure-track appointment in SPH. The ESE Program moved administratively into the School of Public Health in 1983, in the Division of Environmental and Occupational Health Sciences (later the Department of Environmental Health Sciences, its current home). Five faculty FTE were moved into SPH to support the ESE Program, as well as administrative staff and equipment. In 1984, a new Director of ESE was hired in SPH, followed by 2 tenure-track faculty.

The 1987-88 Academic Senate review of the ESE Program occurred as the Director and last tenure-track faculty member resigned from UCLA. The review identified areas of inadequate resources, including an inadequate number of core faculty and inadequate space for ESE students, and the program was placed on probation. In 1989, the Dean of SPH (Afifi) made a commitment to provide 1 additional FTE, for a total of 4 core faculty

FTE and a half-time Intern Supervisor, 2 staff FTE and adequate space dedicated to the ESE Program. All 4 core faculty were hired by 1992. The Graduate Council lifted suspension of enrollments to ESE in 1991.

With the additional resources provided by Dean Afifi, the ESE Program flourished, with the four core faculty and other faculty mentoring 40-50 doctoral students. The 1996-97 Academic Senate review found the ESE Program to be “an excellent program with no significant issues.” In 2001, the core faculty member in environmental policy (Duke) left UCLA; the Dean of SPH (Rosenstock) approved a replacement and a search was conducted for a new core faculty member. The new core faculty member in environmental policy (Pendleton) joined the ESE Program in 2004. The success of the Program continued through the 2004-05 Academic Senate review, which found the ESE Program to be “a rare example of a successfully functioning IDP that could well be used as a model for other such organizations on campus.”

The major concern expressed in the 2004-05 Academic Senate review was the maintenance of four core faculty, which was viewed as critical for the success of the Program. In 2007, the core faculty member in environmental policy (Pendleton) resigned. Despite a request from the ESE Program, Dean Rosenstock declined to replace position. Although the 2004-05 Senate review team was concerned about the retirement of the most senior core faculty members, the departure of Pendleton, the most recent faculty hire, underscored the validity of their concern about the maintenance of at least four core faculty. In 2009, core faculty member Winer announced his intention to retire at the end of the 2009-10 academic year. Dean Rosenstock has not committed to replacing that position.

In 2009, Dean Rosenstock reassigned 90% of the ESE space (which had housed the Program in the EHS Department for two decades) to other departments. ESE students, staff and faculty are to be consolidated into much smaller existing EHS space, but as of this time the details have not been finalized. Another issue that is currently unresolved is the job responsibilities of the ESE Program’s administrator, an MSO position. The ESE Director was informed that the ESE Program administrator was to be housed in the main EHS departmental office rather than adjacent to the ESE Director. Moreover, the ESE Director was informed that the ESE Program administrator’s duties were to be reassigned so they no longer pertain solely to ESE, but rather also involve EHS departmental activities. The ESE Program administrator has been assigned directly to the ESE Program for more than 20 years. No rationale for these changes has been provided to the ESE Program or the ESE Interdepartmental Committee. Currently, these issues are being discussed but have not been resolved.

### **Governance Structure**

Like all IDPs, the ESE Program is governed by an Interdepartmental Committee (IDC) appointed annually by the Graduate Division. The ESE IDC for 2008-09 (Table 1) includes faculty from nine different departments in five different schools. The IDC

generally meets twice per year, in fall and spring, although special IDC meetings are called when circumstances warrant. The ESE student representative, the Program administrator, and the intern supervisor also attend IDC meetings.

Although the IDC deals with larger policy and guidance issues, the core faculty meet frequently (typically every 3 weeks) to discuss student issues and other matters concerning the Program. The ESE student representative (elected each year by the first-year class to serve during his/her second year) attends every faculty meeting. The core faculty also serve as a “committee of the whole” in reviewing applications to the ESE Program and making admissions (and financial support) decisions. Decision-making in faculty meetings is collaborative, with ample opportunity for all faculty to express their opinions and decisions made by consensus as much as possible.

**Table 1. Interdepartmental Committee: 2008-09.**

Richard Ambrose, Chair	Professor	Environmental Health Sciences/ESE
Ann Carlson	Professor	Law
Randal Crane	Professor	Urban Planning
Thomas Gillespie	Associate Professor	Geography
Malcolm Gordon	Professor	Ecology and Evolutionary Biology
William Hinds	Professor	Environmental Health Sciences
Matthew Kahn	Professor	Institute of the Environment
Vasilios Manousiouthakis	Professor	Chemical and Biomolec.Engineering
Michael Stenstrom	Professor	Civil and Environmental Engineering
Irwin Suffet	Professor	Environmental Health Sciences/ESE
Richard Turco	Professor	Atmospheric and Oceanic Sciences
Arthur Winer	Professor	Environmental Health Sciences/ESE

## Teaching

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### Core Faculty

There are currently three core ESE faculty (Table 2), all holding appointments in the department of Environmental Health Sciences in the School of Public Health. Professor Ambrose has been Director of the ESE Program and Chair of the Interdepartmental Committee since 1998.

Although the ESE Program previously had four core faculty members, Professor Pendleton resigned from UCLA in 2007 and his position was not replaced. Professor Pendleton had an adjunct position in the EHS Department and continues to mentor some

ESE students. Professor Winer has announced his intention to retire at the end of 2009-10 academic year and is no longer accepting new ESE or EHS students.

**Table 2. Core faculty for the Environmental Science and Engineering Program.**

Name	Title	Department affiliation	Areas of specialization
Richard F. Ambrose	Professor, Director and Chair	Environmental Health Sciences	environmental biology
Irwin H. Suffet	Professor	Environmental Health Sciences	water quality
Arthur M. Winer	Professor	Environmental Health Sciences	air quality

### Participating Interdepartmental Faculty: 2008-09

There are 26 faculty listed as active in the ESE Program, including the three core faculty (Table 3). The active faculty represent 12 different departments in six different schools.

The affiliated faculty participate in the ESE Program by offering classes taken by ESE students, serving on ESE doctoral committees, sometimes offering Problems Courses for second-year ESE students, and advising (or co-advising) ESE students.

**Table 3. List of active faculty participants in the ESE Program (“inside list”).**

Name	Title	Department	Areas of Specialization
Richard F. Ambrose	Professor	Environmental Health Sciences/ESE	environmental biology
Ann Carlson	Professor	Law	environmental law
Yoram Cohen	Professor	Chemical Engineering	environmental engineering
Michael Collins	Professor	Environmental Health Sciences	environmental toxicology
Randall Crane	Professor	Urban Planning	environmental policy
William Cumberland	Professor	Biostatistics	statistics
Magali Delmas	Associate Professor	Institute of the Environment	business and the environment
J.R. DeShazo	Associate Professor	Policy Studies	environmental economics
Curtis Eckhert	Professor	Environmental Health	environmental health

Peggy Fong	Associate Professor	Sciences Ecology and Evolutionary Biology	ecology
John Froines	Professor	Environmental Health Sciences	environmental health
Thomas Gillespie	Associate Professor	Geography	geography
Malcolm Gordon	Professor	Ecology and Evolutionary Biology	environmental biology
William Hinds	Professor	Environmental Health Sciences	air quality
Terri Hogue	Associate Professor	Civil and Environmental Engineering	environmental engineering
Jenny Jay	Associate Professor	Civil and Environmental Engineering	environmental microbiology
Matthew Kahn	Professor	Institute of the Environment	environmental economics
Paul Ong	Professor	Urban Planning	environmental policy
Suzanne Paulson	Professor	Atmospheric and Oceanic Sciences	atmospheric sciences
Shane Que Hee	Professor	Environmental Health Sciences	environmental chemistry
Beate Ritz	Associate Professor	Epidemiology	environmental epidemiology
Michael Stenstrom	Professor	Civil and Environmental Engineering	environmental engineering
Irwin Suffet	Professor	Environmental Health Sciences/ESE	water quality
Stanley Trimble	Professor	Geography	hydrology
Richard Turco	Professor	Atmospheric and Oceanic Sciences	atmospheric sciences
Arthur Winer	Professor	Environmental Health Sciences/ESE	air quality

### Courses Taught

There were 24 courses offered by ESE core faculty in 2008-09 (Table 4). These courses included three ESE core courses (EHS 212, EHS C225 and EHS C264), one required course (ESE M412), and ESE Problems Courses (ESE 400 series) and Problems Course Workshop (ESE 410 series). The courses taught by ESE core faculty are listed below.

**Table 4. Courses taught by ESE core faculty in 2008-09.**

Course	Instructor	Instructor status	Enrollment	Quarter offered
Coastal Ecological Problems EHS 296A	Ambrose	Professor, core ESE faculty	3	F08
Atmospheric Pollution EHS 296M	Winer	Professor, core ESE faculty	3	F08
Problems Course workshop ESE 410A	Suffet	Professor, core ESE faculty	4	F08
ESE Problems Course ESE 400A	Ambrose	Professor, core ESE faculty	2	F08
ESE Problems Course ESE 400A	Suffet	Professor, core ESE faculty	2	F08
Effective Technical Writing ESE M412	Winer	Professor, core ESE faculty	4	F08
Dissertation Research EHS 599	Ambrose	Professor, core ESE faculty	12	F08
Dissertation Research EHS 599	Pendleton	Assoc Prof, core ESE faculty	1	F08
Dissertation Research EHS 599	Suffet	Professor, core ESE faculty	5	F08
Atmospheric Transformations EHS C225	Winer	Professor, core ESE faculty	10	W09
Applied Ecology EHS 212	Ambrose	Professor, core ESE faculty	10	W09
Problems Course Workshop ESE 410B	Winer	Professor, core ESE faculty	4	W09
ESE Problems Course ESE 400B	Ambrose	Professor, core ESE faculty	2	W09
ESE Problems Course ESE 400B	Suffet	Professor, core ESE faculty	2	W09
Dissertation Research EHS 599	Ambrose	Professor, core ESE faculty	12	W09
Dissertation Research EHS 599	Pendleton	Associate Professor	1	W09
Dissertation Research EHS 599	Suffet	Professor, core ESE faculty	3	W09
Fate of Chemicals in Aquatic Environment EHS C264	Suffet	Professor, core ESE faculty	15	S09
ESE Problems Course ESE 400C	Ambrose	Professor, core ESE faculty	2	S09
ESE Problems Course	Suffet	Professor, core	2	S09

ESE 400C		ESE faculty		
Dissertation Research EHS 599	Ambrose	Professor, core ESE faculty	9	S09
Dissertation Research EHS 599	Pendleton	Assoc Prof, core ESE faculty	1	S09
Dissertation Research EHS 599	Suffet	Professor, core ESE faculty	3	S09

In addition to the courses offered by the core ESE faculty, in 2008-09 ESE students took 33 courses taught by 27 different faculty from 13 different departments (Table 5). In addition, ESE and other students took one course offered as an ESE course by an affiliated ESE faculty member.

**Table 5. Other courses taken by ESE students during 2008-09.**

Course	Instructor	Instructor status	Enrollment	Quarter offered
Introduction to Hydrology C&EE 150	Margulis	Assoc Prof	7	F08
Toxic Reduction Seminar C&EE 259	Stenstrom	Professor, Affiliated faculty	13	F08
Urbanization of Developing World UP 235A	Commins	Lecturer	30	F08
Eng Econ of Water and Related Natural Resources C&EE 252	Kendall	Assoc Adj Prof	8	F08
Physical Oceanography AOS 103	Baschek	Assistant Professor	14	F08
Water & Wastewater Treat. C&EE 155	Guillen		9	F08
Env Econmic and Policy ENV 160	Kahn	Professor, Affiliated faculty	7	F08
Env Aquatic Inorganic Chemistry C&EE 254A	Jay	Asst Professor, Affiliated faculty	3	F08
Intro to Atmospheric Chem AOS 203A	Paulson	Professor, Affiliated faculty	7	F08
Intro to Env Engineering C&EE 153	Stolzenbach	Professor, Affiliated faculty	15	F08
GIS Geog 169	Smith		30	F08
Intro to Dyn Earth Sciences AOS 200B	Deutch	Associate Professor	15	F08



Spatial Statistics Urban PlanningM215	Schoenberg		15	F08
Leaders in Sustainability ESE 277	Corbett	Professor, Affiliated faculty	65	W09
Physics of Env Transport CEE 263A	Stolzenbach	Professoor, Affiliated faculty	10	W09
Environmental Law UP 264A	Carlson	Professor, Affiliated faculty	67	W09
Env Economics ENV 134	Kahn	Professor, Affiliated faculty	69	W09
Business and Environment ENV 134	Delmas	Professor, Affiliated faculty	33	W09
Topics in Env Engineering C&EE 259A	Jay	Assist Professor, Affiliated faculty	38	W09
Sustainable Architect UP M291	Bardacke		26	W09
Humid Tropics GEOG 113	Gillespie	Professor, Affiliated faculty	156	W09
Fundamental Toxicology EHS 240	Collins	Professor, Affiliated faculty	14	S09
Coastal Geomorphology GEOG 101	Orme	Professor	92	S09
Geo Environmental Engineer. C&EE 226	Somasundaram	Lecturer	12	S09
Topics in Environ.Engin. C&EE 259	Hoek	Assistant Professor	36	S09
Membrane Separation-Aquatic Systems C&EE 258A	Hoek	Assistant Professor	13	S09
Env Nanotech ENG 103	Hoek	Assistant Professor	16	S09
Airborne Particles EHS 252D	Hinds	Professor, Affiliated faculty	4	S09
Applied Geostatistics Statistics C273	Christou	Lecturer	19	S09
Directed Individual Research AOS 596	Paulson	Professor, Affiliated faculty	30	S09
Special Topics in Management MGMT 298D	Allen		16	S09
Environmental Politics and Government UP 260	Pincetl		7	S09

### Problems Courses

As a culmination of ESE students' on-campus experience, each student enrolls in a Problems Course. Problems Courses focus on a directed research problem concerning an applied environmental problem. Students are closely mentored during the Problems Course. Although some Problems Courses are conducted with teams of students and some have multiple instructors, most Problems Courses consist of a single student and a single instructor. Problems Courses typically last at least 12 months, beginning in the summer after the student's first year and continuing until the end of the following academic year. Problems Course students receive a stipend, usually from a research grant obtained by the instructor. The usual cost for a Problems Course is \$30,000 per student per year (not including research expenses or indirect costs). The ESE core faculty, with occasional help from associated faculty, have fulfilled this obligation for every student that reaches this status.

Four students enrolled in Problems Courses in 2008-09 (Table 6).

**Table 6. ESE Problems Courses offered in 2008-09. (Funded by Instructor listed)**

Student	Instructor	Problems Course Title
Steve Estes	Ambrose	"Dynamics of Fecal Indicator Bacteria Concentrations in Two California Coastal Wetlands"
Cynthia Ha	Suffet	"Characterization of Dissolved Organic Matter in Colorado Drinking Water Sources and Treatment Plant using Fluorescence Spectroscopy"
Glenn Sias	Ambrose	"Impacts of Stormwater Discharges and Urban Runoff into Rocky Intertidal Habitats"
Victor Vasquez	Suffet	"Development of PCB and Chlorinated Pesticide TMDLs at Three Los Angeles County Lakes"

### **Changes, Issues, and Problems**

There have been no substantive changes in teaching in the past year.

The 2008-09 academic year was the first time there were substantial numbers of undergraduates from the Environmental Science major enrolled in ESE core courses, specifically EHS 225 and EHS 264. This required some adjustment to the instruction and, in particular, the policies for ensuring that enrolled students were qualified to take the courses.

The ESE Program continues to explore ways to involve more of its active faculty as mentors for Problems Courses. Non-core faculty, particularly in Civil and Environmental Engineering, have consistently offered Problems Courses through the years, but at a low level. One obstacle is the need to provide a stipend for Problems Course students, currently \$1300/month during the academic year, \$2600/month in the summer, plus fee remission, for a total of \$30,000 per student without research expenses or indirect costs. Because of the intensity of the ESE curriculum compared to a normal doctoral program, ESE students rely on these stipends for living expenses; however, this financial commitment limits the number of Problems Courses that are offered by non-core faculty. ESE core faculty work diligently to obtain funds for Problems Courses as part of their core responsibilities.

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## Students

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### Admissions Process

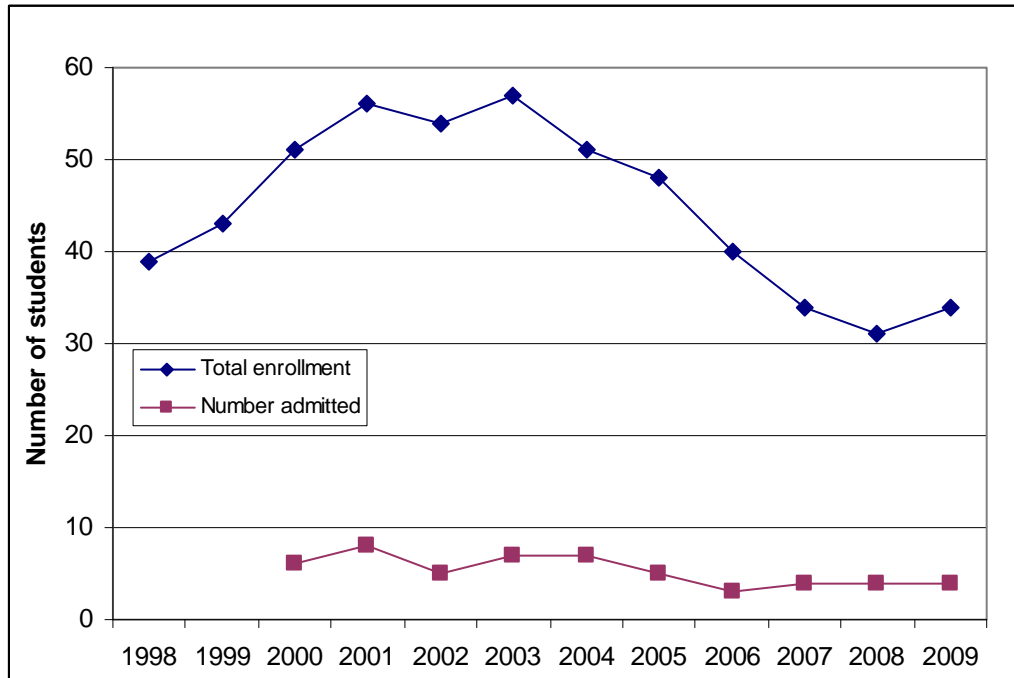
The core faculty (currently Ambrose, Suffet and Winer) serve as a “committee of the whole” in reviewing applications to the ESE Program and making admissions (and financial support) decisions. Applications are initially processed through the School of Public Health Student Affairs Office, and then forwarded to the ESE Program for review. After careful review by the core faculty individually, the faculty meet to discuss the applications and make admission decisions. Although most applications are reviewed only by the core faculty, applications from students who might be of interest to non-core ESE faculty are distributed to them for review on an ad hoc basis.

Review by non-core ESE faculty has been somewhat challenging logistically because the faculty are distributed in different places across campus. The School of Public Health is supposed to be implementing an on-line application process for the 2010-11 academic year, and this will facilitate the distribution of more applications to non-core faculty. In this way, we plan to involve more faculty in the admissions process. Non-core faculty who agree to accept the responsibility of mentoring (and funding) the student’s Problems Course are more likely to influence the acceptance of a particular student, and thus could increase the total number of students admitted.

### Student Enrollment

Student enrollment over the past few years has been around 30 students (Figure 1). Prior to 2005, student enrollment was typically greater than 40 students, with a peak in 2003 of 57 students. During 2005-06, enrollment dropped to 33-36 students, and during 2007-08, enrollment was 26-27 students. There are several reasons for this recent decline. An unusually large number of students (six) graduated in Fall 2006, with a total of nine graduates for the academic year. The higher number of graduates was partially just stochastic variation, but it was also due to some students accelerating their progress to avoid paying the newly instituted School of Public Health professional fee (about \$4,859

per year). Enrollment this year is similar to last year, and with admissions comparable to past years (see below) and the number of core faculty remaining at three instead of four, it seems that 30 students is the expected enrollment for the near future. However, this situation may change with the coming retirement of Professor Winer, unless his position as core ESE faculty is replaced.



**Figure 1. Enrollment and admissions to the ESE Program since 1998.**

The Program offered admission to seven students for the 2008-09 academic year, with four students accepting the offer; this was a typical size for an entering class. The average GRE scores for the admitted students for 2007-08 were 749 Quantitative, 630 Verbal, and 4.9 Analytical. The average GRE scores for the students entering the Program in Fall 2008 were 778 Quantitative, 620 Verbal, and 5.0 Analytical.

For the 2009-10 academic year, the Program received 21 applications. We offered admission to five students. The average GRE scores for the admitted students for 2008-09 were 734 Quantitative, 554 Verbal, and 4.5 Analytical. Four students have accepted our offer of admission for Fall 2009. The average GRE scores for the students entering the Program in Fall 2009 were 725 Quantitative, 578 Verbal, and 4.9 Analytical.

At the end of the 2008-09 academic year, there were 26 continuing students in the ESE Program (Table 7). This total does not include a few students who were on leave of absence.

**Table 7. ESE student enrollment for 2008-09.**

	Fall 2008	Winter 2009	Spring 2009
New Students	4	0	0
Continuing Students	20	24	26
Total enrolled students	24	24	20*

\*Note: the total number of enrolled students is less than the number of continuing students because of leaves of absence and graduating students who were not enrolled that quarter.

### Internships

ESE students complete their dissertations while working at an “internship” at a host institution. ESE students begin their internships after completing their Problems Course. Internships are typically permanent career positions at relevant host institutions, including government agencies, non-profit organizations, private industry, and occasionally consulting companies. A list of host institutions for all current ESE interns is given in Appendix B: Host Institutions for ESE Interns.

Four ESE students conducted their Problems Courses in 2009. Three students (Estes, Ha and Vasquez) completed their Problems Courses in summer and have started their internships (Table 8). One student (Sias) has extended his Problems Course work; however, he has already made arrangements for his internship at Southern California Edison.

**Table 8. Host institutions for students beginning internships in 2009.**

Student	Advisor	Host Institution
Steve Estes	Ambrose	U.S. Army Corps of Engineers, Los Angeles
Cynthia Ha	Suffet	The Macao Water Supply Co., Ltd., Macao
Glenn Sias	Ambrose	Southern California Edison
Victor Vasquez	Suffet	California Water Resources Control Board

### Graduating Students

The Environmental Science and Engineering Program offers one degree, the Doctor of Environmental Science and Engineering (D.Env.).

In 2008-09, the ESE Program awarded seven D.Env. degrees. The graduating students, advisors, and dissertation titles are given in Table 9.

**Table 9. Graduating students, advisors and dissertation titles for 2008-09.**

Student Name	Advisor	Dissertation title
Matthew Buffleben	Richard F. Ambrose, Co-Chair, Stanley Trimble, Co-Chair	Assessment of Soil Creep Sediment Generation for Total Maximum Daily Load Development in a Northern Coastal California Watershed
Melissa Evanson	Richard F. Ambrose, Chair	Chinook Salmon Population Dynamics and Life History Strategies in the Squamish River Watershed, BC, Canada
Felicia Federico	Richard F. Ambrose, Co-Chair Terri Hogue, Co-Chair	Managing Hydromodification Impacts due to Urbanization through the Regulation of New Development and Re- development in California
Frederick Gerringer	Irwin Suffet, Chair	Relationships between Natural Organic Matter Characteristics, Reverse Osmosis Pretreatment and Membrane Performance
Kathleen Kozawa	Arthur M. Winer, Chair	Investigation of Pollution Concentrations and Pollution Concentration Gradients in Communities Adjacent to the Ports of Los Angeles and Long Beach Using a Mobile Monitoring Platform
F. Dane Westerdahl	William Hinds, Chair	Ultrafine Particles and Associated Pollutants on Roadways and in Community Air of Los Angeles California, Beijing China, and the Los Angeles International Airport
Xueying Wu	Irwin Suffet, Chair	Nitrification Control in Chloraminated Drinking Water

		Distribution Systems Using Chlorite Ion
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**Changes, Issues, and Problems**

Enrollment in the ESE Program has been declining since 2003. Initially, this decline was not unexpected because one of the core ESE faculty members (Professor Duke) left UCLA and there was a delay in bringing his replacement (Professor Pendleton) into the Program. However, since then there has been a continued decline, which can be attributed to two main factors: faculty staffing and finances. Financial issues will be discussed in more detail in the next section

As shown in Figure 2, the decline in the number of ESE students has been associated with changes in the number of active core faculty. In the late 1990s, student advising was split fairly evenly among the four core faculty. (Professor Winer, who had relatively few students in 1998, had a large number of students in the mid-1990s, when the total student body was around 50.) However, the departure of Professor Duke increased the advising load of the remaining three core faculty. Professor Pendleton began to pick up students after he arrived in 2003, but he left after only a few years at UCLA so he never took on many students. Finally, Professor Winer is retiring at the end of the 2009-10 academic year so he has taken fewer students in the past few years. Presently, the vast majority of students are advised by the two continuing core ESE faculty. Professors Ambrose and Suffet advise 38% and 26% of the current ESE students, respectively.

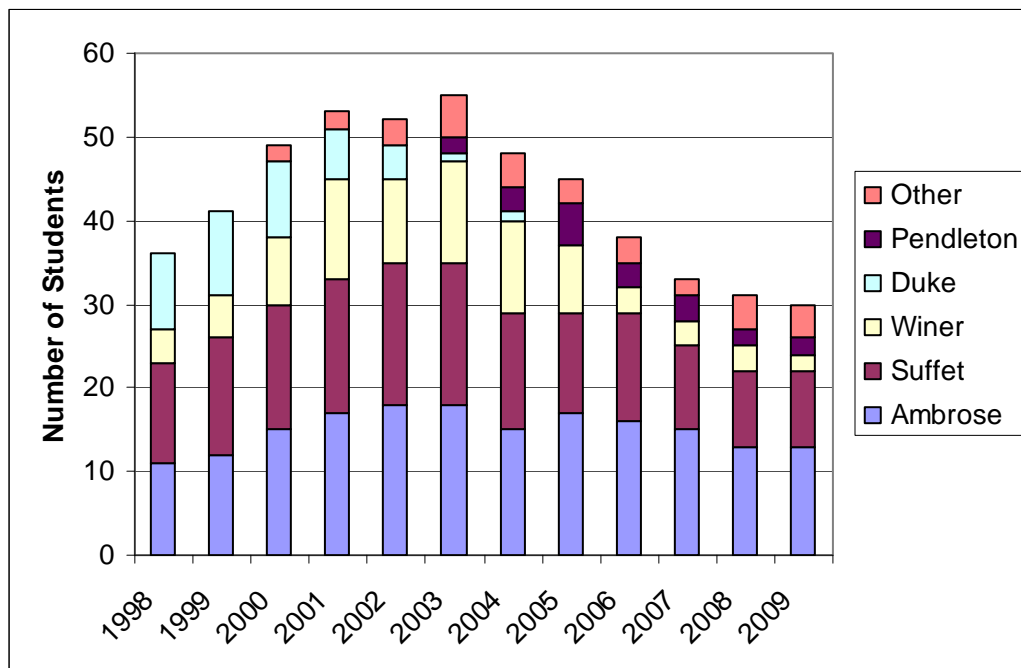


Figure 2. Number of ESE students advised by different faculty members since 1998.

The Program has worked to get more of its active faculty from other departments to chair doctoral committees. Although the proportion of other faculty chairing doctoral committees has increased, it still remains a small fraction of all ESE students. The involvement of non-core faculty in ESE student advising is somewhat larger than indicated in Figure 2. During this time period there have been eight students whose doctoral committees were co-chaired by core and non-core faculty, but in the figure they were assigned only to the core faculty to avoid double-counting. Since 1998 ten different non-core faculty have chaired or co-chaired 13 doctoral committees. Although this is a substantial involvement, it remains a relatively small fraction of the 93 doctoral committees constituted during that time period.

Note that, despite the decline in enrollment in ESE, ESE students still constitute a large proportion of the graduate students in the Department of Environmental Health Sciences: 77% of all doctoral students (30 of 39) and 48% of all students (master's and doctoral) in 2008-09 (Table 10). Moreover, the ESE core faculty advise a large fraction of all doctoral students in the EHS Department (44% of all doctoral students in the Department for Ambrose, 23% for Suffet and 5% for Winer).

**Table 10. Students in the Department of Environmental Health Sciences 2008-09.**

	PhD	MS	MPH	Total EHS	% of EHS students	ESE students	Total Doctoral	% of Total Doctoral	Total EHS+ESE	% of Total Students
Ambrose	4	3	1	8	24%	13	17	44%	21	33%
Suffet		1		1	3%	9	9	23%	10	16%
Hinds	1	2	1	4	12%	1	2	5%	5	8%
Kennedy	1		3	4	12%		1	3%	4	6%
Froines	2		1	3	9%		2	5%	3	5%
Que Hee		1	2	3	9%		0	0%	3	5%
Winer			1	1	3%	2	2	5%	3	5%
Eckhert			2	2	6%		0	0%	2	3%
Godwin		1	1	2	6%		0	0%	2	3%
Ritz			2	2	6%		0	0%	2	3%
Robbins		2		2	6%		0	0%	2	3%
Collins	1			1	3%		1	3%	1	2%
ESE faculty from other departments						5	5	13%	5	8%
<b>Total</b>	<b>9</b>	<b>10</b>	<b>14</b>	<b>33</b>		<b>30</b>	<b>39</b>		<b>63</b>	



## Financial Issues

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### Core Budget

The Environmental Science and Engineering Program does not receive an independent operating budget. The ESE Program budget comes from the Environmental Health Sciences department. The EHS Chair has traditionally provided a budget to ESE as a fraction of the total EHS operating budget, with the ESE portion allocated in proportion to the number of faculty or the number of students. The Program's operating budget for 2008-09 was \$7,500.

The ESE Program's operating expenses for 2008-09 were \$18,589. These expenses include the cost of supplies, such as printer and general office supplies, copier maintenance agreement, and Program telephone lines, for a total of \$10,414. The Program also has part-time secretarial support in the form of a work-study student, at a cost of \$4,195. Although not a direct ESE Program expense, faculty in the EHS department receive a budget to cover phone expenses, copying, etc.; ESE core faculty do not receive such an allotment because those funds go to the ESE Program operating budget. The cost of ESE core faculty telephone expenses was \$3,981.

Total expenses for the ESE Program was more than \$11,000 greater than the Program's operating budget for 2008-09. The ESE core faculty make up the difference between the Program's budget allocation and actual expenses by a self-imposed "tax."

### ESE Endowment

In 1990, ESE Director Arthur Winer established an endowment to support the ESE Program, and in particular to provide student support. Through contributions from foundations (notably a \$250,000 challenge grant from the Hewlett Foundation), corporations, alumni, and other individuals, the ESE Endowment has grown substantially. Although, like most investments, the Endowment has suffered from the current economic downturn so the current balance is considerably lower than its maximum value (>\$1 million), as of July 31, 2009 the Endowment balance was \$891,994.

Contributions to the Endowment totaled \$60,350 in 2008 and \$5,200 in 2009, for total contributions of \$65,550.

### Student Support

#### Stipend Support in 2008-09

Stipend support is largely devoted to supporting first-year students. In addition, the ESE generally provides non-resident tuition (for foreign students) and professional differential fees (for all students) during the student's second year.

The core funding for ESE student stipends comes in the form of unrestricted fellowship funds from the Graduate Division (Table 11). The Program's allocation from the Graduate Division in 2008-09 was \$77,094.

In addition to the Graduate Division allocation, the second major source of funds for student stipends is the proceeds from the ESE Endowment. The Endowment (which is administered as two funds) provided \$47,925 towards student stipends in 2008-09.

**Table 11. Student stipend support for 2008-09.**

Source	Students Supported	Total Support
Extramural Stipend Support		
ARCO (Atlantic Richfield Co.)	Valerie Chan	\$7,655.50
Intramural Stipend Support		
ESE Unrestricted Fellowships	Valerie Chan Meng Horng Hsu Un Sam Ha Nicholas Nairn-Birch Leila Lackey	\$77,094
Non-Resident Tuition	Un Sam Ha Meng-Horng Hsu Leila Lackey (1 quarter)	(included in unrestricted fellowships)
ESE Permanent Endowment	Stephen Estes Glen Sias Un Sam Ha Victor Vasquez	\$16,454
William and Flora Hewlett (ESE Endowment)	Valerie Chan Melissa Evanson Stephen Estes Nicholas Nairn-Birch Leila Lackey Un Sam Ha Meng Horn Hsu Glen Sias Victor Vasquez	\$31,471

#### Research Salary Support in 2008-09

Research salary support for ESE students is linked to the Problems Courses, typically taken in a student's second year at UCLA. In 2008-09, there were four Problems

Courses, one of which was self-funded (Table 12). In addition, one student had Endowment funds allocated for his internship.

**Table 12. Student research salary support in 2008-09.**

Student	Funding Source	Direct Funding (Amount*)
Stephen Estes	UC Marine Council/UC Riverside	\$27,669.50
Un Sam Ha	Various Donors (Suffet)	\$27,669.50
Calvin Kwan	ESE Endowment	\$30,934.46
Glenn Sias	Self Funded	NA
Victor Vasquez	LA Regional Water Quality Control Board	\$27,669.50

\*Note: Indirect costs and research supplies and equipment funding not included.

#### Fellowship Awards to ESE Students in 2008-2009

Two students won merit-based fellowship awards in 2008-09 (Table 13). Both of these fellowships were awarded by the School of Public Health.

**Table 13. Fellowship awards in 2008-09.**

Student Name	Fellowship	Amount
Leila Lackey	Raymond Goodman Scholarship	\$5,000
Kathleen Kozawa	Dean's Outstanding Student Award	\$1,000

#### **Changes, Issues, and Problems**

There have been no substantive changes in the Program's core budget or expenses since 2007-08. Faculty extramural support continues to be strong, and sufficient to cover the difference between the allocated budget and operating expenses.

The largest financial issue facing the ESE Program is the cost of student fees.

The basic fees for a graduate student at UCLA have doubled since 1998 (Table 14). However, fees for ESE students increased dramatically in 2005 with the imposition of the professional differential fee for professional students in the School of Public Health. Including the professional differential fee, the total fees for a resident ESE student have

tripled since 1998. Fees are now \$10,000 more per year for each student compared to 1998.

For non-resident students, total fees are slightly less than twice as much now as they were in 1998. Fees for non-resident students are now \$13,000 more per year for each student compared to 1998.

**Table 14. UCLA graduate student fees 1998-2009.**

	<b>Fees</b>	<b>Non-Resident Tuition</b>	<b>Professional Differential Fee</b>	<b>Total Fees - Resident</b>	<b>Total Fees - Non-resident</b>
1998-1999	\$4,595	\$9,384		\$4,595	\$13,979
1999-2000	\$4,405	\$9,804		\$4,405	\$14,209
2000-2001	\$4,504	\$10,244		\$4,504	\$14,748
2001-2002	\$4,550	\$10,704		\$4,550	\$15,254
2002-2003	\$4,684	\$11,132		\$4,684	\$15,816
2003-2004	\$6,318	\$12,245		\$6,318	\$18,563
2004-2005	\$7,469	\$14,694		\$7,469	\$22,163
2005-2006	\$8,110	\$12,245	\$4,000	\$12,110	\$24,355
2006-2007	\$8,286	\$12,245	\$4,000	\$12,286	\$24,531
2007-2008	\$8,968	\$12,245	\$4,284	\$13,252	\$25,497
2008-2009	\$9,670	\$12,245	\$4,541	\$14,211	\$26,456

The increase in student fees has had a substantial impact on the ESE Program's ability to support ESE students, and consequently limits the number of students the Program can accept. Because of the rigorous course work undertaken during their two years on campus, ESE students generally cannot work in teaching or research assistantships, as many graduate students do. Thus, the Program has found it necessary to offer financial support to students to enable them to enroll in the Program. Both because of the financial burden in the absence of financial support and because of competition from other graduate programs with more attractive financial support packages (such as California Institute of Technology, UC Berkeley, UC Davis, and Stanford), our experience has been that most students will not accept admission offers without a substantial financial support commitment from the Program.

When professional differential fees were imposed in 2006, the ESE Program warned that this would result in a decline in enrollment. Because professional differential fees cannot be paid from extramural funds, the Program must also pay these fees during students' Problems Course year, when other expenses (stipend and fee remission) are paid by Problems Course funds. With an entering class of four students, the professional differential fees cost the ESE Program about \$40,000 per year – enough to support two resident students if there were no differential fees.

Although the Program commits to covering the professional differential fee, students also have the possibility of receiving some financial aid from the School of Public Health to

cover a portion of the fee. This aid is need-based. The school returns roughly one-third of the fees it collects as financial aid. The ESE Program does not receive a proportionate share of the financial aid, however. For example, in 2008-09 ESE students received financial aid that constituted only about 22% of the fees paid.

One method the Program has used to try to mitigate the financial costs of a new student is to encourage students to provide their own support. For students with professional positions who want to continue working, part-time course work, in which the traditional first-year's courses are spread over two years, is encouraged. (If the student continues to work, the Program does not provide additional financial support.) The Program also encourages students to apply for internal and external fellowships. In previous years, the Chancellor's Fellowship was tremendously helpful for providing support during a student's critical first year; however, since that fellowship was re-structured, it has not been useful for supporting ESE students. When we have appropriate incoming students, the Cota Robles Fellowship continues to provide valuable support.

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## **Administrative Structure and Space**

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### **Support Staffing**

When the ESE Program moved into the School of Public Health in 1983, administrative staff were moved into the School as well as faculty to support the program. The number of staff has varied somewhat over the years. At the time of the 1987-88 review, there were three ESE staff: a financial manager, a secretary, and an administrator. The financial manager position was vacated at that time and not replaced. In 1993, the secretary position was eliminated in response to budget cuts. Since then, the sole university-supported ESE staff position has been the program administrator.

The Program has had secretarial support on and off since 1993, with funds provided from research grants. Currently, administrative assistance is provided by a work-study student, whose salary is paid by the ESE core faculty.

Since 1988, the Program administrator has been Myrna Gordon, whose job title is Management Services Officer.

The ESE Program has also had a half-time Intern Supervisor to provide assistance to ESE students during their internships. This support is especially important due to the unique structure of the ESE curriculum, where ESE students work at a host institution off campus while they are completing their dissertation work. Prior to 2009, the Intern Supervisor was an academic position. However, there have been some difficulties staffing this position appropriately, and one recommendation from the 2004-05 Academic Senate review was that this position be converted to a full-time position. After several years of discussion about how this could be done, an arrangement was made with the departments of Environmental Health Sciences and Epidemiology to combine resources

so one full-time person could be hired, 50% as intern supervisor for ESE, 25% as intern coordinator for EHS, and 25% as intern coordinator for Epidemiology. In making this arrangement, the intern supervisor position was converted from an academic position to a staff position (as Student Affairs Officer III). The position is currently in the process of being filled.

### **Location and Spatial Structure**

ESE space is located in the School of Public Health. As one outcome of the 1988 Academic Senate review, Dean Afifi increased the space allocated to the ESE Program for student use, administrative use, and core faculty offices (Table 15).

Nearly all of the space allocated to the ESE Program has been located in a contiguous block on the fourth floor of the SPH building. One student room has been on the sixth floor. This spatial arrangement has been advantageous because it facilitates close interaction among students, faculty and staff. The student space in particular has been critical for defining the ESE student experience – the development of close bonds with fellow students while tackling common problems.

As noted in the next section, ESE's situation with regards to space is changing dramatically.

### **Changes, Issues, and Problems**

As a result of space reassignments, mostly by the Dean of SPH, ESE is being moved out of 90% of the space it had been allocated. 80% of the original ESE student space is being reassigned, as is 100% of the ESE administrative space.

The ESE Program will be consolidating into space that is assigned to the EHS department, not to ESE. As of this writing, the Program's new locations have not been finalized. It was originally proposed that ESE move to an office suite on the fifth floor of the SPH building, adjacent to the EHS departmental office, but recent proposals indicate the ESE administrative offices would move to the fourth-floor ESE student room (which would eliminate that space for student use). The plan is for the ESE students to be housed in a single room with EHS master's and doctoral students. It is clear there will be a drastic net loss of space for the ESE Program, but the exact loss will not be known until our new space assignments are finalized.

**Table 15. Summary of ESE space and current disposition. Note: ESE core faculty also have laboratory space, and faculty offices for Professors Ambrose and Winer are not included in the table because they are incorporated into their labs, although the Director's office is included.**

Room	Function	Area (sq ft)	Disposition
46-070A	Pendleton office/ESE conference room	423	reassigned to Epi Winter 2009 reassigned to Prof. Valentine Winter 2009; reassigned by SPH Summer 2009
46-071B	ESE student office	106	
46-071	ESE student room	361	reassigned by SPH Summer 2009
46-071A	ESE Intern Supervisor office	131	reassigned by SPH Summer 2009
46-081	ESE main office	178	reassigned by SPH Summer 2009
46-081A	ESE MSO office	70	reassigned by SPH Summer 2009
46-081B	Suffet office	80	reassigned by SPH Summer 2009
46-081C	ESE Director's office	223	reassigned by SPH Summer 2009
46-078A	ESE student/visiting scholar/Taste and Odor room	126	reassigned to Prof. Valentine by EHS Summer 2009
61-279	ESE student room	320	reassigned by SPH Summer 2009
Subtotal reassigned		2018	
46-078	ESE computer room/collaborative work room	222	May be new location of administrative space
Subtotal remaining		222	
<b>Total original ESE space</b>		<b>2240</b>	
Percent reassigned		90%	

During summer 2009, the SPH administration raised the possibility of redefining the job responsibilities of the ESE Program administrator. The suggestion was that the job description would need to be rewritten so that more responsibilities were assigned to the EHS department. This would be a dramatic departure from the staffing arrangements of the past 20 years. The ESE Director has objected to this erosion of staff support for the ESE Program, and is currently in discussions about this decision.

It was also suggested by the SPH administration that the ESE Program administrator be moved into the EHS departmental office, with the ESE intern supervisor placed in the EHS/ESE student room. This would eliminate an "ESE office" since the Director, Program administrator and intern supervisor would be scattered in different offices. The ESE Director has also objected to this proposed spatial arrangement. Since the location of ESE staff is central to the function of the ESE Program, this is part of the current discussions about the location of the ESE Program after the move.

## Other Issues and Problems

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After nearly two decades of success beginning in 1989, the ESE Program is now faced with such a drastic reduction in key resources of faculty, staff and space that the continued success and, indeed, existence of the Program is threatened. As detailed in previous sections, the number of core ESE faculty, viewed by the last Academic Senate review team as critical to the success of the Program, has been diminished with little hope of recovery within the School of Public Health. The total number of students enrolled in the Program has been declining due to (1) fewer core faculty to advise them, and (2) increasing fees, including SPH's professional differential fee. Despite the ESE Program's success at raising its own endowment, the proceeds from the endowment now go to pay for the professional fees for a smaller number of students rather than allowing the Program to admit more students.

### Response to the 2004-05 Academic Senate Review

Although these problems have crystallized in only the past few years, they were anticipated by the 2004-05 Academic Senate review team. The relevant recommendations from the 2004-05 Academic Senate review are given below, along with the status of the response to each recommendation:

- *Recommendation 1. To the Administration, the Dean, and the IDP: That the chair of ESE, the dean of SPH, the director of the Institute for the Environment, and the executive dean of the College of Letters and Sciences pursue discussions as to how faculty FTE could be maintained and/or expanded in areas of common interest.*

The discussions recommended by the Senate review have taken place, but there has been little progress made to resolve the issue of sustainability of core ESE faculty FTE, much less expansion. The IoE has expressed interest in housing the ESE Program, either after being transferred from SPH or jointly administered with SPH. The Dean of SPH has opposed transferring the ESE Program to the IoE (see below, also). Shortly after the initial meeting between the parties mentioned in the recommendation, the Director of the IoE left UCLA; the new Director has just been appointed, so we expect continued discussions about this recommendation.

- *Recommendation 2. To the Dean: That all of the professional fee collected from ESE students be returned by SPH to the ESE program for allocation by the program's admissions and awards process.*

The Dean of SPH responded that she would not return professional fees paid by ESE students to the ESE Program. The Dean pointed out that she returns one-third of the fees as financial aid based on need, but as noted earlier ESE students have not been receiving aid in proportion to their fee payments.



- *Recommendation 3. That the ESE Program hire a full time career student affairs officer to take primary responsibility for the internship program.*

The recommendation was that a full-time intern supervisor be hired for the ESE Program, and the Dean of SPH would not provide additional funds for that. (The review team had suggested that half the funds come from core faculty research grants, but research funding cannot be used for administrative positions related to teaching. The ESE Director suggested that the additional funds could come from the professional fees, but the Dean did not accept that suggestion.) However, the Program has arranged with two departments in SPH (EHS and Epidemiology) to pool resources so a full-time student affairs officer can be hired, although only 50% of that person's time will be devoted to ESE.

Three years after the 2004-05 Senate review, little progress has been made implementing the recommendations from the review, particularly the key recommendation about maintaining or expanding the number of core ESE faculty. Because of concerns about the long-term sustainability of the ESE Program in the School of Public Health, the ESE IDC voted in Fall 2008 to begin actions to move the ESE Program out of the School of Public Health and into the Institute of the Environment<sup>1</sup>. When informed of this vote, the Dean of SPH expressed opposition to the Program leaving SPH and requested that the ESE Director work with the new Chair of EHS, Dick Jackson, to find ways for the Program to remain in the School. Although the EHS Chair and ESE Director had a number of meetings in 2008-09, no specific actions have been taken to improve the Program's prospects in the School.

With the recent decision to reassign ESE space to other departments, questions about the partial reassignment of the ESE Program administrator to EHS Department duties, and a lack of commitment to replace Dr. Winer's core faculty position when he retires, the ESE Program's future in the School of Public Health seems much more tenuous than was the case for the 2004-05 Academic Review.

### **The Independence of the Interdepartmental Program**

Like most interdepartmental programs, the Environmental Science and Engineering Program has an administrative home within a department. However, as an *interdepartmental* program it serves a much broader audience than the host school or department; the active ESE faculty hold appointments in 12 different departments in six different schools. Moreover, as an interdepartmental program ESE's curriculum and policies are established by an Interdepartmental Committee (IDC). Twelve faculty representing nine different departments serve on the ESE IDC.

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<sup>1</sup> The vote was 10 in favor, 1 opposed, with 2 absent.

UCLA's "Policies and Procedures for Administering Interdepartmental Degree Programs at UCLA" is clear about the independence of IDPs from departments, establishing their academic position as equivalent to that of departments. For example, the Policies and Procedures state:

Like academic departments, IDPs have important educational and administrative responsibilities. All academic functions carried out by departments and IDPs are subject to the policies and review mechanisms established by the Academic Senate. For example, IDPs are subject to the same program review procedures of the Graduate Council and CUCC as are departmental programs. Also, the Graduate Council is responsible for appointing IDP master's theses and doctoral dissertation committees (cf., *The Graduate Advisor's Manual*, p.46-47). The curricular matters of an IDP are under the supervision of a faculty committee. As in academic departments, the administrative responsibilities are assigned to the administrative head of the program, who is accountable to a Dean for all financial and administrative matters.

The independence of the ESE Program has been respected by the Dean of SPH and Chairs of EHS for most of the past 20 years. However, the current SPH and EHS administrations seem to have a different perspective on the proper role of ESE.

The current SPH administration seems disinclined to support the validity of the ESE Program as an independent academic unit. For example, when Professor Pendleton resigned his position, Dean Rosenstock would not recognize his FTE as an ESE FTE, and so declined to replace that core ESE position. For most administrative and financial purposes, the ESE Program has been considered part of the EHS department (a practice that pre-dates the current SPH administration). For example, in initial discussions about the possibility of reassigning some of the ESE Program Administrator's time to the EHS Department, Associate Dean Godwin stated that, because the funds were allocated to EHS and not to ESE, this decision was one that could be made solely by the EHS Department Chair, who could choose to inform the ESE Director "as a courtesy." In reassigning space to other departments, the vast majority of the space was dedicated ESE space and the SPH plan was to have ESE consolidated into existing EHS space. Even in matters of ESE leadership, the current SPH administration appears to favor a consolidation of ESE into EHS, with suggestions that the Chair of the EHS Department should become the Director and Chair of ESE.

The ESE Program has had a long, mutually respectful, collaborative relationship with the EHS Department. ESE core faculty are active contributors to the EHS department. Its core faculty teach EHS courses, mentor EHS students (in addition to ESE students; the three core ESE faculty mentored 30% of all non-ESE students in EHS in 2008-09), and participate in departmental committees at levels that are comparable to those of other departmental faculty, all in addition to fulfilling their responsibilities to the ESE Program. The ESE Program welcomes increased involvement of environmental health faculty

(besides the core faculty, five EHS faculty are already listed as active participants in ESE) and greater incorporation of health issues into the Program. However, the ESE Program is *not* an environmental health program. The ESE Program has a broader mandate to train students in all aspects of environmental science, engineering and policy. An *expansion* of ESE to include more faculty or activities would strengthen the Program, but a consolidation into Environmental Health Sciences would undermine ESE's mission, its obligations to other departmental participants, and its ability to train students to address the full range of environmental problems required by society.

### **Conclusion**

The current situation makes it clear that SPH and EHS are no longer the nurturing host academic units for the ESE Program that they were for most of the past 20 years.

The future of the ESE Program will remain a focus of the ESE Director, core faculty and IDC. The recent loss of resources (faculty, space and potential staff time) will be foremost on the IDC's agenda for 2009-10. The Program will also work with the Graduate Council, SPH administration and IoE Director and faculty on actions that could be taken to ensure the future of this highly successful IDP.

## Appendix A: Core Faculty Activities

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### Research Papers

#### Richard F. Ambrose

- Smith, J.R., P. Fong and R.F. Ambrose. 2008. The impacts of human visitation on mussel bed communities along the California coast: Are regulatory marine reserves effective in protecting these communities? *Environmental Management* 41: 599-612.
- Rothenberg, S.E., R.F. Ambrose and J.A. Jay. 2008. Evaluating the potential efficacy of mercury Total Maximum Daily Loads on aqueous methylmercury levels in four coastal watersheds. *Environmental Science and Technology* 42: 5400-5406.
- Rothenberg, S.E., R.F. Ambrose and J.A. Jay. 2008. Mercury cycling in surface water, pore water and sediments of Mugu Lagoon, CA., USA. *Environmental Pollution* 154: 32-45.
- Ambrose, R.F. and N. Diaz. 2008. Pre-spill Assessments of Coastal Habitat Resources. Volume 1: Development of Protocols. Volume 2: Quick Response Protocols. Report to the California Department of Fish and Game Office of Spill Prevention and Response.
- Smith, J.R., P. Fong and R.F. Ambrose. 2009. Spatial patterns in recruitment and growth of the mussel *Mytilus californianus* (Conrad) in southern and northern California, USA, two regions with differing oceanographic conditions. *Journal of Sea Research* 61: 165-173.
- Myers, M.R. and R.F. Ambrose. 2009. Differences in benthic cover inside and outside marine protected areas on the Great Barrier Reef: influence of protection or disturbance history? *Aquatic Conservation: Marine and Freshwater Ecosystems*. *In press*.
- Willette, D.A. and R.F. Ambrose. *In press*. The distribution and expansion of the invasive seagrass *Halophila stipulacea* in Dominica, West Indies, with a preliminary report from St. Lucia. *Aquatic Botany*.
- Rothenberg, S.E., M.B. DeRose, C. Lin, M.E. Kirby, B.W. Bird, R.F. Ambrose and J.A. Jay. *In press*. The impact of over 100 years of wildfires on mercury levels and accumulation rates in two lakes in southern California, USA. *Environmental Geology*.

#### Irwin H. Suffet

- Chen, W. R., Wu, C., Elovitz, M. S., Linden K. G and Suffet, I. H. (Mel). 2008. Ozonation and Ozone/hydrogen Peroxide of Thiocarbamate and Urea Herbicides, Triazines and Benzenes on EPA Drinking Water Contaminant Candidate List, *Water Research*, 42(1) 132-144.

- Augustenborg, C. A., Carton, O.T., Schulte, R.P.O., and Suffet, I.H. (Mel). 2008. Response of Silage Yield to Land Application of Out-Wintering Pad Effluent in Ireland, *Agricultural Water Management*, 95, 367-374.
- Augustenborg, C. Carton, Schulte, R.P.O. and Suffet, I. H. (Mel). 2008. Degradation of Forestry Timber Residue Over One Growing Season Following Application to Grassland in Ireland, *Journal of Sustainable Agriculture*, 31(4),171-163.
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### **Arthur M. Winer**

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## **Presentations**

### **Richard F. Ambrose**

Contributed paper, “Regional comparisons and decadal changes in mussel populations (*Mytilus californianus*) and mussel bed community diversity along the California coast.” J.R. Smith (presenter), R.F. Ambrose and P. Fong. Channel Islands Symposium, 2008.

Invited paper, “Establishing Goals for Restoration of Coastal Wetlands in Southern California Based on Historical and Contemporary Habitat Distributions.” R.F. Ambrose and T. Bear. Southern California Wetlands Recovery Project Annual Symposium, 2008.

Contributed paper, “Carpinteria Salt Marsh: Large Wetland, Long Creeks, Clean Water.” M. Myers (presenter) and R.F. Ambrose. Headwaters to Oceans (H2O) Conference, 2008.

Invited paper, “Using Historical Habitat Distributions when Planning for the Restoration of Coastal Wetlands in Southern California.” R.F. Ambrose and T. Bear. Headwaters to Oceans (H2O) Conference, 2008.

Poster presentation, “The Impact of 100 Years of Wildfires on Mercury (Hg) Accumulation in Two Lakes in Southern California, USA.” S.E. Rothenberg (presenter), M.E. Kirby, M.B. DeRose, B.W. Bird, C. Lin, R.F. Ambrose, J.A. Jay. American Geophysical Union Conference, 2008.

Contributed paper, “Attenuation of Fecal Indicator Bacteria and Human-Specific Bacteroides by a Natural Southern California Coastal Wetland.” M. Myers (presenter), R.F. Ambrose, T. Holden, B. Secru, and S. Estes. Coastal and Estuarine Research Federation Conference, 2009.

### **Irwin H. Suffet**

Presentation, I. H. Suffet, V. Decottignies, E. Senante, A. Bruchet, “Assessment and Characterization of Odor Nuisance Emissions During the Composting of Wastewater Sludges”, Water Environmental Federation/Odor and Air Emissions, Phoenix AZ April 2008.

Presentation, I. H. Suffet, “Assessment and Characterization of Odor Nuisance Emissions,” Air And Waste Management Association, West Coast Session, at South Coast Air Quality Management District, Diamond Head CA., June 10, 2008.

Presentation, J. Curren, S. Bush, Simon H, M. K. Stenstrom, S-L. Lau, and I. H. Suffet, “Compounds Identification of Sub-watershed Sources for Organic Pollutants in the Ballona Creek Watershed”, 12<sup>th</sup> International Conference on Integrated Diffuse Pollution Management (IWA DIPCON 2008) Khon Kaen University, Thailand, Aug. 25-29, 2008.

Program Committee, Presentation, M. Philibert, S. Bush, F. L. Rosario-Ortiz, and M. Suffet,” Advances in the Characterization of the Polarity of DOM Under Ambient Water Quality Conditions Using the Polarity Rapid Assessment Method, 4<sup>th</sup> International Specialty Conference on Natural Organic Matter: from Source to Tap”, Sept. 2-4, Bath, England. 2008.

Poster, V. Decottignies, E. Senante, A. Bruchet, I. H. Suffet, Mike Link, “Assessment Of Odor Emissions In Wastewater Treatment Plants to Help Define an Odor Control Management Plan” 2008.

Poster, I. H. Suffet, V. Decottignies, E. Senante, A. Bruchet, “Assessment and Characterization of Odor Emission During Sludge Drying Processing”

Presentation, I. H. Suffet, Gary Burlingame and Erin Mackey, “Controlling Taste and Odor Events for the City of Philadelphia USA: A Case Study” 2008.

Presentation, M. L. Tran, J. Bahng, S. Pankratz, and I. H. Suffet, “Transport of Nutrients and Eutrophication Control by an Urban Runoff Diversion System Protecting a Drinking Water Reservoir”, International Water Association - World Congress, Sept 7-12, 2008, Vienna, Austria.

Poster, A. D. Revchuk and I. Suffet, “Evaluation of the Quality Assurance of UF Separation for Humic Substances by Chemical Probes”

Poster, F. Rosario-Ortiz, F. Gerringer and I. Suffet “Application of a Novel Polarity Method for the Analysis of NOM During Water Treatment”. 15<sup>th</sup> International Humic Substances Society, Moscow On a Ship to St. Petersburg Sept 14-20,

Presentation, I. Suffet, V. Decottignies, A. Bruchet, M. Aupetitgendre, “Origin and Fate of Odour Emissions in Sludge Composting”.

Presentation, V. Decottignies, A. Bruchet, I. Suffet, M. Link, M. Aupetitgendre, “Dried Sludge Odours: Classification and Case Studies” International Specialty Conference on Odour and Volatile Organic Chemicals, Oct 8-10, Barcelona, Spain

Keynote Presentation: I.H. Suffet , V. Decottignies and A. Bruchet. "A New Method for Evaluation of Nuisance Odors from Waste Treatment Using Odor Panels Processes"

Poster, J. Curren, Z. Wang, J. Matud, E. Mackey & M. Suffet, “The Effect of Chlorine and Chloramine in Drinking Water on Earthy and Musty Odor Intensity”

Presentation, A.Bruchet, G. Filippi, V. Decottignies , I.H. (Mel) Suffet Use of Olfactory-GC/MS to Confirm dried Sludges Odorants



**Arthur M. Winer**

Invited Member, Steering Committee, 2008 Arrowhead Symposium, Planning meeting, Oakland, CA, March 31, 2008

Invited Briefing to Santa Monica/Malibu School District Administrators, Measuring Childrens Exposure on Diesel School Buses, Santa Monica, CA, April 8, 2008.

Invited Presentation to Southern California Planning Commissioners, Transportation-Related Air Quality Impacts, Los Angeles, CA, April 17, 2008

The Place Makes the Poison: Measuring Childrens Air Pollutant Exposure"  
Environmental Health Sciences Department Seminar, October, 2008

Invited Presentation to Southern California Planning Commissioners, "Transportation-Related Air Quality Impacts," Los Angeles, CA, April 16, 2009

"Mapping Air Pollution in West and Downtown Los Angeles with High Spatial and Temporal Resolution Using a Mobile Platform, Institute of the Environment, May, 2009

Invited Participant, 9th Annual Haagen Smit Symposium, Addressing the Missing Piece of California's Carbon Footprint: Non-Kyoto Pollutants, Asilomar, California, June 1-4, 2009.

## **Appendix B: Host Institutions for ESE Interns**

Student	Host Institution
Bear, Todd	Psomas Consultants
Buffleben, Matthew	North Coast Regional Water Quality Board
Curren, Jane	South Coast Air Quality Management District
Estes, Stephen	U.S. Army Corps of Engineers, Los Angeles
Evanson, Melissa	Golder Associates, Ltd.
Farrar, Cori	U.S. Army Corps of Engineers, Los Angeles
Federico, Felicia	GeoSyntec Consultants
Given, Suzan	Weston Solutions, Inc
Ha, Cynthia	Macau Water Works. Macau
Hensley, Amy	U.S. Environmental Protection Agency
Jensen, Stacey	U.S. Army Corps of Engineers, New York
Kwan, Calvin	Hong Kong University of Science and Technology
Michael, Jennifer	Chevron
Monarres, Laurie	U.S. Army Corps of Engineers, San Francisco
Nelsen, Chad	Surf Rider Foundation
Pankratz, Shannon	U.S. Army Corps of Engineers, Los Angeles
Pham, Tu-yet Le	South Coast Air Quality Management District
Philibert, Marc-Andre	Suez Environmental Cirsee Labs, Le Pecq, France
Revchuk, Alex	Water Quality and Treatment Solutions Consultants
Sias, Glenn	Southern California Edison
Keith Thomsen	BioContractors, Inc.
Vanderbilt, Forrest	U. S. Army Corps of Engineers, Los Angeles
Vasquez, Victor	Sacramento Regional Water Quality Control Board

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## Appendix C: Current Employers of ESE Graduates

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Aerojet General Corporation  
Aerospace Corporation  
Air Pollution Control District  
Air Resources Board  
Anchor Environmental  
ARCO Environment, Health & Safety  
Aspen Environmental Group  
Association of Bay Area Governments  
Automated Credit Exchange  
Bechtel Corporation  
Belt Collins, Hawaii  
Bowling Green State University/Environmental Health Program  
Boyle Engineering Corporation  
CAL EPA Region 3  
California Air Resources Board  
California Department of Water Resources  
California Department of Toxic Substances Control  
California Environmental Protection Agency  
California Regional Water Quality Control Board, Los Angeles and Central Valley  
California State Water Resources Control Board  
Capital Environment  
Carl Bro International  
Central European University  
Center of International Research for Water and Environment  
Centro de Ecologia UNAM  
CEPA/California Regional Water Quality Control Board/LA  
Cerritos College  
Chevron Texaco Energy Technology Co  
CH2M Hill  
City of Los Angeles/Department of Water & Power  
City of San Jose/Office of Environmental Management  
Clark University, Env Sci and Policy  
Creelman and Associates  
CTL Environmental Services  
David Moss & Associates  
Department of Aeronautics and Astronautics/Naval  
Department of Public Works, City of Downey  
Department of Civil & Env Engineering, Universidad de los Andes  
Department of Commerce  
Department of Toxic Substances Control  
Desert Research Institute

Edison International  
El Morro Institute  
Electric Power Research Institute  
EMKO Environmental  
Energy and Environment Directorate  
ENSER  
ENVIRON Corporation  
Environmental Financial Services  
Environmental Management Association, Inc.  
Environmental Science  
Environmental Science and Policy, Clark University  
Enviropro, Inc.  
EPA  
Eureka Laboratories, Inc.  
Exxon, USA  
Fairchild Semiconductor  
Florida Power and Light Company  
Flow Science, Inc.  
Gallagher Associates  
Geomatrix Consultants  
Georgia State University, Inst of Public Health, College of Health and Human Sciences  
Geosyntec Consultants  
GTE Hawaiian Telephone  
Hawaii State Department of Health  
Heal the Bay  
Hong Kong International Airport Authority  
Hong Kong University of Science & Technology  
ICF Kaiser  
Indian Institute of Technology, Humanities and Social Sciences Department  
International Coatings  
International Energy Initiative  
International Technology Application Office  
IT Corporation  
Jacobs Engineering Group  
Kern County Farm & Home Advisors  
Komae Research Laboratory, Japan  
L.A. Regional Water Quality Control Board  
Las Virgenes Municipal Water District  
Lawrence Berkeley Laboratory  
Lawrence Livermore National Laboratory LGS Turner & Associates, Ltd.  
Leson Environmental Consulting  
LG&E Power  
LGS Turner and Associates  
Library of Congress  
Lockheed Martin

Los Alamos National Laboratory  
Los Angeles County Metropolitan Transportation Agency  
Los Angeles County Sanitation District/Industrial Waste Section  
Los Angeles Regional Water Quality Control Board  
Malcolm Pirrie, Inc  
Mantech Environment Technical  
McGuire Environmental Consultants  
Meredith/Boli & Associates  
Metropolitan Water District of Southern California  
Minnesota Pollution Control Agency  
Montgomery Watson  
Naval Air Warfare Center, Weapons Division  
Naval Postgraduate School/Department of Aeronautics and Astronautics  
Oak Ridge National Laboratory/Energy Division  
Orange County Sanitation District  
Oregon Department of Environmental Quality  
P & D Consultants  
Peace Corps  
PCR  
Pollution Research and Technology, Inc.  
Radian Corporation  
Rand Corporation  
Reason Public Policy Institute  
Reef Check Foundation  
Rincon Consultants, Inc.  
Roy F. Weston, Inc.  
Sanitation Districts of Los Angeles County, Industrial Water Section  
Santa Barbara West Coast Air Pollution Control District  
Santa Monica Bay Restoration Commission  
SEMPRA Engineering  
Sierra Research  
Smithsonian Environmental Research Center  
Soma Inc.  
South Coast Air Quality Management District  
Southern California Coastal Water Research Project  
Southern California Edison Company  
Southern Nevada Water Authority  
State of California Department of Transportation  
State Water Resources Control Board  
TDML Grant  
Teagasc, Dublin Ireland  
Tellus Institute  
The International Energy Initiative  
TRW, Defense Sector/Systems Division and Space and Electronics Group  
Tulane University Center for Bioenvironmental Research

Tunghai University, Beijing, China  
U.S. Agency for International Development  
U.S. Army Corps of Engineers  
U.S. Department of Commerce/NOAA/Office of Legistive Affairs  
U.S. Environmental Protection Agency  
U.S. Environmental Protection Agency, Office of Toxic Substances  
U.S. Geological Survey  
USDA Forest Service  
University at Buffalo  
University of California, Los Angeles  
University of California, Irvine  
University of California, Lawrence Livermore Nat'l Laboratory  
University of California Sea Grant and Cooperative Extension  
University of Wisconsin, Madison  
URS Consultants, Inc.  
Walt Disney Imagineering  
Washington State Department of Ecology  
Waste Engineering, Inc.  
Waste & Water Engineering  
Winzler and Kelly, Consulting Engineers  
Woodward-Clyde Consultants

**REFERENCE 2**  
**2009 Molecular Toxicology**  
**IDP Self-Review**

## A. BACKGROUND

### 1. Status of Toxicology Research and Training at UCLA in 1999

In 1999 there were a number of outstanding toxicology researchers at UCLA. However, these investigators belonged to least eight different departments and four different schools/colleges, and despite their laboratories being in close proximity to one another, there were only limited interactions among them. Doctoral students who focused on toxicological problems were similarly dispersed in a number of departments and interdepartmental graduate programs. Recognizing that there were important toxicological problems facing California and the nation, but that the potential impact of toxicological research and training at UCLA was limited because of its lack of cohesion, in 1999, a number of faculty members, including Professors Collins, Froines and Hankinson, initiated several changes in order to enhance and expand toxicological research and training at UCLA. One endeavor involved an application to the University of California Toxic Substances Research and Teaching Program (UC TSR&TP) for a "Lead Campus" in "Toxic Mechanisms" (described below). In another important endeavor, the faculty applied to the University of California to establish an interdepartmental doctoral program in Molecular Toxicology (Molecular Toxicology IDP) at UCLA.

### 2. Origins and Governance of the Molecular Toxicology IDP

The application to the University of California for the establishment of this IDP was spearheaded by Professor Hankinson. In July, 2000, the IDP was approved by University of California President Richard Atkinson. Ours was the first molecular toxicology graduate program to be established in California.

The original sixteen faculty of the IDP came from eight departments. Common to all the investigators was an emphasis on the mechanisms whereby toxicants cause disease. For this reason, the program was named "Molecular Toxicology". Since 2000, four of the original faculty have left the program (retired or deceased), while fourteen new faculty members have joined, bringing the current number of faculty to twenty-six, and the number of departments in which the faculty have primary appointments to sixteen. All our faculty are located near each other at the south end of the UCLA campus.

The first Molecular Toxicology IDP students entered the program in the fall of 2001. In 2004 the Molecular Toxicology IDP was accepted into the UCLA ACCESS Program in the Molecular, Cellular and Integrative Life Sciences (described more fully later), which recruits students for twelve Ph.D. programs at UCLA. This development increased the potential pool of well-qualified applicants for the IDP. Our current goal is to admit about three predoctoral students per year.

The Molecular Toxicology IDP is governed by the Faculty Advisory Committee (FAC) of six persons. This committee consists of the Director who is appointed by the UCLA Graduate Division, two Associate Directors who are appointed by the Director (with the approval of the UCLA Graduate Division), and three faculty who are elected to three year terms by the IDP faculty. The Molecular Toxicology students elect a student representative each year, who attends the FAC meetings as a non-voting member. The FAC meets monthly. Minutes are generated for the meetings. Once per year there is a general meeting of all Molecular Toxicology IDP faculty, where plans to improve the program are discussed.

### 3. Research Emphasis of the Molecular Toxicology IDP

There is an overall emphasis on the mechanisms whereby environmental toxins cause disease. Much of the research of the faculty falls into the following four foci of interest and collaboration. (i) The asthma-enhancing and other deleterious effects of diesel exhaust particles and airborne particulate matter (PM). (ii) The molecular mechanisms of chemical carcinogenesis. (iii) The program also recently made a very exciting expansion into neurotoxicology, which has been actively pursued through the recent recruitment into the program of several UCLA faculty in this field. These faculty members, Drs Bronstein, Cheselet and Krantz, together with Drs Ritz



and Schiestl, are pursuing the role of environmental pollutants in the etiology of Parkinson's disease. (iv) Capitalizing on their experience with ambient air particles, several of our faculty have also turned their attention to toxicological studies on manufactured nanoparticles (i.e. nanotoxicology).

#### 4. The University of California Toxic Substances Research and Teaching Program Lead Campuses at UCLA

The UC TSR&TP is a state-funded "University of California Multicampus Research Unit supporting research on toxic substances in the environment and teaching of graduate students through funding of grants, fellowships, and lead campus programs". In 1999, Professor Oliver Hankinson spearheaded an application for a Lead Campus to the UC TSR&TP with the assistance of several Molecular Toxicology faculty at UCLA, and certain faculty from the University of California, Riverside, and the Los Alamos National Laboratory. Our Lead Campus proposal was selected for funding in June, 2000, at nearly the same time that the University of California approved the establishment of the Molecular Toxicology IDP. The Lead Campus was site-visited by the UC TSR&TP in 2003, received an "outstanding" evaluation, and was renewed for five more years, through June, 2008. The Lead Campus, which focused on "Toxic Mechanisms", consisted of a consortium of faculty members from three University of California campuses, and including the faculty members of the UCLA Molecular Toxicology IDP.

The Lead Campus grant in "Toxic Mechanisms" expired on 06/30/08 and could not be renewed. However, in 2005, Professor Andre Nel and Curtis Eckhart (members of the Molecular Toxicology faculty), with the assistance of number of faculty at UCLA and UC Santa Barbara, submitted an application for a new (fourth) UC TSR&TP Lead Campus in "Nanotoxicology." This Lead Campus program was funded for six years, from 07/01/06 to 06/30/12. This training grant provides pre-doctoral and postdoctoral traineeships to students at UCLA and UC Santa Barbara, and is affiliated with the new UCLA Nanosystems Institute. Students in the Mol Tox program are eligible for support from this training program. The Lead Campus will therefore accelerate the expansion of the Molecular Toxicology program into this area.

#### 5. NIEHS training grant in Molecular Toxicology

The Molecular Toxicology IDP was recently awarded a NIH (NIEHS) training grant (2008-2013) in "Training in Molecular Toxicology" (P.I. Oliver Hankinson, co-PI Robert Schiestl) which supports both doctoral students and postdoctoral students in the program. Ours was the first new NIEHS training grant awarded in 2008. Since the NIEHS training grant started immediately after the UC TSR&TP lead campus in "Toxic Mechanisms" terminated, continuity of funding to the Molecular Toxicology IDP was provided. The nine faculty of the NIEHS training grant represents a subset of the Molecular Toxicology faculty; namely those who focus their research on areas included in the NIEHS mission, viz. the effects of industrial chemicals or manufacturing by-products, metals, pesticides, herbicides, air pollutants and other inhaled toxicants, particulates or fibers, fungal or bacterially derived toxins due to ambient exposures. The award of the NIEHS training grant has expanded the activities of the Molecular Toxicology program into the arena of postdoctoral training. Although we realize that such responsibilities are not considered under the purview of an IDP, we think that the involvement of postdoctoral activities greatly strengthens the IDP.

#### 6. The Current Status of Toxicological Research and Training at UCLA

The Molecular Toxicology students participate in a substantial number of activities organized by the IDP. These common endeavors have engendered a strong cohesive spirit among the Molecular Toxicology students. This spirit is exemplified by the "Toxic Substances" co-ed flag football team, consisting primarily of Molecular Toxicology students, which won the UCLA intramural playoffs in three of the last four years! A marked coming together of toxicology faculty members has also occurred as a result of their participation in the activities of the Molecular Toxicology IDP, the UC TSR&TP Lead Campuses, and the NIEHS training grant in Molecular Toxicology, and these interactions continue to develop. In the last few years, the molecular toxicology program has therefore helped catalyze a renaissance and consolidation of molecular toxicological research and training at UCLA.

## 7. Societal need for Molecular Toxicology

We believe that molecular toxicological research is highly relevant to California, the USA, and the world, and that our program, and our graduates will make, and are making, contributions to the amelioration of significant societal problems. For example, the adverse effects of air pollution are of particular concern in Southern California, and this is likely to become an increasingly important area of research for the molecular toxicology program. California has the largest agricultural industry in the USA. The potential toxicity of insecticides and herbicides is thus of great concern, but also provides research opportunities. The mechanisms whereby pesticides, and other environmental pollutants impact the development of Parkinson's disease will become an increasingly important focus of our program. The potential toxicity of engineered nanoparticles is also of great concern to both the general public and the relevant manufacturers and commercial utilizers. The molecular toxicology program is partnering with the recently established California Nanosystems Institute (CNSI) and the NSF and EPA-funded Center for the Environmental Impact of Nanotechnology (CEIN) in developing research in this area. (Dr. Nel directs the new program in nanotoxicology and the CEIN.) It is our conviction that great strides in the identification, appraisal, and amelioration of the toxicological risks of the above environmental pollutants will emanate from studies into the mechanisms whereby they cause disease. We will position ourselves to address both existing and new toxicological challenges to California and the nation.

Of considerable interest to us, the Governor of California recently established a "Green Chemistry Initiative" whose ultimate goal is to eliminate toxic chemicals in the environment. Furthermore, the European Union recently passed a new law regulating over 30,000 toxic industrial chemicals, which will have a major effect on the US chemical industry.

## 8. Institutional support for the Molecular Toxicology program

The UCLA Center for Occupational and Environmental Health (COEH), directed by Professor John Froines of the Molecular Toxicology IDP, uses its limited discretionary funds to provide small dollar amounts for new faculty startup, small equipment purchases, and some administrative support. The COEH is strongly committed to supporting and strengthening the Molecular Toxicology IDP.

The UCLA Graduate Division provides approximately \$40,000 each year to the Molecular Toxicology IDP for student support, as well as (sometimes) a Chancellor's prize (\$10,000 student stipend) and a (competitive) Cota Robles fellowship for underrepresented minority applicants (providing fees and partial funding {\$20,000} for the first year and one subsequent year.) (Molecular Toxicology doctoral program minority students have been routinely successful in winning Cota Robles awards.) The Graduate Division has also committed to providing matching funds of an amount equal to 20% of student stipend support awarded by our NIEHS training grant (i.e. about \$10,000/year). The ACCESS program requires pay-back of \$25,000 for any student recruited into the Molecular Toxicology IDP to cover first year expenses. The Department of Pathology and Laboratory Medicine provides 50% of this pay-back for students entering the laboratories of its faculty (Drs. Hankinson, Schiestl and Berliner).

The IDP is administered from the department of Environmental Health Sciences in the School of Public Health, which provides modest administrative support from an administrative assistant. Administrative assistance is also provided by Dr Hankinson's administrative assistant, who is supported by the Department of Pathology and Laboratory Medicine. Administrative support to the IDP is therefore adequate.

## 9. Predocctoral Trainee Curriculum

The curriculum for the Molecular Toxicology doctoral students is shown in tabular form as appendix 2.

All ACCESS and directly admitted Molecular Toxicology students take the same course during the first two quarters of their first year. These consist of M253, M248, M267A, and 267B. These courses provide a solid foundation in molecular and cellular biology. During their third quarter, the students begin their formal education in molecular toxicology, by taking EHS240. Advanced Molecular Toxicology (Mol Tox 246) and the Laboratory in Toxicological Methods class (Mol Tox 245) are taken in the Fall and Winter Quarters of the second or third year. (Some ACCESS students who join the Molecular Toxicology program may decide to do so only during or after their third quarter, and they may therefore not have taken EHS240 in the third quarter.

They will therefore be required to take this course in their second year.) Trainees may also take electives to fill deficiencies in their academic backgrounds. Starting in the second year of the curriculum and continuing until graduation, the major activity of the students is the performance of original research.

### Laboratory Rotations

The students do rotations, each of ten week's duration, in the laboratories of three different Molecular Toxicology faculty members during their first year. In this first year, each student is mentored by the Molecular Toxicology Associate Director for Student Affairs. At the end of their first year, each student chooses his/her thesis mentor. The student is also advised by his/her Thesis Committee, which in addition to the mentor, includes two other Molecular Toxicology faculty members, and one or two faculty members from a different department/IDP.

### Teaching Requirements

All students will obtain instruction in teaching skills by serving as teaching assistants (TAs) or readers for at least one quarter.

### Qualifying examinations—written and oral

This examination is typically taken towards the end of the student's second year at UCLA. Both a written and oral qualifying examination is required. The format for the written qualifying examination consists of a NIH-style research proposal on a topic which is approved by members of the Thesis Committee. The Thesis Committee consists of four faculty members including the student's advisor, who serves as the Chair.

The oral examination of the written proposal allows the Thesis Committee to fully evaluate the ability of the student to discuss the subject matter in a scholarly fashion. The student must be able to defend the validity and importance of the proposed research, as well as the experimental approaches taken. The oral qualifying examination also provides the Thesis Committee the opportunity to specifically address perceived weaknesses in the student's educational background as well as evaluate the student's communication skills.

After successful completion of both the oral and the written qualifying examinations, the student will advance to candidacy.

### Dissertation

A dissertation based on original research is required. The dissertation must be written in the format approved by UCLA. As a general guideline, the dissertation should consist of research equivalent to at least two peer-reviewed publications in reputable journals in the field.

### Final examination

A final defense of the Ph.D. thesis is required.

### Normative time from matriculation to degree

Students who fail to complete the dissertation within 18 quarters will have their record evaluated to determine if an extension of time is warranted. If an extension is granted, the student will be carefully monitored to make sure the dissertation is completed within the additional time allowed.

Note that all but one of the ten students who joined the program in 2001, 2002 or 2003 and who advanced to candidacy have graduated, testifying to the effectiveness of the program in graduating students in a timely fashion.

## 10. Retreats/Meetings

All trainees participate in the Molecular Toxicology research retreat/symposium that is organized every two years in a location near Los Angeles.

Trainees are also encouraged to attend the annual meeting of the Society of Toxicology (SOT), and are strongly encouraged to give presentations at this meeting. Our students who give presentations have routinely received SOT travel grants to attend the meeting. These meetings introduce the students to the greater toxicology community, give them the opportunity to present their research to this community, and give them the opportunity to attend useful lectures and workshops. There are also several activities at the annual SOT meeting that address future research and career opportunities for the students. We also arrange a meeting of past and present members of the UCLA Molecular Toxicology program at the annual meetings of the SOT. Students have been, and will continue to be encouraged to attend meetings relating to their special area of interest, such as the annual meeting of the American Association for Cancer Research. Many of our students also attend the scientific meetings of the Southern California Chapter of SOT, and regularly win prizes at these meetings. For example at the annual meeting of the Southern California chapter of SOT held in October, 2008, four of our students won prizes, as listed below:

Oral presentation

1 st place- Kim Henderson

2 nd place- Sudheer Beedanagari

Poster presentation

1 st place- Aya Westbrook

3 rd place- Peter Bui

## 11. Recruitment

The Molecular Toxicology IDP recruits graduate students directly into the program, as well as recruiting students through the UCLA Programs in the Molecular, Cellular and Integrative Life Sciences (ACCESS). As mentioned previously, the Molecular Toxicology IDP was admitted into the ACCESS program in 2004. This increased the number of highly qualified potential applicants to our doctoral program.

The ACCESS program organizes student recruitment and also administers the first year graduate course of study for twelve Ph.D programs at UCLA (including the Molecular Toxicology IDP). 252 UCLA faculty participate in the program. ACCESS faculty are required to have a recent history of mentoring students and /or postdoctoral fellows, and to have a current NIH RO1 or equivalent grant.

ACCESS recruits approximately forty students each year. Since joining ACCESS, the Molecular Toxicology IDP has participated in the program very actively. Dr. Hankinson currently serves on the ACCESS Steering Committee and also the ACCESS Admissions Committee. The IDP also participates in the annual ACCESS "Affinity Fair" in the Fall Quarter each year, where our research is presented to incoming ACCESS students.

We will also continue to recruit graduate students directly into the Molecular Toxicology IDP. Another potential source of students is the Masters' program in Toxicology in the department of Environmental Health Sciences.

We average two direct admits and one transfer student from ACCESS each year.

## 12. MINORITY RECRUITMENT AND RETENTION PLAN

Our program has made a considerable effort in minority outreach, recruitment, and retention. Some examples follow.

Robert Taylor is an African-American who recently graduated with a Ph.D. in Molecular Toxicology. The Molecular Toxicology IDP nominated him in 2002 for the Professional Development and Peer Review Workshop sponsored by The Comprehensive Minority Biomedical Branch, National Cancer Institute, and he

attended the two day workshop. In 2004, he was nominated for, and attended, a workshop on "Preparing for the Postdoctorate Institution," hosted by Howard University, and the University of Texas at El Paso Alliance for Graduate Education. In 2005, he was nominated for, and attended, a five day workshop, followed by a four day conference, given by the Biotechnology Institute in Philadelphia, Pennsylvania for the Minority and Indigenous Fellows Program.

In 2005, Dr. Hankinson, representing the Molecular Toxicology Program, participated, along with Robert Taylor, in the UCLA NSF Competitive Edge Graduate Summer Research Program, described above, which was attended by a select group of African-American students in STEM fields who had graduated from traditionally minority institutions, with the objective of recruiting one or more of these students to graduate school at UCLA. In October, 2006 Dr. Hankinson also participated in the one day retreat of the California State University, Los Angeles Minority Opportunities in Research (MORE) program, which serves as a bridge to doctoral programs.

We recruited another African-American woman student, Ashley Terrell, to our Molecular Toxicology program in 2007. She received a fellowship from our NIEHS training grant in Molecular Toxicology to pursue her thesis research under the guidance of Professor David Krantz. She participated in the six week UCLA NSF Graduate Summer Research Program (described above) prior to her first rotation. She was also awarded a two year Eugene Cota-Robles Fellowship from the UCLA Graduate Division, which supports underprivileged applicants. In 2008 an African-American man, Aaron Chapman, transferred to the Molecular Toxicology IDP from the UCLA ACCESS program, in order to pursue his research in the laboratory of Professor Robert Schiestl. Thus three of our past or current students are from an underrepresented minority group.

### 13. Current positions of Molecular Toxicology graduates

All Molecular Toxicology students admitted in 2001 to 2003 have graduated, attesting to the effectiveness of our program at graduating students in a timely fashion. One of our graduates is an Assistant Professor at a major research university (Northwestern), nine are pursuing postdoctoral studies, three are scientists in major biotechnology companies, and one works for the US FDA.

### 14. Future of the Molecular Toxicology IDP

Over the next few years we will set out to further consolidate, improve and expand molecular toxicology research and teaching at UCLA.

As described in this report, we believe that there is a great need for persons trained in Molecular Toxicology in California and the nation. We are therefore proud that we are contributing to training such people. Furthermore, the Molecular Toxicology IDP has progressed towards establishing itself as an important player in the biomedical sciences at UCLA. However, there are a number of areas of concern. The most significant of these are noted below.

i) Our faculty members are generally advanced in their careers. There needs to be an infusion of new junior faculty.

As can be seen from Table 1, all but five of our 26 faculty are full professors. Many are expected to retire in the next decade. In order to maintain continuity to and vitality of the program, it is important that we recruit new faculty members, particularly those early in their research careers. To this end, we recently actively recruited UCLA Assistant Professor Jesus Araujo, who will further expand our activities in the area of environmental causation of atherosclerosis. In the last two years, we also recruited UCLA Professors Bronstein, Chesselet, and Krantz.

Despite these recruitments, it is essential that we recruit at least one new faculty member who is a dedicated molecular toxicologist. Currently only five of our faculty can be considered "card carrying" toxicologists. The remainder are focused principally in other areas, with a secondary interest in toxicology. For long-term viability of our teaching and research activities, it is essential that we recruit a new bona fide toxicologist who is early in his/her career. To this end we have pursued a closer relationship with the Nanotoxicology program (directed

by Professor Andre Nel). In conjunction with this program we are exploring the possibility of recruiting a person who is trained in molecular toxicology, and performs research in nanotoxicology. There is the potential for obtaining a half FTE from the California Nanosystems Institute (CNSI) for this person. We are currently trying to solidify this and are looking for the other half FTE. Success in this endeavor requires commitment to the program from senior academic personnel at UCLA. We hope that the review committee for the 8 year review of the IDP will support us in this endeavor, and bring to the attention of the senior academic and administrative personnel at UCLA our need for at least one additional faculty member dedicated to Molecular Toxicology.

We are also pursuing the possibility of closer associations with faculty in the UCLA School of Engineering, particularly from the departments of Bioengineering, Chemical and Biomolecular Engineering, and Civil and Environmental Engineering. Some of these faculty are already integrated into the naotoxicology research program and there are potential projects for our students with several faculty members in these departments.

ii) We need sounder financial support for our students, particularly for the first year of their studies.

If we directly recruit two in-state students, and receive one transfer from the ACCESS program, this will cost us \$37,169 for stipend and fees for each direct admit student and \$12,500 for the ACCESS transfer students, for a total of \$86,800. Assuming that neither of the directly admitted students receive fellowships, this amount exceeds our funding from the UCLA Graduate Division (\$50,000) by \$26,500. It is therefore imperative that we secure additional funds.

#### Previous Review of the Program

The UCLA Graduate Council undertook a four year review of the Molecular Toxicology IDP in 2006. The report was very positive about the program.

## Appendix 1:

Table 1 presents the current number of faculty members in the Molecular Toxicology IDP.

<b><u>Faculty Member</u></b>	<b><u>Rank</u></b>	<b><u>Department</u></b>
Jesus Araujo	Assistant Professor	Medicine
Judith Berliner	Professor	Pathology and Laboratory Medicine
Jeff Bronstein	Professor	Neurology
Gautam Chaudhuri	Professor/ Exec Chair	OB/GYN & Molecular and Medical Pharmacology
Marie-Francoise Chesselet	Professor/ Chair	Neurobiology
Catherine Clarke	Professor	Chemistry and Biochemistry
Michael Collins	Professor	Environmental Health Sciences
Curtis Eckhert	Professor	Environmental Health Sciences
John Froines	Professor, Dir EPA SCPC	Environmental Health Sciences
Richard Gatti	Professor in Rsdn	Pathology and Laboratory Medicine
Hilary Godwin	Professor	Environmental Health Sciences
Oliver Hankinson	Professor, Dir Mol Tox IDP	Pathology and Laboratory Medicine
Louis Ignarro	Professor	Molecular and Medical Pharmacology
David Krantz	Assistant Professor	Psychiatry
William McBride	Professor	Radiation Oncology
William Melega	Professor	Molecular and Medical Pharmacology
Sabeeha Merchant	Professor	Chemistry and Biochemistry
Jeffrey Miller	Professor	Microbiology, Immunology, & Molecular Genetics
Andre Nel	Professor, Div Chief, Dir CEIN, Dir UCLA Asthma Center, Dir UC Nanotox	Medicine
Beate Ritz	Professor	Epidemiology
Wendie Robbins	Professor	Nursing
Michael Roth	Professor	Medicine
Robert Schiestl	Professor	Pathology and Laboratory Medicine
Suzanne Paulson	Professor	Atmospheric Sciences and Oceanic Sciences
Joan S. Valentine	Professor	Chemistry/Biochemistry
Zuo-Feng Zhang	Professor	Epidemiology

## Appendix 2: Curriculum

Year	Fall	Winter	Spring
<b>1st Year</b>	M253 (4) <sup>1</sup> M248 (4) <sup>2</sup> 596 Lab rotation (6)	M267A (4) <sup>3</sup> M267B (4) <sup>3</sup> 596 Lab rotation (6)	EHS240 (4) <sup>4</sup> 596 Lab rotation (6) M234 (2) <sup>5</sup>
<b>2nd Year</b>	Mol Tox 246 (4) <sup>6</sup> Mol Tox 245 (2) <sup>7</sup> Research (M596) 211A Molecular Toxicology Seminars (1) <sup>8</sup> One of 296A-296F Research Topics in Molecular Toxicology(2) <sup>9</sup>	Research (M596) 211B Molecular Toxicology Seminars (1) <sup>8</sup> One of 296A-296F Research Topics in Molecular Toxicology(2) <sup>9</sup>	Research (M596) 211C Molecular Toxicology Seminars(1) <sup>8</sup> One of 296A-296F Research Topics in Molecular Toxicology(2) <sup>9</sup> Qualifying Exam
<b>3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> Years</b>	Research (M599) 211A Molecular Toxicology Seminars (1) <sup>8</sup> One of 296A-296F Research Topics in Molecular Toxicology(2) <sup>9</sup>	Research (M599) 211B Molecular Toxicology Seminars (1) <sup>8</sup> One of 296A-296F Research Topics in Molecular Toxicology(2) <sup>9</sup>	Research (M599) 211C Molecular Toxicology Seminars (1) <sup>8</sup> One of 296A-296F Research Topics in Molecular Toxicology(2) <sup>9</sup>

### Footnotes:

(the number of units are shown in parentheses).

1. M253: Macromolecular Structure  
Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Letter grading.
2. M248: Molecular Genetics  
Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Letter grading.
3. M267A: Cell Structure, Signaling and Development  
M267B: Seminar in Cell Structure, Signaling and Development  
Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Letter grading.
4. EHS 240 Fundamentals of Toxicology. (4)  
Lecture, four hours. Essential aspects of toxicology with emphasis on the human species; absorption, distribution, excretion, biotransformation as well as basic toxicological process and organ systems. Letter grading.
5. M234 Ethics and Accountability in Biomedical Research (2)  
The course focuses on situations arising in the laboratory that may present ethical dilemmas for graduate students. (Students may take this course any time in their first two years of study.)



6. Molecular Toxicology 246. Advanced Molecular Toxicology (4)  
This course addresses advanced topics in molecular toxicology. Students are required to have taken EHS240 or an equivalent course. The first four weeks focus on fundamental aspects of toxicology that are required for a deep understanding of toxicological processes. Weeks five through ten focus on in-depth analysis of several specific areas of molecular toxicology.
7. Molecular Toxicology 245. Laboratory in Toxicological Methods. (2)  
Survey of experimental techniques used in the study of toxic substances. Presentation of principles of techniques and methods of data analysis at discussion session prior to laboratory. Letter grading.
8. Mol Tox 211A-C. Molecular Toxicology Seminar. (1)  
All Molecular Toxicology students are required to attend two toxicology seminar series, each of which will meet once per month during the academic year. The first series consists of presentations by outstanding toxicological researchers from outside UCLA. Collectively, the Molecular Toxicology graduate students are responsible for selecting and inviting one "Graduate Students –Invited Lecturer" each year. We use funds from the NIEHS training grant to pay for this series. See appendix 3 for the list of speakers for this academic year.
9. The second series consists of internal seminars presented by toxicology students and postdoctoral fellows. Trainees will be required to both attend this seminar, and give a presentation about once per year in this series. See appendix 4 for the list of speakers for this academic year.
10. Mol Tox 296A-E. Research Topics in Molecular Toxicology. (2)  
One of sections A to E is chosen. These are research group meetings. Students give presentations to their research group members on their current research. This provides an opportunity for the students to acquire presentation skills in a supportive environment, and to receive expert input into the progress of their research. Research group meetings occur weekly for about 1.5 hours. S/U grading:
11. EHS 280. Nanotoxicology. (4)  
This course discusses the established and potential toxic effects of industrial and environmental nanomaterials based on their pharmacological, organic and inorganic properties.

## Appendix 3:

**2008-2009 MOLTOX SEMINAR SERIES**  
 THURSDAYS, 12:00PM – 1:00PM  
 (EXCEPT FOR 2/25 BRENNAN SEMINAR)

<b>DATE</b>	<b>LECTURER</b>	<b>LOCATION CHS</b>
<b><u>Fall Quarter</u></b>		
<b>Nov. 6</b>	<b>“Gene-Environmental Interaction on Cancer Risk”</b> Dr. Zuo-Feng Zhang University of California, Los Angeles	<b>43-105</b>
<b>Nov. 13</b>	<b>“Gene-Environment Interaction in Parkinson’s Disease”</b> Dr. Beate Ritz University of California, Los Angeles	<b>43-105</b>
<b><u>Winter Quarter</u></b>		
<b>Jan. 22</b>	<b>“The Role of Oxidative Stress in the Pathogenesis of Particle-induced Cardiovascular and Pulmonary Disease.”</b> Dr. Andre Nel University of California, Los Angeles Joint Seminar with the Nanotoxicology and Molecular Toxicology Programs, and co-sponsored by the California NanoSystems Institute	<b>43-105</b>
<b>**Feb 25</b>	<b>“Systems Toxicology Applications in Environmental Risk Assessment”</b> Dr. Richard Brennan GeneGo Inc. Director of Toxicology <b>**NOTE:</b> special seminar held Wednesday, 2/25 from 3-5pm**	<b>16-059</b>
<b>March 5</b>	<b>“Dynamic organization of signaling and repair machines at damaged chromosomes”</b> Dr. Jiri Lukas Danish Cancer Institute Director of Genotoxic Stress Program Joint Seminar with UCLA Center for Biological Radioprotectors	<b>43-105</b>
<b>March 12</b>	<b>“Oxidative stress as the Janus caretaker of multipotent stem cell function”</b> Dr. Charles Limoli University of California, Irvine Professor of Radiation Oncology	<b>43-105</b>
<b><u>Spring Quarter</u></b>		
<b>April 9</b>	<b>“Green Chemistry: Why Do Good Scientists Make Bad Molecules?”</b> Dr. John Warner President, Warner Babcock Institute for Green Chemistry, Boston, Mass Mol Tox student Invited Speaker	<b>53-105A</b>

<b>April 16</b>	<b>“Fundamental Information on Respirable Particles”</b> Dr. Terence Risby Johns Hopkins University Professor of Environmental Health Sciences Joint seminar with Center for Occupational and Environmental Health (COEH)	<b>53-105A</b>
<b>May 14</b>	<b>“CYP2S1, a novel cytochrome P450 enzyme affecting plasma and organ concentrations of prostaglandins and other eicosanoids, and with a potential role in cancer.”</b> Dr. Oliver Hankinson University of California, Los Angeles	<b>53-105A</b>
<b>May 28</b>	<b>“Perfluorinated Chemicals: The History of an Environmental Issue.”</b> Dr. John P. Giesy University of Saskatchewan Professor & Canada Research Chair in Environmental Toxicology Mol Tox student Invited Speaker	<b>53-105A</b>
<b>June 4</b>	<b>"Parkinson's Disease as a Model of Accelerated Neuronal Aging: An Argument for a Prime Role for Oxidative Stress"</b> Dr. Julie Anderson Buck Institute for Age Research Sonoma, CA	<b>53-105A</b>

## **Appendix 4:**

### **Molecular Toxicology Interdepartmental Program Seminars**

#### **Schedule for 2008-2009**

**Mondays 12-1 pm, Location: CHS 71-257 (unless otherwise noted)**

#### Fall 2008

Iona Bebenek (Hankinson Lab) – 11/3/2008

Mike Kovochich (Nel Lab)- 11/17/2008

Karen Young (Robbins Lab)-dissertation defense-date TBA

#### Winter 2009

Kim Henderson (Eckhert Lab)-Thesis Defense- 1/13/09-10 am, **CHS 14-214U**

Aya Westbrook (Schiestl Lab)-1/26/2008

Lynn Yamamoto (Schiestl Lab)-3/2/2008

Nicole Gatto (Ritz Lab)-3/9/2008

#### Spring 2009

Sarah Kobylewski (Eckhert Lab)-4/6/2008

Peter Bui (Hankinson Lab) –dissertation defense-date TBA

Parrisa Solaimani (Hankinson Lab)-4/13/2008

Ashely Terrell (Krantz Lab)-5/4/08

Sudheer Beedanagari (Hankinson Lab)-6/1/2008

**REFERENCE 3**  
**2009 COEH Program Review**  
**(prior to leadership change)**

## **UCLA CENTER FOR OCCUPATIONAL AND ENVIRONMENTAL HEALTH (COEH)**

### **I. Background**

The original legislation creating the Occupational Health Centers at UC Berkeley, SF, Davis, UCLA and Irvine derived from the outbreak of sterility associated with occupational exposure to the pesticide DBCP in Lathrop, California in the latter half of the 1970s. That decade saw considerable change in occupational and environmental health legislation including passage of the Occupational Safety and Health Act, the Clean Water Act, the Clean Air Act, and a host of other environmental laws at both the federal and state levels. During that period there was increased public awareness about the hazards of workplace and environmental exposures to toxic chemicals. Attention was focused on the carcinogenicity of benzene, vinyl chloride, arsenic, and acrylonitrile; the pulmonary toxicity of silica, cotton dust and asbestos; the neurotoxicity of lead, DMAPN, Lucel-7, and acrylamide; and the reproductive toxicity of DBCP amongst others. The problems continue to the present; there are 60,000 to 80,000 chemicals in commerce in the U.S., with about 1,000 new chemicals introduced each year. Existing federal, state and local programs have difficulty keeping track of the flow of these chemicals within the state, or of their uses and ultimate fate. The pace of standard setting has been glacial.

A key feature of the seventies was the recognition of the need for a wide range of professionals and scientists who could play key roles in the regulatory framework established by the federal and state legislation. There was a clear need for professionals with training in the disciplines most closely associated with occupational and environmental health to implement the new legislation at the governmental and industrial levels. The importance of training new professionals and scientists in occupational health led to the 1975 establishment of the Education and Research Centers (ERCs) at the federal level whose objective was providing support to students seeking advanced degrees in occupational health disciplines. The ERCs were funded by the National Institute for Occupational Safety and Health (NIOSH). While funds were available for training students in occupational health, the State of California recognized there was a deficiency in the number of faculty in the UC system whose teaching and research were devoted to occupational health, and it sought to address this need through the creation of the Occupational Health Centers. This development led to synergism between the federal funding of student education and the state support for the creation of new faculty positions in occupational health through the occupational health centers that continues to the present.

### **II. Current Status of Occupational and Environmental Health**

The American workplace has changed dramatically from 1978 to 2009. There are changes in the distribution of industries in California, the technology employed at the workplace, the structure of industry and occupations, the organization of work, and the nature of labor-management relations including health care delivery, retirement, and other benefits; the globalization of economy has created new and difficult issues. There has been a shift in the distribution of work away from manufacturing sector to the service and distributional industries. For example, as the number of products from Asia and Latin America has increased, a large distributional network has developed in Southern California including the building of a large number of warehouses fed by diesel vehicles bringing products from the Los Angeles ports. Thus, there are environmental

consequences of globalization in Southern California, with the potential for increased air pollution and a focus of workplace hazards on acute injuries and musculoskeletal problems from repetitive motion. These changes all have implications for occupational health and safety and illustrate that work environments are considerably different than what existed when the legislation was passed in 1978 creating the Centers.

In the 1970s, there was little discussion of the “contingent” workforce, outsourcing and contract workers or the issue of the loss of manufacturing jobs. While there is a continuing issue of health problems relating to chemical and physical agent exposures, examples of new hazards have emerged which were previously unrecognized, including cardiovascular illness associated with air pollution and psychosocial disorders, job demands and workplace stress. The changes in the work environment affect the social and behavioral determinants of health in ways not previously considered. In Southern California there is an added dimension to these problems insofar as the workforce has changed dramatically in the past 25-30 years with significant increases in the diversity of labor. The workforce includes a large number of migrant workers from Latin America and Asia. The changes in the diversity of the workforce introduces cultural, linguistic, experiential, and other challenges in the workplace. This also creates new challenges for the University and State Colleges to educate a new class of professionals in occupational and environmental health from the minority population to be able to address work environment and non-work environment issues in minority communities and workplaces with significant numbers of foreign born workers.

One of the most important changes in occupational health since the seventies has been the recognition of the integral relationship between environmental and occupational health problems. This recognition led to the Occupational Health Centers expanding the scope of their activities into environmental health. This created the need for a wider disciplinary base among faculty and led the UCLA Occupational Health Center to expand the number and nature of the faculty participating in the newly renamed Center for Occupational and Environmental Health (COEH).

There has been a need for new approaches to research as the industrial framework has changed. For example, nanotechnology promises medical advances, smarter and lighter materials, clean energy and improved electronics; the University of California has made a substantial commitment in this area. However there are health and safety issues associated with nanotechnology, which are as yet unexplored. To date, attention has been focused on the development of the new technology, but there has been little attention to the potential risks associated with the advances. There may be important chemical hazards associated with the technology and in scaling from the laboratory to manufacturing there may be new workplace and environmental issues that must be addressed. Ironically, the air we breathe is made up of large numbers of nanoparticles from mobile source combustion. Recent research indicates that nanoparticles may represent some of the most important risks associated with air pollution. In California, COEH scientists are well-placed to address the dual consequences of the new technology and should play a key role in exploring and remedying health issues. This is an area of promise and concern in which the COEHs will play an important role.

Additional examples of new technological development include the use of modern molecular biological findings to investigate toxicogenomics and proteomics to more fully understand gene-

environment interactions. The development of new technologies to study the genome represents a major advance and provides the tools for more in-depth investigations of the relationship between genetic susceptibility and the environment in order to address the issue of why individuals react differently to the same environmental exposures.

There is a growing awareness that the regulatory policy approaches developed in the early 1970s may not be adequate to address the wide range of emerging issues in occupational and environmental health. For example, the health consequences of global climate change has not been effectively examined to date. The identification of the consequences of environmental exposure on children's health has received new attention with the passage of legislation (e.g., SB 25) and represents an evolving research agenda. There is also a continuing need for review of our approaches to regulation, risk assessment, and environmental policy.

The COEH considers involvement in issues of global health to be essential. It is not possible to consider issues of environmental and occupational health without addressing problems on a global basis. We have been active in many countries outside the U.S. during this period and expect that commitment to continue.

### **III. UCLA COEH**

#### **A. Current Status**

Prior to 1989, the UCLA program was an element of the Southern Occupational Health Center, which was directed by Dr. James Whittenberger of UC Irvine with Dr. Jess Kraus serving as Associate Director for UCLA. In 1989, the President's office separated the UCLA program from the UC Irvine effort, thereby creating two independent, but interacting Southern California programs.

#### **Faculty**

Director: John R. Froines, Department of Environmental Health Sciences

At the outset, the COEH was assigned eight FTEs. Currently there are 3 COEH FTE in the Department of Environmental Health Sciences with an emphasis on industrial hygiene/environmental chemistry and toxicology. There are two FTE in epidemiology (one vacant), one in occupational nursing (School of Nursing) and two (one vacant) in occupational and environmental medicine. The latter program is in the Department of Family Medicine in the School of Medicine.

The distribution of the COEH FTEs does not adequately reflect the overall distribution of faculty positions in the COEH when consideration is given to COEH members who do not have COEH FTEs (Appendix 1). There are 3 faculty in toxicology (one COEH FTE), 5 in epidemiology (2 COEH FTE), one adjunct faculty in psychosocial factors, 7 faculty (3 COEH FTE) in Environmental Health Sciences (industrial hygiene, water quality and air pollution). The occupational nursing faculty has a Ph.D. in epidemiology and constitutes a 6<sup>th</sup> person in epidemiology.

#### **E. Facilities**



The UCLA COEH is housed within the School of Public Health, School of Nursing, and School of Medicine. Office and laboratory space are allocated by the respective schools.

The highest priority of the UCLA COEH is the development of research and training opportunities that emphasize multidisciplinary approaches to occupational and environmental health. In general, the COEH enhances the academic curriculum across three Schools, Public Health, Nursing and Medicine with a multidisciplinary orientation, which enables students to gain a broader view of the tools and techniques available for environmental research and intervention.

The mission of the COEH is consistent with the enabling legislation (Assembly Bill No. 3414), which states: “The primary function shall be the training of occupational physicians and nurses, toxicologists, epidemiologists, and industrial hygienists. In addition, the Centers shall serve as referral centers for occupational illnesses and shall engage in research on the causes, diagnosis, and prevention of occupational diseases.” When the funds were originally transferred from the Legislature to the Office of the President and subsequently to UCLA, eight FTEs were included as COEH faculty to development research, training and service in environmental and occupational health.

## **B. Criteria for review and evaluation of the COEH**

1. A central question to the evaluation of the COEH is whether the commitment made by the State Legislature and the Office of the President in establishing the Centers both in the North and South has led to substantial leveraging of the initial funding to create new programs.
2. A second key issue is whether the faculty have made important research contributions that have advanced the fields of occupational and environmental health.
3. A third criteria is whether the FTEs have developed successful training programs that would not have occurred without the legislation and FTEs.
4. Finally, the last criteria for review is whether the faculty have provided services that would not have occurred without the support and existence of the designated FTEs.

### **1. Extramural funding and the leveraging of the States investment to establish important innovative programs**

The original research program of the UCLA COEH was derived from the FTEs originally established in the Center in 1978. Since 1989, the UCLA COEH has expanded the membership of the Center to incorporate a range of disciplines beyond those originally included in the Center. A key objective of the UCLA COEH is the expansion of the existing Center through extramural funding which enables the Center to broaden its disciplinary base and associated level of activities. The faculty has been successful in leveraging the state funds to establish new, important research directions. A moderate commitment by the State to fund FTEs in occupational health has resulted in substantial extramural funding for the University in a range of disciplines and research areas and the creation of new research and training centers. These

Centers listed below contribute to an expanded research and training agenda and represent initiatives with long term funding potential.

A few pertinent examples of major funding sources that would not have occurred without the presence of the COEH (Approximately one million or dollars or more) follows. Other support is listed in Appendix 6 to illustrate other grants that have been obtained by COEH faculty since 2000.

- Southern California Particle Center and Supersite (SCPCS); Director and PI, John Froines. \$10,365,583 (1999-2006) and renewed at \$7,999,996 (2006-2011). Support derived from the U.S. EPA. (Appendix 4a)
- UCLA-NIH Fogarty International Training Program; Director and PI, John Froines; \$770,821 (1995-2001), \$850,774 (2001-2007), \$317,500 (2007-2010). The focus of the training/research program is Mexico. (Appendix 4b)
- Southern California Environmental Health Sciences Center (SCEHSC); Director and PI, John Froines; joint with USC, \$714,405/UCLA (2001-2006) and \$555,288/UCLA (2006-2010). Funded by the National Institute of Environmental Health Sciences (NIEHS). (Appendix 4c)
- Asthma and Outdoor Air Quality Consortium; Director and PI, John Froines. \$953,599 (2004-2010) (Appendix 4d)
- NIOSH Educational Research Center, \$6,764,076/5 years (2004-2009); Director and PI, William Hinds; The focus of this program is training of occupational health professionals in industrial hygiene, medicine, and nursing. The ERC is currently being recommended for renewal, pending the outcome of a secondary review. (Appendix 4e)
- Center for Gene-Environment Studies in Parkinson Disease (UCLA-CGEP): Director and PI, Chesselett, Marie-Francoise; Co-director, Beate Ritz. \$7,000,000 (2002-2009). \$5,000,000 (2008-2013). Funding derived from NIEHS. (Appendix 4f)
- “Development of an Exposure Facility to Conduct Inhalation Studies to Ambient Aerosols”. Director and PI, John Froines. \$2,296,598 (1999-2006). Support derived from State of California Air Resources Board.
- EPA Supersite Center; Director and PI, John Froines. \$3,549,856 (2000-2006). Support derived from the U.S. EPA
- UCLA UDALL Parkinson’s Disease Center; Director and PI, Chesselett, Marie Francoise; Co-PI, Beate Ritz. \$7,500,000 (2006-2011). Support derived from NIEHS
- Registry of Parkinson’s Disease Study in Denmark; PI, Beate Ritz. \$5,600,000 (2006-2011). Support derived from NIEHS

- Parkinson's Susceptibility Genes and Pesticides (PEG); PI, Beate Ritz. \$2,653,852 (2000-2007). Support derived from NIEHS/NINDS.
- Molecular Epidemiology and Carcinogenesis Program, Jonson Comprehensive Cancer Center (UCLA-JCCC-MECP); Co-Directors, Drs. Zuo-Feng Zhang and Curtis Eckhert. \$3,920,770. Support derived from NIH.
- UCLA Center for Biological Radioprotectors; PI, William McBride. Project 1 Director, Robert Schiestl. Total funding \$13,500,000 with \$2,000,000 to Dr. Schiestl for 5 years. Support derived from NIEHS/NIH.

## 2. Research

COEH supports the research of non-COEH FTEs through salary and small contributions where the funds would enable initiation of new activities. Long term funding is dependent on extramural awards. Research activities include:

- Exposure assessment in occupational and environmental health
- Industrial hygiene
- Aerosol science
- Environmental chemistry
- Quantitative decision analysis in occupational health
- Respiratory protection
- Artificial intelligence in occupational health
- Organization of occupational health services
- Injury epidemiology
- Occupational and environmental epidemiology
- Molecular and genetic epidemiology
- Reproductive/developmental epidemiology
- Chemical and molecular toxicology
- Toxicogenomics
- Developmental toxicology
- Occupational and environmental health nursing
- Occupational and environmental health medicine
- Psychosocial factors in the workplace
- Air pollution
- Toxicity of metals
- Pesticide health effects in Mexico
- Water quality
- Occupational health education
- Nanotechnology/nanotoxicology
- Risk assessment and environmental policy
- Green chemistry and sustainable technology

To illustrate the range and scope of the research projects conducted by COEH, Appendix 7 lists the publication and records since 2000 of COEH members. The list includes the publications of

the COEH FTEs: Drs. John Froines, Philip Harber, William Hinds, Shane Que Hee, Beate Ritz, Wendie Robbins and Linda Delp. Publications of non- FTE COEH faculty, Drs. Michael Collins, Robert Schiestl, Peter Schnall, and Zuo-Feng Zhang, who are key members of the Center (Program leaders) are also listed. In addition, Drs. Leeka Kheifets, Michelle Wilhelm-Turner, and Nola Kennedy are members who make significant contributions to the COEH while Mel Suffet and Arthur Winer are affiliated members of the Center (Their publications and other support are also included).

## **B. Educational Programs**

Formal COEH FTEs program areas include industrial hygiene, toxicology, genetic epidemiology, environmental chemistry, occupational and environmental epidemiology, psychosocial factors in the workplace, occupational health education, occupational nursing, occupational medicine. Dr. Wendie Robbins (COEH FTE) leads the occupational nursing program, and Dr. Philip Harber leads the Occupational-Environmental Medicine program. These programs result from the legislation and FTE allocation as stated above. The following courses/symposia represent activities that resulted from direct COEH support.

To complement the research conducted through the Center, the overall COEH educational programs at UCLA include industrial hygiene, toxicology, occupational and environmental epidemiology (including injury and genetic/molecular epidemiology), occupational nursing, occupational and environmental medicine, environmental chemistry/water quality, psychosocial factors in the workplace, and air pollution exposure assessment, air pollution and occupational health education. Courses have been developed by non-FTE COEH faculty who derive support from COEH for the courses. None of the courses by COEH faculty would be available in their respective Departments were it not for the creation of the COEH and associated FTEs.

In addition the COEH has been a strong supporter of the creation of the UCLA Interdepartmental Program in Toxicology, a Ph.D. program in environmental toxicology. Dr. Froines was one of the initiating faculty and other COEH faculty participate (Collins and Schiestl). This program is funded by the Toxic Substances Research and Teaching Program as well as its being an NIEHS toxicology training program. This program would not exist save for participation by COEH faculty.

### **Courses/Symposium:**

*(This list is not exhaustive; it is illustrative of COEH contribution)*

#### **COEH Director: John R. Froines**

EHS 200A Fundamentals of Environmental Health (six units)

EHS 257, Risk assessment and standard setting (Chemical policy)

Fall 2006, special seminar series sponsored by the COEH on current and historical issues in occupational and environmental health

June 2008 National workshop on Exposure Biology: 18 speakers who represent leaders in the new field

(See Appendix 8 for additional courses and Symposia given by Dr. Froines)

***Michael Collins***

EHS 100 Introduction to Environmental Health Sciences

EHS 240 Fundamentals of Toxicology

**Occupational medicine**

***Phil Harber***

Underseved Occupational Health Populations (ACOEM, 2009)

Health effects of surface goods movement, February 2007 (UCLA)

Enhancing Prevention in Occupational Health: Implications for Academic Programs. In Steps to a Healthier U.S. Workforce, sponsored by CDC/NIOSH (Washington, October, 2004) 2004

Health Culture and Productivity, 2nd annual. 2005 (UCLA)

Health Culture and Productivity. 2004 (UCLA)

Occupational Asthma, American Association of Occupational Health Nurses, Chicago. 2003

Current Research, American College Of Occupational & Environmental Medicine, Chicago, April. 2002

Occupational disease update, American College of Occupational and Environmental Medicine, Seattle, October. 2001

Occupational disease update, American College of Occupational and Environmental Medicine, San Francisco, April. 2001

Today's Research, Tomorrow's Practice, American College of Occupational and environmental medicine, Nashville, (November), (symposium organizer). 2000

EHS 400 Field Studies

EHS 596 Directed Individual study and Research

EHS 251. Recognition and Prevention of Occupational Disease

Occupational-Environmental Medicine Core Lecture Series (weekly during academic year)

**Epidemiology**

***Leeka Kheifets***

Epidemiology 265, Epidemiology Methods in Occupational and Environmental Health

***Beate Ritz***

Epidemiology 260, Environmental Epidemiology

Epidemiology 261, Occupational Epidemiology

Epidemiology 264, Epidemiology and Policy of Occupational and Environmental health Issues

***Michelle Wilhelm***

Environmental Epidemiology (EPI 260, 4-units, co-taught with Beate Ritz)

EPI 267 Methodologic Issues in Reproductive Epidemiology, 4-units, co-taught with Beate Ritz and Jorn Olsen)

***Zuo-Feng Zhang***

Epidemiology 242, Cancer Epidemiology (4-units)

Epidemiology 243, Cancer Molecular Epidemiology (4-units)

Epidemiology 244, Cancer Epidemiology Methods (2-units)

Epidemiology 295, Cancer Epidemiology Seminar (2-units)

One week Course on Molecular Epidemiology of Cancer (English)

Nanjing Medical University, Nanjing, Jiangsu, People's Republic of China, summer, 2002  
One week course on Theory and Practice of Epidemiology (English)  
Kunming Medical College, Yuennan Province, People's Republic of China, summer, 2003  
One week course on Molecular Epidemiology of Cancer Mexico National Institute of Public Health Cuernavaca, Morelos, Mexico, summer, 2004  
WHO Training Workshop (3 days) on Chronic Diseases Prevention and Control  
Jiangsu CDC, Suzhou, Jiangsu, People's Republic of China, December, 2004  
One day UCLA Symposium of Advances of Gene-Environmental Interaction on Cancer, April 16, 2005  
One day Alper-JCCC Symposium on Advances of Gene-Environmental Interaction on Lung and Head and Neck Cancer, April 14, 2007  
UCLA, NCI, Chinese Academy of Medical Sciences Alper Symposium of Molecular Epidemiology, Guiling, People's Republic of China, summer, 2007  
UCLA Fogarty AITRP, IARC, NCI, and NJMU Advanced Training Workshop of Cancer Molecular Epidemiology, Nov. 2007, Nanjing Medical University, Nanjing, China  
UCLA Fogarty AITRP International Training Workshop on Cancer Epidemiology Prevention and Control, Fudan University, Shanghai, China, March, 2008

### **Occupational Nursing**

#### ***Wendie Robbins***

N213A Occupational Health Nursing Role and Theory  
N213B Health Assessment, Research, and Health Promotion in Occupational Health  
N50 Fundamentals of Epidemiology  
2005 "Environmental Nursing", California State Association of Occupational Health Nurses Annual Conference, San Francisco, CA

### **Psychosocial factors in the workplace**

#### ***Peter Schnall***

EHS M270/CHS 278 Work and Health

### **LOSH**

#### **Environmental chemistry**

##### ***Shane Que Hee***

EHS 202, Environmental Chemistry Seminar  
EHS 205, Environmental Health Sciences Doctoral Seminar  
EHS 252E, Identification and Measurement of Gases & Vapors  
EHS252F, Industrial Hygiene Measurements Laboratory (with Kennedy, Hinds)  
EHS 252G, Industrial and Environmental Hygiene Assessment (with Kennedy, Hinds)  
EHS 256, Biological Monitoring in Occupational/Environmental Health: every 2 years  
EHS 258, Identification and Analysis of Hazardous Waste: every 2 years  
EHS 410A, Instrumental Methods in Environmental Sciences (with Suffet)  
EHS 410B, Instrumental Methods in Environmental Sciences Laboratory  
EHS 454 (formerly EHS254), Health Hazards Manufacturing Processes (with Hinds, Kennedy)  
*Symposia Organized:*

*Biological Monitoring/Medical Surveillance Programs in Academic and Corporate Workplaces*, American Industrial Hygiene Conference and Exposition, New Orleans, LA, June 2-7, 2001. Roundtable.

*Basis of the Proposed Biological-Based Environmental Exposure Level (BEEL) for 4,4'-Methylene Dianiline*, American Industrial Hygiene Conference and Exposition, San Diego, June 1-6, 2002. Forum.

*Human Biological Monitoring in Risk and Exposure Assessment*, American Industrial Hygiene Conference and Exposition, Atlanta, GA, May 8-13, 2004. Roundtable.

*Biological Monitoring and Government Agencies: Past, Present, and Future*, American Industrial Hygiene Conference and Exposition, Anaheim, CA, May 21-26, 2005. Roundtable.

*Biological Monitoring: Sparking Industrial Hygiene*. American Industrial Hygiene Conference and Exposition, Philadelphia PA, June 2-7, 2007. Roundtable.

*BEELs: Biological Monitoring and Skin Absorption*, American Industrial Hygiene Conference and Exposition, Minneapolis MN, May 31-June 5, 2008. Roundtable.

**Industrial Hygiene and environmental chemistry (Courses taught by COEH FTEs are listed in the catalog)**

***Nola Kennedy***

A portion of the support for her teaching in the industrial hygiene program derives from the COEH.

EHS 207 Introduction to GIS

EHS 250D Industrial Hygiene Practice

EHS 252F Industrial Hygiene Measurements Laboratory (co-taught with W. Hinds and S. Que Hee)

EHS 252G Industrial and Environmental Hygiene Assessment (co-taught with W. Hinds and S. Que Hee)

EHS 253 Physical Agents in the Work Environment

EHS 255 Control of Airborne Contaminants in Industry (co-taught with W. Hinds)

EHS C280 Principles of Nanobiological Interactions and Nanotoxicology (contributing lecturer)

EHS 454 Health Hazards of Industrial Processes

**1. NIOSH Education and Research Center (ERC).** The NIOSH ERC provides student support for training in occupational nursing, occupational and environmental medicine, and industrial hygiene as well as providing an extensive continuing education program. All the faculty in this program are COEH FTE s except for Dr. Nola Kennedy who is a non-FTE COEH faculty member. This program has been highly successful since the mid-1980s. Besides training in the basic disciplines the program has received additional resources to enhance the overall training effort, which is described in the web site ([www.ph.ucla.edu/erc/](http://www.ph.ucla.edu/erc/)) and includes:

Pilot Project Research Training Program (PPRT)

The PPRT supports pilot research projects up to \$19,000 in the area of occupational health for trainees, junior faculty, and researchers new to the field in NIOSH Region IX.

#### NORA Research Support Program (NRS)

This program supports interdisciplinary occupational health research involving ERC trainees within the ERC. It provides direct support for industrial hygiene doctoral students conducting research in a NORA area. A current project is on psychosocial factors in local industries.

#### Hazardous Substances Training Program (HST)

The HST program supports and facilitates the training of professionals, particularly government workers, in the area of hazardous substances.

**2. Interdepartmental Toxicology Program.** The approved interdepartmental program in toxicology provides training for Ph.D. students in molecular and air pollution toxicology. Nineteen faculty from four schools (Medicine, Public Health, Nursing and the College of Letters and Science) participate in the program. This has been a lead campus program of the Toxic Substances Research and Teaching Program (TSRTP) and has been funded at \$300,000/year. It is directed by Dr. Oliver Hankinson, an affiliated member of the COEH. The Interdepartmental Program in Toxicology represents a major educational initiative at UCLA; it was created, in part, through the efforts of COEH faculty, Drs. John Froines and Michael Collins. Startup funds were provided to this program at the outset from COEH, e.g., startup support for Dr. Robert Schiestl. The Molecular Toxicology IDP was recently awarded an NIEHS Training Grant.

**3. TSRTP program in Nanotoxicology.** This newly funded campus wide program has recently been approved by TSRTP and is directed by Drs. Andre Nel and Curt Eckhart. Drs. Froines, Hinds and Kennedy participate in a touchstone course in nanotechnology as the program develops.

**4. Ergonomics.** In order to strengthen research and training in ergonomics, COEH will provide partial salary support for Dr. Jason Wang. Dr. Wang will work with the industrial hygiene program, the Labor Occupational Safety and Health Program and especially epidemiology.

#### C. Service

UCLA COEH faculty has important roles in federal and state advisory committees which have significant policy and scientific implications for the society at large. Governmental examples within the last five years include (we have not included editorial services and other examples of service in order to limit the list). This list is extremely limited but is intended to give a flavor of the services activities of COEH faculty at the policy level.

John Froines:

- Chair, California Scientific Review Panel, key panel for identifying toxic air contaminants in California (AB 1807).
- Chair, NIEHS Board of Scientific Counselors, Report on Carcinogens Subcommittee
- Member, Institute of Medicine Roundtable on Environmental Health
- Member, National Toxicology Program Board of Scientific Counselors



- Member, South Coast Air Quality Management District, MATES II and III Technical Advisory Committee
- Member, South Coast Air Quality Management District, Advanced Air Pollution Research Plan Steering Committee and Clean Fuels Committee
- Member, External Advisory Committee, Columbia University NIEHS Center
- South Coast Air Quality Management District, Committee on occupational exposures at the LA/Long Beach Ports
- Member, LAUSD Advisory Committee on Siting of Schools in Proximity to Freeways

Michael Collins

- Ad hoc reviewer of the dossier on cadmium for the National Toxicology Program Board of Scientific Counselors, Center for the Evaluation of Risks to Human Reproduction (CERHR), NIEHS, Research Triangle Park, NC
- Peer Reviewer for the U.S. Environmental Protection Agency's Reproductive Toxicology Division, Research Triangle Park, North Carolina
- Ad hoc reviewer for the NIH Developmental Biology Study Section

Linda Delp

- Member, Cal/OSHA Advisory Committee
- Member, Southern California COSH Executive Committee
- Member, NIOSH NORA Intervention Research Review Panel
- Member, AOEC Advisory Board for Occupational Health Internship Program
- Member, APHA Occupational Health & Safety Section Council
- Advisory Board, WORKSAFE
- South Coast Air Quality Management District, Committee on occupational exposures at the LA/Long Beach Ports
- Member, LAUSD Advisory Committee on Siting of Schools in Proximity to Freeways

Philip Harber:

- Chair, CDC Safety and Occupational Health (SOH) study section
- Vice-Chair, Residency Review Committee for Preventative Medicine of ACGME
- Board of Directors, American College of Occupational-Environmental Medicine
- Member, Insitute of Medicine (NAS/IOM) Commiitee on Gulf War and Health Effects-Depleted Uranium Update

- Chair, CDC/ NIOSH Special Emphasis Panel (SEP)- Mesothelioma Virtual Registry
- Chair, SEP- World Trade Center Surveillance and Treatment Programs (CDC/NIOSH)
- Chair, SEP- Directors' Award (NIOSH/CDC)
- Member, SEP- Mining Health and Safety (CDC/NIOSH)
- Member, Clean Air Action Plan Advisory Committee, Ports of LA and Long Beach
- Member, CDC Public Health Practice Through Translation Research secondary Review Panel
- Chair, American Thoracic Society Comm on Impairment and Disability
- Member, American Thoracic Society Comm on Respiratory Protection
- Member, American Thoracic Society Comm on Work Exacerbated Asthma (Joint with CDC/ NIOSH)

William Hinds:

- Member, NIOSH Special Emphasis Panel for Agricultural Disease and Injury Research, Education, and Prevention Centers
- Reviewer, NIOSH Alice B. Hamilton Award
- Member, Advisory Committee for California Population Health Forecasting Project

Nola Kennedy

- Member, Executive Board, Southern California section of the American Industrial Hygiene Association
- Member, Advisory Board, LOSH Occupational Health Internship Program

Leeka Kheifets

- Scientific Coordinator, PROJECT EMF-SP, Brazil
- Member, Extremely Low Frequency Environmental Health Criteria Task Group (WHO)
- Advisor, Childhood Lead Poisoning Prevention Branch, California Dept of Health Services
- Advisory Committee, EMF-Net, EU
- Static Fields Environmental Health Criteria Task Group (WHO), Chair of Epidemiology Committee
- Advisor, Radiation Program, World Health Organization (WHO)
- Independent Scientific Advisory Group to Swedish Radiation Protection Authority (SSI)
- International Committee on Non-Ionizing Radiation Protection (ICNIRP), Member of the Standing Committee on Epidemiology

- Radiation Standards Safety Committee (RASSC), International Atomic Energy Agency (IAEA)
- Board of Directors Bioelectromagnetics Society (BEMS)
- Program Committee Member for International Conference on Occupational Protection: Protecting Workers Against Exposure to Ionizing Radiation (ILO)

Shane Que Hee:

- Member, NIOSH Board of Scientific Counselors
- US EPA Review Committee Member
- Member, Biological Monitoring Committee, American Industrial Hygiene Association
- Member, AIHA Dermal Exposure Committee (later, the EASC Dermal Project Team)
- Member, Report on Carcinogens Expert Registry, National Institute of Environmental Health Sciences
- Secretary, Biological Monitoring Committee, American Industrial Hygiene Association
- Vice-Chairperson/Secretary, Biological Monitoring Committee, American Industrial Hygiene Association
- Chairperson, Biological Monitoring Committee, American Industrial Hygiene Association
- Facilitator and Founder, Biological Environmental Exposure Level Team Project of the Biological Monitoring Committee, American Industrial Hygiene Association
- Chairperson, Biological Environmental Exposure Level Team Project of the Biological Monitoring Committee, American Industrial Hygiene Association, 2008-9

Beate Ritz:

- Member, External Advisory Committee and Reviewer for the NCI/NIEHS Agricultural Health Study
- Member, External Advisory Committee for the California Biomonitoring Planning Project conducted by the Environmental Health Laboratory's Biomonitoring Project
- Member, External Advisory Committee for the California Environmental Health Surveillance System (SB 702)
- Member, EPA Science Advisory Board for Human Health Research Strategy (HHRS) review
- Member, NAS, IOM Committee of Gulf War and Health, Phase 3: Literature Review of Selected Environmental Particulates, Pollutants, and Synthetic Chemical Compounds

Wendie Robbins

- Executive Committee, UC Toxics Substances Research and Teaching Program (UC TSR&TP)
- US Environmental Protection Agency “Development of Environmental Health Outcome Indicators”, grant review panel
- NIOSH Health Assessment Section, Biomonitoring & Health Assessment Branch, Division of Applied Research and Technology, Grant Peer Reviewer
- Chair, NIOSH Occupational Health Nursing Directors meeting Albuquerque, New Mexico, funded by the UCLA COEH
- California State Association of Occupational Health Nurses, Secretary
- American Association of Occupational Health Nurses (AAOHN) representative to the American Society of Safety Engineers (ASSE) American Standards Institute

Robert Schiestl

- Co-Director, Molecular Toxicology Interdepartmental Program
- Co-PI NIEHS Training Grant in Molecular Toxicology
- Organizer of the Molecular Toxicology Seminar Series
- Member, Jonsson Comprehensive Cancer Center
- Member, Molecular Biology Institute
- Member, National Institute of Allergy and Infectious Diseases, Centers for Medical Countermeasures against Radiation Steering Committee Meeting
- Member, Center for Occupational and Environmental Health

Peter Schnall

- Chair, ICOH Scientific Committee on Cardiology in Occupational Health
- Member, Advisory Board APA-NIOSH for the “Work, Stress, and Health 2009: Global Concerns and Approaches Conference, San Juan Puerto Rico November 5-8 2009
- Chair, 5<sup>th</sup> ICOH Sponsored Conference “Work Environment and Cardiovascular Disease” Cracow, Poland September 27-30 2009
- Member, ICOH Scientific Committee on Psychosocial Factors at Work
- Director, Center for Social Epidemiology

Zuo Feng Zhang

- Member, Epidemiology of Cancer (EPIC) Study Section, NIH
- Board Member, Board of Directors, American College of Epidemiology
- Consultant, Chronic Disease Prevention and Control in China, World Health Organization (WHO)

## D. Special programs

**1. The UCLA Sustainable Technology and Policy Program.** Initial funding of \$140,000 for the UCLA Sustainable Technology and Policy Program (STPP) derives from the UCLA Law School, the UCLA Vice Chancellor of Research, the UCLA School of Public Health and COEH. Extramural funds of \$340,000 is in house and an additional \$300,000 is being sought. This program is a result of the State of California's commitment to green chemistry and new approaches to chemical policy. This program has support of the California Administration.

STPP brings together faculty and scientists from Law, Public Health, and Public Policy with the goal of establishing an inter-disciplinary program of policy research, education, and outreach supporting adoption of a precautionary approach to chemical policy in California and nationally. STPP brings together researchers from those schools and others across the UCLA campus in a unique, action-oriented initiative. Co-Directors include Dr. John Froines and Tim Malloy (UCLA Law School).

STPP responds to growing concerns regarding the pervasive use of chemicals in California. These chemicals can undermine community and occupational health, and can have devastating effects on our environment. Traditionally, lawmakers and business have sought to manage the risks associated with our dependence on chemicals. Government regulation and voluntary industry standards focus on proper storage and management of chemicals, and on collection and disposal of chemical wastes. However, this risk management approach is costly and often ineffective. Risk prevention is a competing approach that seeks to replace dangerous chemicals and processes with safer alternatives. While pursuit of risk prevention has been described by a variety of terms—pollution prevention, “clean” technology, “green” chemistry, sustainable production to name a few—one principle drives all of these: it is generally better avoid chemical dangers than to manage them.

STPP aims to clear the path for effective, balanced chemical policies, and to assist in the use of safer chemicals and alternative manufacturing processes in the marketplace. It will do so by providing empirical and policy analysis needed by community-based organizations and non-profit organizations, legislators and government agencies, businesses, and other researchers in four priority areas: (i) identification, tracking and evaluation of hazardous chemicals and technologies, (ii) development of tools for business and policymakers seeking to reduce toxics use, (iii) identification and assessment of existing and emerging alternative chemicals and technologies, and (iv) analysis of legal, economic and social barriers to and drivers of the diffusion of safer alternatives. In each of these priority areas, STPP will engage a range of activities: empirical research and policy analysis; education at the undergraduate, graduate and post-graduate level; technical assistance to community-based organizations, policymakers, businesses, non-profit organizations; and public outreach.

**2. Occupational and Environmental Medicine (OEM).** The OEM program is included under “special programs” because in addition to its academic and research elements it provides service to California workers and industry. OEM at UCLA has undergone significant reorganization

over the past several years. It now has been recognized as a formal Division in the Department of Family Medicine.

UCLA OEM is positioned to pursue the following objectives:

1. Lead development of information science methods in occupational and environmental health.
2. Guide the evolving redefinition of occupational medicine, effectively linking population medicine with clinical medicine.
3. Implement and evaluate new educational models to meet the country's need for occupational health expertise.
4. Synthesize occupational medicine and general preventive medicine.
5. Conduct research and implement services systems to make occupational health expertise available in community settings other than those associated with workers compensation injury treatment.

Additional information is available at the website:

<http://fm.mednet.ucla.edu/OEM/occup.asp>

**3. Labor Occupational Safety and Health Program.** The UCLA Labor Occupational Safety and Health (LOSH) Program is a nationally recognized center to promote workplace health and safety through worker training, curriculum development, technical assistance, community-based research, and policy initiatives. Established in 1978 with a grant from Federal-OSHA, UCLA-LOSH has a multi-ethnic, bilingual (English and Spanish) staff of twelve and provides internships for seven university students.

Current projects at LOSH focus on initiatives to improve the occupational health conditions of vulnerable, high risk populations such as recent immigrants, adolescent workers, homecare workers, and frontline workers at the growing Los Angeles/Long Beach ports complex. Worker education initiatives include a variety of programs ranging from those targeted to high school students to those that prepare dock workers along the West Coast to confront hazmat and security incidents. LOSH has been a leader in the field of innovative education approaches in the national NIEHS hazardous waste/hazmat training program since it began in 1987. LOSH staff developed a Spanish language health and safety resource library and teach Train the Trainer courses for occupational health educators interested in developing education programs appropriate for workers with different languages, cultural backgrounds, and literacy levels.

Research and policy initiatives include a large-scale survey to document the job stressors of more than 100,000 Los Angeles homecare workers employed in the non-traditional work setting of the home, and a colloquium and policy brief to disseminate research findings in the home care arena. A qualitative research project documented working conditions and health and safety violations in the underground economy of Los Angeles' garment, restaurant and residential construction industries. In December 2002, LOSH released a report and policy brief, "Voices from the Margins: Immigrant Workers' Perceptions of Health and Safety in the Workplace" focused on the Los Angeles workforce and summarizing policy implications to advance protection for immigrant workers statewide. In 2006, LOSH released a report, "Risk Amid Recovery: Occupational Health and Safety of Latino Immigrant Workers in the Aftermath of the Gulf Coast

Hurricanes” (English and Spanish) in collaboration with the National Day Laborers Organizing Network.

LOSH collaborates with the Association of Occupational and Environmental Clinics to recruit students into the field of occupational health through a national initiative, the Occupational Health Internship Program. LOSH supervises four interns each summer in projects ranging from an examination of musculoskeletal disorders among hotel and garment workers to injuries, chemical and heat exposure facing day laborers in the construction industry.

COEH funds the salary of the LOSH Director, Dr. Linda Delp. All other staff (eleven) and all student interns are funded by grants and contracts, primarily from state and federal agencies and private foundations. LOSH is the lead agency for a five year Western Region Universities Consortium grant from the National Institute of Environmental Health Sciences’ Worker Education and Training Program, effective September 1, 2005 – July 31, 2010 in the amount of \$7,443,650. Other consortium members are the University of California at Berkeley, the University Extension program at Davis, Arizona State University, and the University of Washington. LOSH received a grant from the California Wellness Foundation for its Youth Project, effective January 1, 2005 – December 31, 2007 in the amount of \$150,000. The Worker Occupational Safety and Health Education and Training program is funded through a contract from the State of California, Department of Industrial Relations, Commission on Health and Safety and Workers’ Compensation in the amount of \$363,000, effective July 1, 2006 – June 30, 2007. A new State Contract is pending effective July 1, 2007 – June 30, 2008 in the amount of \$391,500. Finally, LOSH received a grant from the University of California Labor and Employment Research Fund (LERF) to disseminate homecare research findings, effective July 1, 2006 – June 30, 2007, in the amount of \$19,402.

For the next five years, LOSH will expand its work with vulnerable populations through an initiative to examine access to occupational health care services in collaboration with immigrant worker advocacy centers, unions, adult education programs, and health care providers. LOSH programs also focus on education and interventions to strengthen labor-management health and safety programs in industries with high risk of exposure to safety hazards, ergonomic risk factors, heat and psychosocial stressors. The LOSH Director will initiate a stronger relationship with the Community Health Sciences (CHS) Department, revising the current Occupational Health Education course and identifying opportunities to integrate occupational health into CHS courses.

For more information, see the LOSH website at: [www.losch.ucla.edu](http://www.losch.ucla.edu)

### **3. Psychosocial Factors at Work Program.** (Program Lead, Peter Schnall)

Psychosocial factors at the workplace (e.g., job strain, effort-reward imbalance, work characterized by threat avoidant vigilance) which arise due to the way work is organized have been shown to play an important etiologic role in a number of chronic illness including repetitive motion injuries, psychological distress (e.g., anxiety, depression, absenteeism, burnout and demoralization) and cardiovascular disease including hypertension and coronary artery disease. See Schnall, Belkic', Landsbergis and Baker, etal. The Workplace and Cardiovascular

Disease, Hanley and Belfus 2000, and our latest book *Unhealthy Work: Causes, consequences and cures*. Baywood Press 2009 Eds Schnall, Dobson and Roskam.

**Training** - The success of this project requires the development of a training program for graduate students and health professionals to enhance their awareness of the role of workplace based psychosocial factors in the etiology of physical injury, hypertension and cardiovascular disease. A course for UCLA School of Public Health graduate students (e.g. EHS 270/CHS 278) is taught each spring that provides them with skills in conducting surveillance, detecting psychosocial exposures, and obtaining a psychosocial work history from employed people.

Training for health professionals (Occupational Cardiology taught at UCI COEH) provides similar skills but focuses more heavily on the development of the appropriate clinical skills necessary for the detection (e.g., taking a medically relevant work history of workplace psychosocial exposures), evaluation and treatment of workplace induced CVD.

**Research** - A research program is being carried out in parallel with the services component of the project with the purpose of evaluating 1) the surveillance and treatment programs and 2) informing subsequent intervention and prevention programs for the target population aimed at reducing the burden of injuries and CVD. We also plan to conduct observational studies of "naturally occurring" changes in the workplace utilizing the results from repeated surveillance of the same workforce with repeated evaluation of psychosocial exposures and associated changes in workplace blood pressure. Funded studies are under way with UAW and CWA members while funding is pending for a study involving OCFA firefighters.

## **E. Outreach**

The COEH maintains a strong commitment to outreach efforts connected to all activities of COEH and affiliated special programs, centers, and research. Outreach efforts are currently being restructured beginning with the redesign of the COEH website as a mechanism to articulate to the public the wide swath of efforts the COEH undertakes and to engage the public in them. The COEH faculty have conducted and supported a plethora of scientific studies resulting in groundbreaking results of interest to the public, including professionals in the field, community based organizations, the legislature and other stakeholders. The priority of the COEH looking forward in the coming year is to use innovative means to share research results and develop/strengthen linkages to both the UCLA community and the community beyond the UCLA campus borders to support building momentum for increased educational, research and programmatic activities in the COEH.

A central component of all research efforts that the COEH has embarked upon is the inclusion of community based organizations or interest groups as strong partners in projects. For example, a recent grant submission to look at the impacts of rail yard pollution in three communities in Southern California included partnerships with three community based/neighborhood organizations working in those rail yards adjacent communities so that research would be conducted in an interactive manner and ultimately results would be directly communicated to local communities. This model of joint research efforts demonstrates the COEH's commitment



to supporting the vision of Chancellor Gene Block to, “marshal our campus-wide intellectual resources toward intense civic engagement.”

With this new vision of connecting UCLA resources to the broader community and using innovative ways to share the activities of the COEH, current and prospective students will have more opportunities to apply their knowledge in experiential ways to provide real-world context for these developing professionals in occupational and environmental health.

Examples of COEH Outreach follows:

- Fall 2006: Special COEH Seminar Series “Current and Historical Issues in Occupational Health and Air Pollution, UCLA.
- September, 2006: Sponsorship of Workshop on Methodological Issues in Studies of Air Pollution and Perinatal Outcomes, Mexico City.
- November, 2007: Co-Sponsorship of Nanotechnology Occupational Health and Safety Conference, Santa Barbara, CA.
- December, 2007: Co-Sponsorship of the Trade, Health & Environment Impact Project “Moving Forward” Conference, Carson, CA.
- July, 2008: Workshop on New Directions and Advances in Biological and Chemical Exposure Assessment for Epidemiologic and Risk Characterization, UCLA.
- October, 2008: Co-Sponsorship of the 2<sup>nd</sup> Annual Forum of the Americas: Investigation of Psychosocial Factors, Stress and Mental Health in the Workplace, Guadalajara.
- April, 2009: Co-Sponsorship of UCLA Working Conference on Nanotech Regulatory Policy, UCLA.
- COEH, at regular intervals, co-sponsors special seminar speakers as part of the EHS M411 Seminar Series. Past speakers include Paul Blanc (UCSF), Terence Risby (Johns Hopkins), Helen Suh (Harvard University), and Gurumurthy Ramachandran (University of Minnesota).

## LIST OF APPENDICES

### Appendix 1

List of COEH Faculty

### Appendix 2

COEH Organizational Chart

### Appendix 3

Additional new Initiatives in 2000-2009

### Appendix 4a

Program Details: *Southern California Particle Center*

### Appendix 4b

Program Details: *Fogarty Program in Occupational and Environmental Health*

### Appendix 4c

Program Details: *Southern California Environmental Health Sciences Center (SCEHSC)*

### Appendix 4d

Program Details: *Asthma and Outdoor Air Quality Consortium*

### Appendix 4e

Program Details: *Southern California Education and Research Center*

### Appendix 4f

Program Details: *Center for Gene-Environment Studies in Parkinson Disease (UCLA-CGEP)*

### Appendix 5

UCLA School of Public Health Indirect Costs for Fiscal Year 2006-2007

### Appendix 6

COEH Faculty Other Support

### Appendix 7

COEH Faculty Publications 2000-2009

### Appendix 8

Director John R. Froines, Curriculum Vitae

## **Appendix 1 COEH Faculty**

### **Environmental Health Sciences**

John R. Froines (FTE): COEH Director  
William Hinds (FTE): industrial hygiene program lead  
Nola Kennedy  
Shane Que Hee (FTE): environmental chemistry program lead  
Mel Suffet  
Arthur Winer  
Arthur Cho

### **Epidemiology**

Beate Ritz (FTE): program lead  
vacant (FTE)  
Zuo-Feng Zhang  
Leeka Kheifets  
Michelle Wilhelm-Turner

### **Labor Occupational Safety and Health**

Linda Delp (FTE): LOSH Director

### **Occupational and Environmental Medicine**

Philip Harber (FTE): OEM Director  
Vacant (FTE)

### **Occupational and Environmental Nursing**

Wendie A. Robbins (FTE): program lead  
Donna McNeese-Smith

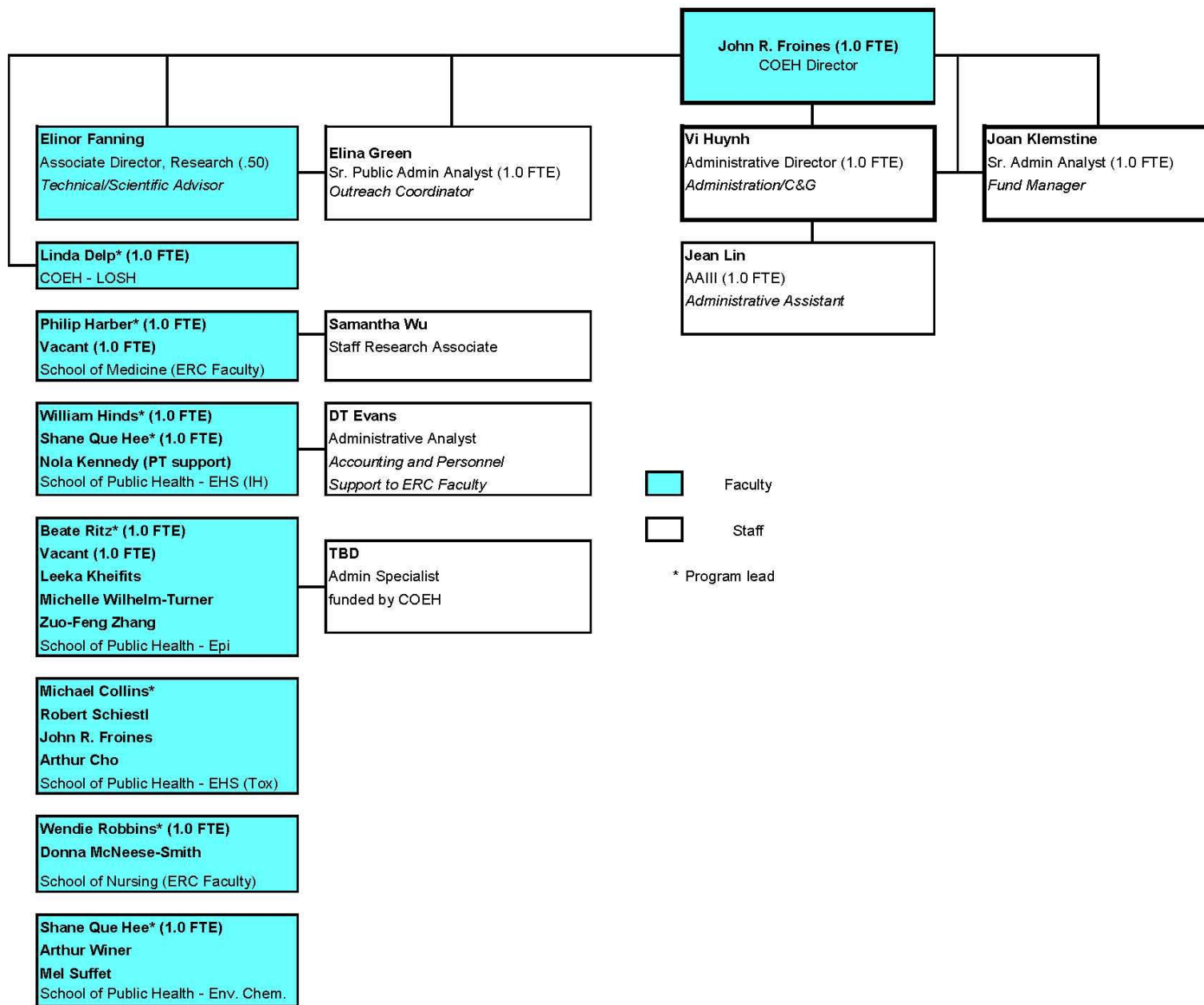
### **Psychosocial Factors in the Workplace**

Peter Schnall

### **Toxicology**

Michael Collins: program lead  
John R. Froines  
Robert Schiestl: program lead  
Arthur Cho

## Appendix 2. COEH Organizational Chart



## **Appendix 3**

### **Additional new Initiatives in 2000-2009**

**UCLA Molecular Epidemiology Program in Environmental Genomics.** UCLA recently received a three-year planning grant (\$650,000) from NIEHS to create the UCLA Molecular Epidemiology Program in Environmental Genomics, focusing on a multidisciplinary approach to the important issue of gene-environment interaction. Under the leadership of COEH faculty, Drs. Zuo-Feng Zhang, Principal Investigator, Robert Schiestl, and John Froines, the grant will integrate novel molecular biological technologies and methodologies into epidemiological research. This program will study genetic susceptibility and the risk of airborne pollutant-related diseases (such as asthma, chronic obstructive pulmonary disease, and airway cancers). It is gathering epidemiologists, molecular biologists, toxicologists, and others to apply molecular and genetic technologies to the study of toxicogenetics. The faculty members of this program are the member of the Molecular Epidemiology and Carcinogenesis Program at the UCLA Jonsson Comprehensive Cancer Center.

**Center for Excellence for Environmental Public Health Tracking.** The Centers for Disease Control and Prevention (CDC) has created a new Center of Excellence for Environmental Public Health Tracking at the Northern and UCLA COEHs. The grant is for three years and the UCLA portion is \$460,000. In addition to working together, the COEH scientists will work closely with the California Department of Health Services (DHS) to track environmental health hazards and create research driven policy options for a national tracking system. The new center is one of three nationwide and will focus initially on the association between air pollution and asthma. In addition to the research conducted through the center, a major effort will be undertaken to create a methodology for an environmental health tracking system using Californian and national data sets. The funding has come to closure, but the subject area continues in the planning for the Institute of Sustainable Technology.

**Center for Environmental Genomics.** The new UCLA Center for Environmental Genomics (CEG) has been evolving over the past year. The purpose is to investigate why certain subpopulations of people have elevated sensitivity to environmental agents, which produce disease. The Center uses state of the art facilities for gene expression profiling and proteomics on campus. The main purpose is to bring together investigators working on Environmental Health problems with UCLA's state of the art facilities in genomics (Gene Expression Profiling in the Human Genetics Department) and to make the members of the CEG more competitive to apply for outside funding in this research area. Initial funding for the Center derived from the Jonsson Comprehensive Cancer Center (\$1,000,000/5 years), but a number of recent grants have supplemented the initial funding. The CEG has been led in part by COEH faculty including Robert Schiestl (Director), Zuo-Feng Zhang (Co-Director), Beate Ritz, Michael Collins and John Froines.

**Asthma and Outdoor Air Quality Consortium.** With funds from the the South Coast Air Quality Management District (AQMD), a new Consortium has been formed which seeks to address the underlying basis and causation of asthma associated with air pollutants, placing emphasis on the mechanistic basis of exposure related health effect, on research which provides additional insights into the sources of pollution responsible for asthma, and on creating greater

knowledge of dose-response relationships. The AQMD support represents 10% of their penalty funds for a total of \$953,599.

**Sustainable Technology Policy Program.** The UCLA Sustainable Technology and Policy Program (STPP) is a new program bringing together faculty and scientists from Law, Public Health, and Public Policy with the goal of establishing an inter-disciplinary program of policy research, education, and outreach supporting adoption of a precautionary approach to chemical policy in California and nationally. STPP brings together researchers from those schools and others across the UCLA campus in a unique, action-oriented initiative. STPP is Co-Directed by John Froines and Tim Malloy.

**Exposure Assessment Initiative** is a new initiative by COEH as evidenced by our July 2008 Workshop on New Directions and Advances in Biological and Chemical Exposure Assessment for Epidemiologic and Risk Characterization. COEH will also be developing an Exposure Assessment Course in conjunction with faculty from Mexico as part of our UCLA-Fogarty Program.

## **Appendix 4a**

### **Program Details: *Southern California Particle Center***

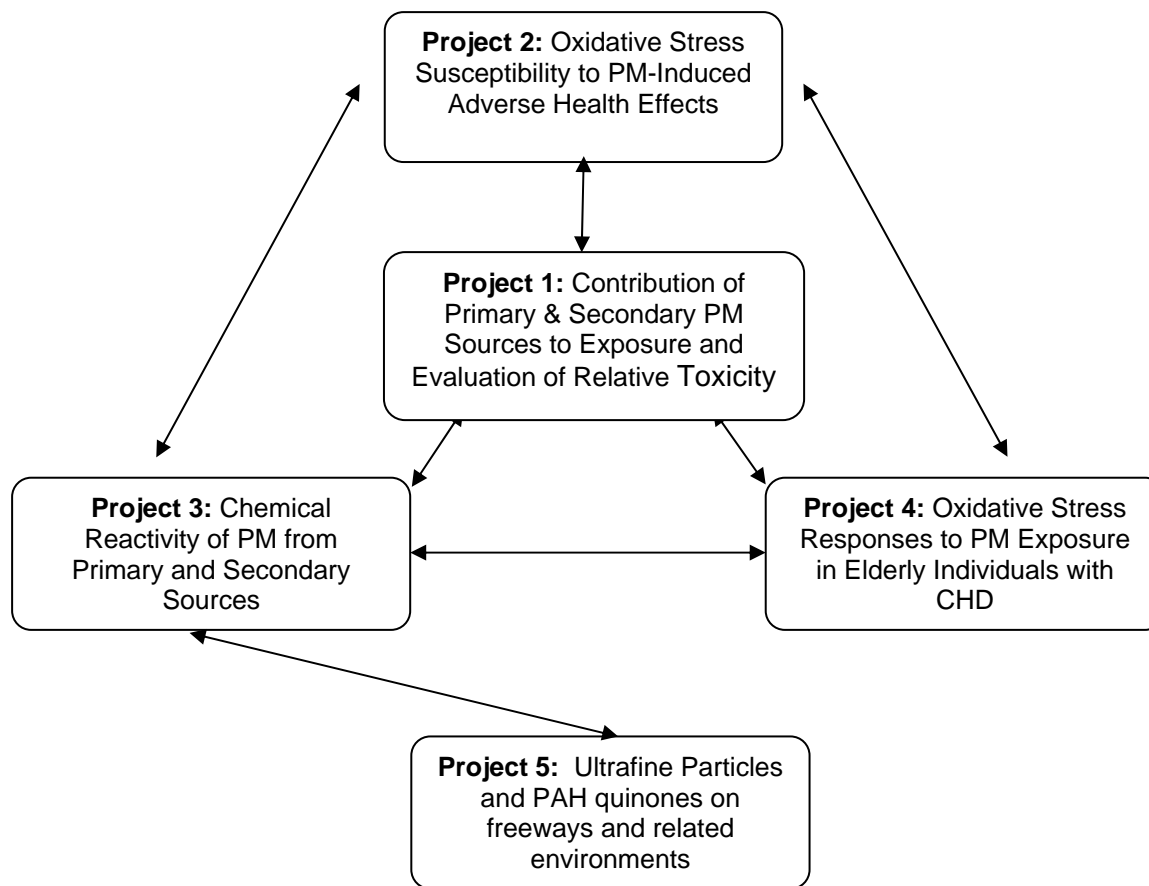
**Director:** John R. Froines

Total Funding: \$18,365,579 (1999-2011)

**Overview of the Southern California Particle Center:** The overall objective of the Southern California Particle Center (SCPC) is to bring together outstanding scientists to conduct high priority research to elucidate the underlying basis for health effects associated with exposure to ambient particulate matter (PM). The SCPC makes use of an integrated approach to address the issues of exposure, dosimetry, toxicology, and epidemiology identified in the EPA's RFA and the Reports of the National Research Council on Particulate Matter. The strengths of the investigators in this center and our demonstrated record of progress, the powerful assortment of equipment available and the unique characteristics of the Los Angeles basin airshed (LAB) taken together are key factors in why Southern California provides a particularly attractive environment and opportunity for PM research studies.

We have assembled a team of highly respected researchers committed to developing strong multidisciplinary programs to address the challenging public health issues posed by PM pollution. Principal investigators in this application include Drs. Constantinos Sioutas (USC), Andre Nel (UCLA School of Medicine), William Hinds and Arthur Cho (UCLA School of Public Health) who were research leaders in the Center during the past five years. Several investigators recognized as being leaders in their disciplines have been added to the Center including Dr. Jack Harkema (Michigan State University), Dr. James Schauer (University of Wisconsin), Drs. Ralph Delfino and Michael Kleinman (UC Irvine), and Dr. Yoshito Kumagai, University of Tsukuba, Japan). Dr. Harkema has recently collaborated with Center investigators (EPA STAR grant), and brings his state-of-the-art trailer for in vivo animal studies. Dr. Schauer is well known for his work on source apportionment and replaces his mentor, Dr. Glen Cass, whose untimely death left a gaping hole in air pollution research. Our collaboration with Dr. Delfino was initiated with recent funding for a panel study of elderly cardiovascular disease patients. Each investigator brings a wealth of talent and diverse resources to the Center. Drs. Beate Ritz, Michelle and Wilhelm Turner are affiliated members of the Center

The studies undertaken by the SCPC address research priorities identified by the EPA, including source linkages, susceptibility to PM, biological mechanisms for PM, and exposure-response relationships. Our research to address these priorities is integrated across a wide variety of disciplines, including aerosol formation and characterization, advanced analytical chemistry, exposure assessment, chemical toxicology, genetic toxicology and immunology, animal toxicology, epidemiology and biostatistics. Linking the diverse research efforts into a coordinated whole is an overarching theme, as illustrated in the pictorial diagram of the five SCPC projects.



**Project 1:** Constantinos Sioutas (USC) and James Schauer (University of Wisconsin-Madison)

**Project 2:** Andre Nel (UCLA School of Medicine), Jack Harkema (Michigan State University), Michael Kleinman (UC Irvine School of Medicine), Aldonis Lulis (UCLA School of Medicine)

**Project 3:** Arthur Cho (UCLA EHS), John R. Froines (UCLA EHS), Yoshito Kumagai (University of Tsukuba, Japan).

**Project 4:** Ralph Delfino (UC Irvine Dept. of Epidemiology, Norbert Staimer (UC Irvine Dept. of Genetic Epidemiology), Susan Neuhausen (UC Irvine Dept. of Physiology and Oxidative Stress).

The Southern California Particle Center has published over 200 peer-reviewed journal articles. A partial list can be found at [www.scpcs.ucla.edu](http://www.scpcs.ucla.edu)



## **Appendix 4b**

### **Program Details: *Fogarty Program in Occupational and Environmental Health***

**Director:** John R. Froines

Total Funding: \$1,939,095 (1995-2010)

Since its inception in 1995, the UCLA-Mexico Collaborative Training and Research Program (UCLA-Fogarty Program) has focused on the development of training and research related to environmental and occupational health (EOH) needs in Mexico. A major goal of the program has been to train scientists and professionals to deal effectively with environmental and occupational health issues. Through this program's efforts, significant numbers of Mexican students, professionals, and government officials have received valuable information and training and relevant research findings have been reported. We believe the UCLA-Fogarty Program in Mexico has had an important role helping to nurture academic programs that address environmental and occupational health, created research on societal needs, and trained persons who will occupy important scientific positions with the potential to influence regulation, and control and reduce morbidity and mortality associated with the workplace and the environment.

The following types of training and related activities have been supported by the program: 1) doctoral and faculty training; 2) Master's level training; 3) short term training at UCLA; 4) short courses offered at UCLA or in Mexico; 5) curriculum design, 6) professional training, 7) development of a textbook on epidemiology methods in Spanish, 8) conferences in Mexico and UCLA, and 9) an initial commitment to develop online courses for distance learning geared for persons outside Mexico City as well as across Latin America. Most importantly the training has provided an opportunity to develop in-depth relationships with faculty in Mexican universities from which new collaborations have emerged. We have solidified the commitments to long-term activity between UCLA and Mexican institutions/investigators.

Dr. John Froines has directed the Fogarty Program since its outset in 1995. Other participating COEH faculty includes Drs. Collins, Que Hee, Schiestl, Zhang, Kennedy, Hinds, Harber, Robbins, Suffet, Winer, Wilhelm and Ritz.

Collaborators in Mexico include faculty from the National Institute of Public Health (INSP), Centro de Investigaciones Avanzadas (CINVESTAV), Universidad Nacional Autonoma de Mexico (UNAM), Universidad Autonoma Metropolitana-Azcapotzalco (UAM-A), and the Mexican Institute for Social Security (IMSS). U.S. collaborators include respected scientists and faculty from the University of California, Los Angeles (UCLA), University of Southern California (USC), University of California, Irvine (UCI), and the California Air Resources Board (CARB).

Examples of UCLA-Fogarty Program and COEH faculty collaboration in recent years include the following:

#### **Research Projects**

- *International Study of Childhood Leukemia and Residences near Electrical Transformer Rooms* (Kheifets/IMSS)
- *Effect of Particulate Matter on DNA Deletions in Mice*, postdoctoral fellow support for Natalia Manzano Leon (Schiestl/UNAM)

- *Lung Function Growth in Children with Long-Term Exposure to Air Pollutants in Mexico City*, research support for MSc student, Victor Miranda (Froines/INSP)
- *Role of the Antioxidant Response Modulated by NRF-2 Transcription Factor in Toxic Damage in the Lung and Heart of Rodents Exposed to Concentrated Ambient Particles*, research support for postdoctoral scholar and Ph.D student (Froines/CINVESTAV)

### **Curriculum Development**

- Development of a Risk Assessment Course as part of a Distance Diploma Program (Froines/CINVESTAV, INSP)
- National meeting of occupational medicine residency program directors in Mexico conducted a review and revision of the residency program curricula. COEH faculty member, Phil Harber provided input and commented on the proposed revisions.
- Children's Environmental Health Course translation and critique. (Froines/INSP)

### **Student Support**

- Psychosocial Effects in the Workplace Initiative graduate student and trainee, Javier Garcia (Schnall/UAEM)
- Isabel Garcia-Rojas, a UCLA continuing PhD student currently received Fogarty in support of her Master's Degree (2006). Three COEH faculty (Froines, Harber, Schnall) currently sit on her doctoral committee.
- Scholarships and travel support for 9 students each summer from 2000-present (72 total) to attend INSP summer program. COEH faculties have also participated by giving short courses on topics such as ergonomics, environmental chemistry, toxicology, etc.
- Rubi Garcia Dominguez, MSc student, was in residence at UCLA for 5 weeks while learning how to perform organic and elemental carbon content determination from PM<sub>10</sub> and PM<sub>2.5</sub>. (Froines/CINVESTAV)

### **Scientific Meetings and Short Courses**

- 2nd forum of the Americas in Investigation on Psychosocial Factors, Stress and Mental Health in the Workplace. Besides providing financial support, COEH member Peter Schnall was a key organizer and participant.
- Workshop on Methodological Issues in Studies of Air Pollution and Perinatal Outcomes, Mexico City. Funded by the UCLA-Fogarty Program and organized by COEH faculty member, Michelle Wilhelm-Turner.

#### **Appendix 4c**

**Program Details:** *Southern California Environmental Health Sciences Center (SCEHSC)*

**Associate Director:** John R. Froines

Total Funding: \$1,269,693 (2001-2010)

*Total does not include supplemental funding for pilot projects (see below)*

Goal and Theme: An ever-expanding body of scientific evidence connects the environment with human health. Although progress has been made in understanding the role of the environment in disease causation, we have yet to identify etiologic factors for many common diseases that are associated with substantial morbidity and mortality. Nor have we been able to clearly identify groups of individuals who are at greatest risk for health effects from environmental exposures. In addition, we are still learning the best ways to accurately assess and characterize environmental exposures. To prevent environmental diseases and ill health in diverse human populations, we need to learn more about how to assess both exposure and health outcomes, how host factors contribute to variation in sensitivity, and how to translate research results into preventive action. We have positioned our Center to respond to these challenges and to have a positive impact on public health by designing our Center around the theme of *Environmental Exposures, Host Factors and Human Disease*.

The goal of our Center is to improve health by identifying environmental risks, genetic co-factors and other susceptibility determinants for disease and ill health. To accomplish this goal, the Center has and will continue to: 1) develop and refine methods for exposure assessment and health outcome assessment; 2) develop informative study designs for addressing risks of environmental exposures, including gene-environment interactions; 3) investigate environmental exposures and determinants of susceptibility to these exposures in diverse human populations; and 4) link its research efforts with the environmental health needs of the communities it serves. The Center has been structured to promote these emphases.

Dr. John R. Froines is Associate Director of the SCHESC overall and Director of the UCLA subcontract. He is Director of the Exposure Assessment Research Core and Dr. William Hinds is director of the Exposure Assessment Service Core. Other UCLA COEH members of the SCEHSC include Drs. Arthur Winer, Nola Kennedy, Beate Ritz, and Arthur Cho.

As a means of achieving its goals, the SCHESC grants a number of pilot project grants each year to promising researchers. Pilot project grants that have been awarded to UCLA researchers in recent years include:

- Arantza Eiguren (Environmental Health Sciences): *Modification of the DTT Assay to increase its throughput and its Sensitivity*, \$28,425
- Nicole Gatto (Epidemiology): *Sunlight Exposure & Vitamin D Metabolic Gene Variations in Parkinson's disease*, \$8,008
- Allen Haddrell (Nanomedicine): *Development of Instrumentation to Monitor the Oxidative Stress Potential of Particulate Matter in Near Real-Time*, \$27,540
- Jo Kay Ghosh (Epidemiology): *Exposure to Airborne Allergens and Endotoxins during Pregnancy and the Risk of Preterm Delivery*, \$15,074

- Nola Kennedy (Environmental Health Sciences): *Concentration Measurements of Aerosolized Carbon Nanotubes in our Environment*, \$30,900
- Arantza Eiguren (Environmental Health Sciences): *Effects of Exposure of Naphthalene and its Metabolites on Thiol Enzymes in Lung Epithelial Cells*, \$30,900
- Michelle Turner (Epidemiology): *Assessing the influence of difference neighborhood SES measures on asthma and traffic related air pollution in the L.A. FANS cohort*, \$38,180
- Masaru Shinyashiki (Pharmacology): *Effects of PM Constituents on Redox Status of Cells*, \$38,100
- Robert Schiestl (Environmental Health Sciences): *Analytical Chemistry Cores/Effects of Carcinogen Exposure on DNA rearrangements in Human Cell*, \$38,125

## Appendix 4d

**Program Details:** *Asthma and Outdoor Air Quality Consortium*

**Director:** John R. Froines

Total Funding: \$953,599 (2004-2010)

Asthma incidence rates have increased substantially in the past decades. Approximately one in 12 children are affected by asthma in Southern California, with rates rising to 13% of children under the age of 17 in San Bernardino County. Current research being conducted in Southern California shows strong ties between air pollution and increased symptoms among asthmatics.

In order to further research on the links between air pollution and asthma, the Governing Board of the South Coast Air Quality Management District (AQMD) voted to establish an independent Southern California Consortium on Asthma and Outdoor Air Quality. The Consortium seeks to address the underlying basis and causation of asthma associated with air pollutants, placing emphasis on the mechanistic basis of exposure related health effects, on research which provides additional insights into the sources of pollution responsible for asthma, and on creating greater knowledge of dose-response relationships.

Consortium Projects include:

### *Cycle A*

- Rob McConnell (USC): *Relationships between PM, Traffic and Asthma*
- Ralph Delfino (UCI): *Exhaled NO in Asthmatic Children and Personal Particulate Matter Exposures*
- Constantinos Sioutas (USC): *Automated Aerosol Concentration System for the Collection of Suspended Particulate Matter in Aqueous Solutions Suitable for Toxicological Assays*
- Beate Ritz (UCLA Epidemiology): *Traffic-related Air Pollution and Acute Respiratory Diseases and Asthma in Children Ages 0-5 in the SoCAB from 1990-2000*
- Arthur Cho (UCLA Environmental Health Sciences): *Interaction of Reactive Organic Compounds with the Capsaicin Receptor*

### *Cycle B*

- Ralph Delfino (UCI): *Repeated hospital encounters by children with asthma and exposure to traffic-related air pollutants*
- Beate Ritz (UCLA Epidemiology): *Pre- and Post-Natal Air Pollution Exposure and Early Childhood Respiratory Disease in the UCLA Environment and Pregnancy Outcomes Study (EPOS) Cohort*
- Arthur Cho (UCLA Environmental Health Sciences): *Interaction of 1,2-naphthoquinone (1,2-NQ) with the epidermal growth factor receptor (EGFR) system.*
- Michael Kleinman (UCI): *The Roles of Pollutant Components in the Development of Asthma*

## Appendix 4e

**Program Details:** *Southern California Education and Research Center*

**Director:** William Hinds

**Acting Director:** John R. Froines (7/2009-2010)

Total Funding: \$6,764,076 (2004-2009), Renewal pending

The Region IX NIOSH ERC for Southern California is directed by Dr. William Hinds of UCLA. The Associate Director is Dr. Dean Baker of UC Irvine. The Center is composed of four core academic programs, five correlated programs, and Center Administration. The core programs are one each in industrial hygiene and occupational health nursing and two in occupational medicine. The correlated programs are Continuing Education that cuts across the four core programs, Hazardous Substances Training, Hazardous Substances Academic Training Program, Pilot Project Research Training Program, and NORA Research Support Program that also involves the four core programs.

<u>Institution</u>	<u>Program</u>	<u>Degree(s)</u>	<u>Program Director</u>	<u>Offered</u>
UCLA	Industrial Hygiene		Dr. William Hinds	MPH/MS/PhD
UCLA	Hazardous Substance Academic Training		Dr. Nola Kennedy	MPH, MS
UCLA	Occupational and Env. Health Nursing		Dr. Wendie Robbins	MS
UCI	Occupational Medicine		Dr. Dean Baker	MS/certificate
UCLA	Occupational Medicine		Dr. Philip Harber	MPH/certificate
UCLA	Center Administration		Dr. William Hinds	-
UCLA	Continuing Education/Outreach		Ms. Cass Ben-Levi	-
	Includes: Hazardous Substances Training			
UCI/UCLA	NORA Research Support		Dr. Dean Baker	-
UCLA/UCI	Pilot Project Research Training		Dr. William Hinds	-

### SCERC Values and Vision

The SCERC has as its **core values** a commitment to worker health, scientific integrity, and excellence in teaching.

The **core purpose** of the SCERC is to improve worker health through education, research, and service.

The **mission** of the SCERC is to accomplish our core purpose by educating professionals in the fields of occupational medicine, industrial hygiene, and occupational health nursing through academic programs and continuing education; conducting research in occupational and environmental health and related areas; and providing outreach and resources to educational and professional organizations.

The **vision** of the SCERC is to be recognized as a leader in education and research in occupational and environmental health.

**Center Goals and Objectives** - The goals of our Southern California Region IX Educational Resource (ERC) Center are:

1. To educate professionals in the disciplines of occupational and environmental medicine, industrial hygiene and occupational health nursing. We believe the biggest impact our ERC can have is to attract and train bright, energetic leaders in the primary occupational health fields.
2. To provide continuing education for professionals in the field or other person with responsibilities in the occupational safety and health area. We believe that it is extremely important to provide stimulation, updates of information, promotion of interdisciplinary activities and training of professionals and non professionals on occupational health and safety issues.
3. To proliferate occupational safety and health activities through outreach to other educational institutions, other parts of universities and to organizations in a position to influence positively the occupational safety and health area.
4. To provide a focus for research activities in occupational safety and health. The results of this research can be disseminated to organizations and agencies in a position to implement preventive action.
5. To be an occupational safety and health resource to organizations (such as companies and unions) and agencies that need the expertise on occupational safety and health that our ERC possesses.
6. To act as a focus to marshal all types of community resources in occupational safety and health to identify and solve problems in the work setting and environment.
7. To respond to the changing nature of occupational health and safety problems and to develop educational programs to deal with emerging problems and issues.

## **Appendix 4f**

**Program Details:** *Center for Gene-Environment Studies in Parkinson Disease (UCLA-CGEP)*

**Director:** Marie-Francoise Chesselet

**Co-Director:** Beate Ritz

Total Funding: \$12,000,000 (2002-2013)

### **Overview**

The UCLA-CGEP explores mechanisms by which genetic and environmental influences combine to increase the risk for Parkinson's disease (PD) in susceptible individuals through interplay between neurotoxic pesticides and biologic mechanisms regulating the neurotransmitter dopamine in brain cells. Parkinson's disease symptoms are caused by the death of dopamine producing cells and a lack of this neurotransmitter in the brain. There is extensive evidence that pesticides, a suspected risk factor for PD, interact with multiple mechanisms that regulate the intra- and extracellular levels of the dopamine, which itself is a powerful oxidant that can be highly toxic to cells. Critical factors in this interaction of dopamine homeostasis and pesticides may be oxidative stress and the function of the proteasome, an organelle involved in protein degradation in cells. Both dopamine and pesticides can produce oxidative stress; pesticides can directly affect dopamine transporters, thus causing alterations in dopamine homeostasis, and possibly interfere with proteasomal function.

### **UCLA Project I:**

#### **Environmental toxins and genes that influence cytosolic dopamine**

Project Leader: Beate Ritz

Co-Investigators: David Krantz, Charles Glatt

This project uses a high throughput genetic approach coupled with cellular assays to assess gene function and address the question of how and whether genetic variations impact dopamine homeostasis in humans that participate in a large epidemiologic study at UCLA. This project also uses the model organism *Drosophila melanogaster* (the fruit fly) to study gene-environment interactions relevant to dopamine metabolism. We use the power of fly genetics to identify new genes that may contribute to neuroprotective mechanisms relevant to both environmental toxins and dopamine itself.

### **UCLA Project II:**

#### **Interaction between pesticides and genetic alterations of dopamine homeostasis in mice**

Project Leader: Marie-Françoise Chesselet

Co-Investigators: Nigel Maidment, Michael Levine, Robert Schiestl

This project employs the extensive mouse colonies at UCLA, specifically mice with genetic alterations in the vesicular and cytoplasmic dopamine transporters as well as in proteins known to cause familial Parkinson's disease. Exposing these mice to certain pesticides, we examine whether variations in dopamine homeostasis due to genetic factors increase the ability of pesticides to cause oxidative stress in dopamine-producing neurons and whether this interaction increases the vulnerability of dopamine neurons *in vivo*.

### **UCLA Project III:**

#### **Pesticides and proteosomal dysfunction: Genetic susceptibility in cellular models**



Project Leader: Jeff Bronstein

Erik Schweitzer, Robert Schiestl, Allan J. Tobin

One key player in the vulnerability of dopamine neurons in PD is the proteasomal pathway; i.e. growing evidence suggests that proteasomal dysfunction plays a critical role in neurodegenerative diseases. Thus, project III uses immortalized cell lines, primary cell cultures from the genetically engineered mice used in project II, and lymphoblasts from patients identified from the epidemiologic study to examine the effects of pesticides on the function of the proteasome.

**Appendix 5**  
**UCLA School of Public Health**  
**PI Indirect Costs Generated Fiscal Year 2006-2007**

<b>PI</b>	<b>Indirect Cost</b>
Detels, Roger	\$676,731.62
Brown, E. Richard	\$608,002.38
<b>&gt; \$500,000</b>	
Bastani, Roshan	\$445,101.27
Ritz, Beate	\$373,901.47
Froines, John	\$233,946.77
Ganz, Patricia	\$222,599.46
<b>&gt; \$200,000</b>	
Zhang, Zuo-Feng	\$167,465.03
Yancey, Antronette	\$154,360.24
Liu, Simin	\$150,083.78
Kheifets, Leeka	\$145,589.13
Siegel, Judith	\$135,272.30
Gorbach, Pamina	\$126,509.38
Cumberland, William	\$125,639.03
Maxwell, Annette	\$106,630.06
Hinds, William	\$102,986.02
<b>&gt; \$100,000</b>	
Pebbley, Anne	\$98,924.77
Wallace, Steven	\$87,976.01
Wolfe, Nathan	\$83,313.06
Aneshensel, Carol	\$79,029.48
Halfon, Neal	\$75,258.15
Kagawa-Singer, Marjorie	\$70,861.71
Shoaf, Kimberley	\$70,674.70
Kominski, Gerald	\$64,886.72
Prelip, Michael	\$59,325.41
Upchurch, Dawn	\$59,323.54
Ramirez-Kitchen, Christina	\$53,961.78
Belin, Thomas	\$53,550.15
Fielding, Jonathan	\$51,748.36
<b>&gt; \$50,000</b>	
Needleman, Jack	\$46,317.89
Harrison, Gail	\$44,341.15
Andersen, Ronald	\$43,383.50
Rice, Thomas	\$42,905.09
Schiestl, Robert	\$41,323.86

<b>CC</b>	<b>PI</b>	<b>Indirect Cost</b>
AA	Affi, Abdelmonem	\$40,691.06
WW	Wong, Weng Kee	\$40,586.21
RK	Kaplan, Robert	\$37,078.24
SC	Cochran, Susan	\$35,209.47
CT	Crespi, Catherine	\$34,514.40
AO	Ortega, Alex	\$28,917.61
GA	Galal, Osman	\$26,042.18
<b>&gt; \$25,000</b>		
MU	Iguchi, Martin	\$22,570.78
SL	Layne, Scott	\$21,925.95
LU	Mendez-Luck, Carolyn	\$21,553.87
ME	Inkelas, Moira	\$19,696.51
DM	Morisky, Donald	\$18,000.40
CE	Eckhert, Curtis	\$17,048.37
GL	Li, Gang	\$16,170.93
WM	McCarthy, William	\$13,177.54
WE	Weiss, Robert	\$11,872.95
AW	Winer, Arthur	\$11,712.15
DG	Glik, Deborah	\$11,218.90
LB	Bourque, Linda	\$10,413.37
NN	Ponce, Ninez	\$9,890.91
AR	Rimoin, Anne	\$9,364.53
JO	Olsen, Jorn	\$8,417.13
EA	Abel, Emily	\$8,006.68
NP	Pourat, Nadereh	\$7,439.53
CN	Neumann, Charlotte	\$6,396.93
BB	Berman, Barbara	\$5,732.34
NK	Kennedy, Nola	\$5,555.64
DD	Dabrowska, Dorota	\$5,374.89
<b>&gt; \$5,000</b>		
MS	Suffet, Irwin	\$3,095.09
CG	Sugar, Catherine	\$2,787.20
MV	Javanbakht, Marjan	\$2,351.32
BS	Breslow, Lester	\$1,800.63

**Appendix 6**  
**UCLA COEH Faculty Other Support**

**John R. Froines:**

*Other Support - Current*

PI	Name of Award	Agency	Type of project	Project Period	Funding
Froines, J.	UCLA-Mexico/Latin American Training & Teaching Program	NIH	Training	09/30/95 – 04/30/10	\$1,939,095
Froines, J.	Environmental Exposures, Host Factors, and Human Disease - Analytical Chemistry Cores.	NIEHS	Research	04/04/01 – 3/31/11	\$1,269,693
Froines, J.	Southern California Particle Center	US EPA	Research	10/1/99-9/30/11	\$18,365,579
Froines, J.	Asthma and Outdoor Air Quality Consortium	SCAQMD	Research	12/31/03-06/30/10	\$953,599
Hinds, W.	UCLA Education and Research Center	NIOSH	Training	07/1/05-06/30/09	\$6,764,076
Sioutas, C.	Physicochemical and toxicological assessment of the semi-volatile and non-volatile fractions of PM from heavy and light-duty vehicles operating with and without emissions control technology.	CARB	Research	02/01/06-12/31/09	\$279,999

*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Direct Costs	Indirect Costs
Froines, J.	Center of Excellence for Environmental Public Health Tracking	Centers for Disease Control	Research	09/30/02 – 09/29/05	\$373,323	\$88,603
Zhang, Z.	Molecular Epidemiology and Gene-Environment Interaction	NIH/NIEHS	Research	04/01/02– 03/31/05	\$450,000	\$200,694
Froines, J.	Monitoring and Modeling of Ultrafine Particles and Black Carbon at the Los Angeles International Airport	CARB	Research	05/15/05- 11/14/06	\$103,624	\$10,392
Froines, J.	Development of an Exposure Facility to Conduct Inhalation Studies to Ambient Aerosols	CARB	Research	05/30/99– 05/15/06	\$2,230,428	\$66,170
Froines, J.	Evaluation of In Vitro Biological Effects Induced by Particulate Matter from Mexico City and Los Angeles	UC MEXUS	Research	07/01/03– 12/31/04	\$5,000	\$0
Froines, J.	Southern California Particulate Matter Supersite (SCPMS)	US EPA	Research	01/15/00 12/31/06	\$2,660,820	\$889,036
Delfino, R.	Determination of the Reactive Oxygen Species Activity in PM and Enhanced Exposure Assessment for the NIH/NIEHS study	CARB	Research	06/28/04-5/31/08	\$108,890	\$10,889
Froines, J.	Pacific Rim Research Program	UC Office of the President	Research	7/01/03-06/30/07	\$18,000	\$0

Froines, J.	An Automated System for Task-Based Evaluation of Size Distribution of Beryllium Aerosol at the Los Alamos Beryllium Technology Facility	UC Los Alamos National Laboratory	Research	02/19/99 – 06/30/07	\$678,000	\$0
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**Arthur Cho:**

*Other Support – Current*

PI	Name of Award	Agency	Type of project	Project Period	Direct Costs	Indirect Costs
Sioutas, C.	Physicochemical and toxicological assessment of the semi-volatile and non-volatile fractions of PM from heavy and light-duty vehicles operating with and without emissions control technology.	CARB	Research	02/01/06-12/31/09	\$254,545	\$25,454
Froines, J.	Southern California Particle Center	US EPA	Research	10/1/05-9/30/10	\$6,374,074	\$1,625,923

*Other Support – Expired*

PI	Name of Award	Agency	Type of project	Project Period	Funding
Froines, J.	Asthma and Outdoor Air Quality Consortium	SCAQMD	Research	1/1/2008-12/31/08	\$54,785

**Michael Collins:**

*Other Support – Current*

PI	Name of Award	Agency	Type of project	Project Period	Funding
Hankinson, O.	UCLA/UC Riverside/Los Alamos consortium in research and training in mechanisms of toxicity	TSR&TP	Training/Research	7/1/00-6/30/08	\$882,000

*Other Support – Expired*

PI	Name of Award	Agency	Type of project	Project Period	Funding
Collins, M.	Antagonism of all-trans-retinoic acid-induced teratogenesis by up-regulation of the Ha-ras oncogene in a murine model	UCLA Academic Senate	Research	7/01/05-6/30/07	\$6000
Collins, M.	Murine strain sensitivity to cadmium teratogenesis	NIH	Research	4/1/01-3/30/07	\$1,657,987
Collins, M.	Identification of genetic loci associated with differential sensitivity of two inbred murine strains to all-trans-retinoic acid-induced congenital malformations	Center for Inherited Disease Research (CIDR)/NIH	Research	4/1/02-2/1/03	0 (Genotyping provided by the agency)
Fukuto, J.	Interactions between cadmium and arsenite in the production of birth defects	TSR&TP	Research	7/01/02-6/30/04	\$150,000
Collins, M.	Cadmium teratogenesis in murine strains: Proteomics	NIH	Research	9/1/02-8/31/04	\$410,311.51
Froines, J.	Southern California Particle Center and	EPA	Research	9/01/03-8/31/04	\$44,626

	Supersite "Developmental toxicity of components of air contamination"				
Collins, M.	2005 Teratology Society Meeting	NIH	Research	6/2005	\$5,000
Collins, M.	2006 Teratology Society Meeting	NIH	Research	6/2006	\$15,000
Collins, M.	Epithelial to mesenchymal transition as a mechanistic component of cadmium-induced carcinogenesis	Jonsson Comprehensive Cancer Center Ann Fitzpatrick Alper Program (UCLA)	Research	04/01/05-3/31/06	\$20,000

## Linda Delp

### *Other Support – Current*

PI	Name of Award	Agency	Type of project	Project Period	Funding
Delp, L	Young Worker Health Education Project	California Wellness Foundation	Training	1/1/08-12/31/10	\$150,000
Delp, L	Worker Health Safety Training Cooperative Agreement	NIH/NIEHS	Training	8/1/08-7/31/09	\$1,437,297
Delp, L	Worker Occupational Safety & Health Educational Training Program/UCLA	CA/Department of Industrial Relations	Training	7/1/08-6/30/09	\$411,500
Delp, L	Health and Safety Training for Immigrant Workers	NIOSH	Training	6/2/08-10/31/08	\$23,200
Delp, L	Mexico Women Conference	NIOSH	Conference	8/1/08-7/31/09	\$27,459

### *Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Direct Costs	Indirect Costs
Delp, L	Worker Health Safety Training Cooperative Agreement	NIH/NIEHS	Training	8/1/07-7/31/08	1,435,637	41,124
Delp, L	Worker Health Safety Training Cooperative Agreement	NIH/NIEHS	Training	8/1/06-7/31/07	1,420,757	40,801
Delp, L	Worker Health Safety Training Cooperative Agreement	NIH/NIEHS	Training	8/1/05-7/31/06	1,362,089	42,371
Delp, L	Worker Occupational Safety & Health Educational Training Program/UCLA	CA/Department of Industrial Relations	Training	8/1/05-6/30/06	320,000	0
Delp, L	Worker Occupational Safety & Health Educational Training Program/UCLA	CA/Department of Industrial Relations	Training	7/1/06-6/30/07	363,000	0\
Delp, L	Worker Occupational Safety & Health Educational Training Program/UCLA	CA/Department of Industrial Relations	Training	7/1/07-6/30/08	391,500	0
Delp, L	Young Worker Health Education Project	California Wellness Foundation	Training	1/1/05-12/31/07	130,434	19,566

Delp, L	"California's Consumer"-Dissemination of Multi-Disciplinary Research Results in the California Home Care Worker Arena	Labor and Employment Research Fund	Research	7/1/07-6/30/08	15,000	0
Delp, L	"California's Consumer"-Dissemination of Multi-Disciplinary Research Results in the California Home Care Worker Arena	Labor and Employment Research Fund	Research	7/1/06-6/30/07	19,402	0

**Philip Harber:**

*Other Support - Current*

PI	Name of Award	Agency	Type of project	Project Period	Direct Costs	Indirect Costs
Harber, P.	Collaborative Training Program in Occupational Medicine- King Faisal University.		Training	2000-2010		

*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Direct Costs	Indirect Costs
Harber, P.	Health Effects Panel- Hanford Environmental Site/ CH2Mhill.			2004-2006		
Harber, P.	Workers Compensation Guidelines	RAND		2004		
Harber, P.	Working Conditions of Dental Hygienists	NIOSH/CDC/ER C	Pilot Project	2003-2004		
Harber, P.	Occupational Medicine Residency	NIOSH/CDC		2002-2004		
Harber, P.	COPD: Occupation, Airway Responsiveness, and Smoking Effect	Centers For Disease Control and Prevention/Association of American Medical Colleges		2001-04		
Harber, P.	Occupational Medicine Residency	NIOSH/CDC		1999-03		
Harber, P.	Distributed Occupational Knowledge System	National Cancer Institute	RO1	1999-02		
Harber, P.	Beryllium Exposure Surveillance System	Department of Energy		1999-02		
Harber, P.	Respirator Effects in Impaired Workers	CDC/ NIOSH	RO1	2005-2008		
Harber, P.	Beryllium Bio-Repository	US Dept of Energy		2005-2008		
Harber, P.	Carbon Black Respiratory Effects	International Carbon Black Association		2001-08		

**William C. Hinds:**

*Other Support - Current*

PI	Name of Award	Agency	Type of project	Project Period	Direct Costs	Indirect Costs
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Hinds, W.	Southern California Education and Research Center	CDC/NIOSH	Training grant	07/01/04-06/30/09	\$6,439,574	\$324,502
Hinds, W.	Cardiovascular Health Effects of Fine and Ultrafine Particles during Freeway Travel	California Air Resources Board	Research contract	06/30/05-06/30/07	\$559,520	\$20,685
Froines, J.	An Automated System for Task-Based Evaluation of Size Distribution of Beryllium Aerosol	Los Alamos Beryllium Technology Facility	Research grant	07/01/06-06/30/07	\$678,000	None
Froines, J.	Environmental Exposures, Host factors, and Human Disease – Analytical Chemistry Cores	NIEHS	Research grant	04/01/06-03/31/07	\$339,075	\$217,496
Froines, J.	Southern California Particle Center	SCPC	Research grant	10/01/06-09/30/07	\$6,374,074	\$1,625,923
Schiestl, R.	Effect of Parkin on DNA Damage Induced Rearrangement	NIH/Niehs	Research grant	-7/01/05-06/30/07	\$250,000	\$136,250

*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Direct Costs	Indirect Costs
Robbins, W.	Male Reproductive Effects From Occupational Exposure to Boron	CDC/NIOSH	Research	10/01-9/06		
Kennedy, N.	Feasibility of Using Respirators as Personal Samplers	SCERC/NIOSH	Pilot	7/02-6/03		

**Nola Kennedy:**

*Other Support – Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Hinds, W.	Southern California Education and Research Center	CDC/NIOSH	Training grant	07/01/05 - 06/30/09	\$6,764,076
Froines, J.	Southern California Particle Center	SCPC	Research grant	10/01/05-09/30/10	\$7,999,997
Froines, J.	Environmental Exposures, Host factors, and Human Disease – Analytical Chemistry Cores	NIEHS	Research grant		\$556,571
Hinds, W.	Cardiovascular Health Effects of Fine and Ultrafine Particles during Freeway Travel	California Air Resources Board	Research contract		\$580,205

*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Tashkin, D.	Distal Lung Inflammation Effect on Asthma Exacerbations	NIH	Research	04/01/05 – 03/31/09	

Hinds, W.	Training Program to Increase the Identification Analysis, Remediation & Prevention of Workplace Injuries & Illness among Uninsured (Often Undocumented) Workers	California Wellness Foundation	Training grant	07/01/06-06/30/07	\$180,000
Hinds, W.	Southern California Education and Research Center	CDC/NIOSH	Training grant	07/01/06-06/30/07	\$6,764,076
Hinds, W.	Cardiovascular Health Effects of Fine and Ultrafine Particles during Freeway Travel	California Air Resources Board	Research contract	06/30/05-06/30/07	\$580,205
Hinds, W.	Preventing Workplace Injuries and Illness Among Groundskeepers in the Tourism Industry	Dept of Labor/Harwood	Training grant	09/30/06-09/30/07	\$188,287
Froines, J.	Environmental Exposures, Host factors, and Human Disease – Analytical Chemistry Cores	NIEHS	Research grant	04/01/06-03/31/07	\$556,571
Froines, J.	Southern California Particle Center	SCPC	Research grant	10/01/06-09/30/07	\$7,999,997
Froines, J.	An Automated System for Task-Based Evaluation of Size Distribution of Beryllium Aerosol	Los Alamos Beryllium Technology Facility	Research grant	07/01/06-06/30/07	\$678,000
Robbins, W.	Male Reproductive Effects From Occupational Exposure to Boron	CDC/NIOSH	Research grant	10/01/01 - 09/30/06	

## Leeka Kheifets:

### *Other Support - Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Kheifets, L.	Updated Pooled Analysis of Childhood Leukemia and Magnetic Fields	Children with Leukemia (U.K.)	Research	12/1/05-11/30/09	\$192,326
Kheifets, L.	Feasibility of TrasfEXPO Study	Electrical Power Research Institute	Research	9/1/07-12/31/09	\$136,939
Kheifets, L.	Replication of Draper Study of Leukemia, Brain Tumors & Distance to Power Lines in California	Electrical Power Research Institute	Research	10/1/06-12/31/11	\$504,058
Kheifets, L.	Exploring Exposure-Response for Magnetic Fields using Data Sets	Energy Networks Assoc	Research	9/8/08 – 2/28/09	\$11,652

### *Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Kheifets, L.	Update of the pooled Analysis	Children with Leukemia	Research	2006-	\$192,500
Kheifets, L.	Draper Replication in California	EPRI	Research	2006-	\$124,900
Kheifets, L.	Meta Analysis	EPRI	Research	2006-	
Kheifets, L.	Gene- Environment Interaction	EPRI	Research	2006-	\$213,800
Kheifets, L.	Neurodegenerative disease and occupational exposure	NEA	Research	2006	\$91,305
Kheifets, L.	Occupational cohorts, methods	University of Birmingham	Research	2006	\$32,155
Kheifets, L.	Pooled analysis of Childhood Brain Tumors	EPRI and SCE	Research	2006	\$386,000
Kheifets, L.	Use of cell phones during pregnancy and in early childhood	UCLA Research Innovation Seed Grant Program	Research	2006	\$19,872
Kheifets, L.	EMF and Children	WHO and EPRI	Research	2005	\$50,000



Kheifets, L.	Development of Environmental Health Criteria	WHO	Research	2004	\$166,000
Kheifets, L.	Selection Bias in Case-Control Studies	EPRI	Research	2004	\$50,000
Kheifets, L.	Prospective cohort study on mobile phone use and health Extension of pilot	UK Department of Health and Industry	Research	2004	\$200,000
Kheifets, L.	Incorporating uncertainty in Analysis of EMF data for Public Health evaluation	EPRI	Research	2004	\$105,000

**Donna McNeese-Smith:**

*Other Support - Current*

PI	Name of Award	Agency	Type of project	Project Period	Direct Costs	Indirect Costs
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*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Direct Costs	Indirect Costs
Hinds/ Robbins	Training Grant for Occupational Health Nurse Practitioner Program	NIOSH	Training Grant	07/01/02 – 06/30/03	\$100,035	
Robbins	Multifactorial Genetic Disease Model: Schizophrenia/HLA	NIH/National Institute for Nursing Research	Research	5/1/01-4/30/05	236,273	18,901
Robbins, R	Male Reproductive Effects from Occupational Exposure to Boron	NIH/NIOSH	Research	9/31/01-10/1/07	639,937	2,491,646

**Shane Que Hee:**

*Other Support – Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Hinds	Southern California Education and Research Center	CDC/NIOSH	Training grant	07/01/04-06/30/09	\$6,764,076

*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Que Hee/Takaku	Southern California Education and Research Center	CDC/NIOSH	Pilot Project	11/1/08-06/30/09	\$20,520
Que Hee/Xu	Southern California Education and Research Center	CDC/NIOSH	Pilot Project	11/1/05-06/30/06	\$20,520
Que Hee/Phalen	Southern California Education and Research Center	CDC/NIOSH	Pilot Project	11/1/05-06/30/06	\$20,520
Que Hee	UCLA Academic Senate Award	UCLA Acad Sen	Pilot Grant	07/01/05-06/30/06	\$3,000
Que Hee	CEM Investigator Grant	CEM Corp	Instrument	2004	\$3,000

Que Hee/Phalen	Southern California Education and Research Center	CDC/NIOSH	Pilot Project	01/01/04-06/01/04	\$15,910
Que Hee	Sharewd Instrumentation Award	NIEHS	Instrumentation	07/01/03-06/30/04	\$284,866
Que Hee	Association of Schools of Public Health Grant	CDC/NIOSH	Grant	10/01/02-09/30/04	\$150,104
Que Hee	Cdc/niosh Grant	CDC/NIOSH	Granti	06/01/00-05/31/04	\$706,046
Que Hee/Zhong	Toxic Substances Research and Teaching Program Grant	Univ California	Grant	07/ 01/2001-06/30/2003	\$50,000

**Beate Ritz:**

*Other Support - Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Ritz, B.	Project 4: Pesticides and Genes in PD: Studies in Humans	NIEHS	Pilot Study	09/15/08-08/31/13	\$1,250,000
Chesselet, M	UCLA UDALL Parkinson's Disease Center, Project 6	NINDs	Research	4/1/06-3/31/11	\$7,500,000
Ritz, B.	Registry of Parkinson's Disease Study in Denmark	NIEHS	Research	9/1/06-8/31/11	\$5,600,000
Ritz, B.	California Parkinson's Disease Registry Pilot Feasibility Study	DOD	Pilot Study	09/01/07-02/28/10	\$390,000
Chesselet, M	UCLA Center for Centers for Neurodegeneration Science (CNS; former CGEP)	NIEHS	Research	09/15/08-06/30/13	\$5,000,000
Meng, Y.	Development of Exposure and Health Outcome Indicators for Those with Asthma or Other Respiratory Problems	EPA	Research	09/1/07-08/31/10	\$410,000
Meng, Y.	Disparity in Asthma Among Californians from Pollutant Exposures	California Air Resources Board	Research	04/22/08-04/21/10	\$270,000
Ritz, B & Hertz-Picciotto (CO-PIs)	Aggregate Exposure Assessment: Longitudinal Surveys of Human Exposure-Related Behaviors	UC Davis/EPA	Research	01/12/04 11/30/09	\$388,111
Ritz, B.	Traffic-Related Air Pollution and Asthma in Economically Disadvantaged and High Traffic Density Neighborhoods in Los Angeles County, California (with LA F.A.N.S.)	California Air Resources Board	Research	01/06/05-09/30/09	\$420,000
Pebley, A.	Neighborhood Effects on Children's Health & Access to Care	HRSA	Pilot Study	09/01/07-08/31/10	\$500,000
Turner, W	Ambient Air Toxics and Adverse Birth Outcomes	NIEHS	Pilot Study	12/15/08 – 11/30/10	\$55,300
Wu, J	Exposure to mobile source air pollution and adverse birth outcomes in the Los Angeles Air Basin	NIEHS	Research	9/11/08 -8/31/10	\$142,900

*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Ritz, B.	Research Project I within the CGEP center "Environmental toxins and genes that influence dopamine in Drosophila and humans"	NIEHS	Research	09/01/02-08/31/09	\$1,000,000

Chesselet, M	UCLA Center for Gene-Environment Studies in Parkinson's Disease	NIEHS	RO1	1/09/02-8/31/09	\$7,000,000
Ritz, B	Parkinson's Susceptibility Genes and Pesticides (PEG)	NIEHS/NINDs	Research	10/01/00-09/30/07	\$2,653,852
Ritz, B	Traffic Related Air Pollution and Asthma in Economically Disadvantaged and High Traffic Density Neighborhoods in Los Angeles County, California (with LA F.A.N.S.)	California Air Resources Board	Research	1/6/05-9/30/08	\$422,087
Ritz, B	Alpha Synuclein and Environmental Exposures: A Study in Humans	Parkinsons Inst./MJ Fox Foundation	Research	1/1/05-12/31/07	\$67,927
Ritz, B, Cockburn	Prostrate Cancer and Pesticide Exposure in Diverse Populations in California's Central Valley	DOD – subcontract with USC	Pilot Study	5/1/06-12/31/07	\$250,000
Langston	Alpha Synuclein and Environmental Exposures: A Study in Humans	MJ Fox Foundation	Research	01/01/05-12/31/07	\$100,000
Nelson, L	PD Consortium: Genetic and Environmental Factors in Parkinson's Disease	MJ Fox Foundation	Pilot Study	10/01/04-09/30/07	\$50,000
Ritz, B	Traffic-Related Air Pollution and Acute Respiratory Diseases and Asthma in Children Ages 0-5 in the SoCAB From 1990-2000	California Air Resources Board	Pilot Study	01/06/04-09/30/05	\$55,000
Ritz, B.	Assessment of In-Traffic Exposures and Human Reproductive Health	EPA	Pilot Study	07/01/04-06/30/05	\$28,000
Balmes	Center of Excellence for Environmental Public Health Tracking	CDC/ATSDR	Research	10/01/02-09/01/05	(UCLA only) \$300,000
Hobel	Community Response to Maternal/Child Health Disparities	NIH	Research	04/1/03-9/30/05	
Ritz, B	Extension of the Rocketdyne/AI Worker Cohort through 1999	California Cancer Research Program	Research	07/01/00 - 06/30/04	\$337,644
Ritz, B	Traffic-related Air Pollution and Adverse Birth Outcomes	NIEHS	Research	07/15/01 - 06/14/07	\$921,233
Meng, Y	Uncontrolled Asthma and Exposure to Air Pollutants: Linking Chronic Disease and Environmental Data Sources	CDC/NIOSH	Research	10/01/02-9/01/06	\$649,140
Froines, J	Center of Excellence for Environmental Public Health Tracking	CDC/ATSDR	Research	10/01/02 - 09/01/05	\$461,843
Ritz, B	Ergonomic Interventions for Sewing Machine Operators	CDC/NIOSH	Research	10/01/02 - 09/30/06	\$1,144,081
Zhang, Z.	Molecular Epidemiology and Gene-Environment Interaction	NIH/NIEHS	Research	04/01/02-03/31/05	\$450,000

## Wendie Robbins:

### *Other Support - Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Robbins, R	Kaiser-UCLA Genetics Initiative for Nurses	Kaiser Permanente	Research	12/15/06-	\$14,250
Robbins, W	Benefits of Walnuts for Male Reproductive Health	California Walnut Commission	Research	10/1/09-9/30/10	\$183,051

### *Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Robbins, R	Male Reproductive Effects from Occupational Exposure to Boron	NIH/NIOSH	Research	9/31/01-10/1/07	\$3,131,583
Koniak-Griffin, D.	Nursing Center Core Grant: Center for Vulnerable Populations Research	NIH/National Institute of Nursing Research	Research	9/1/04-5/31/09	\$2,415,408

Robbins, W	Human reproductive Effects from Herbicide Exposure	UCLA School of Nursing Intramural	Pilot Grant	9/1/05-	\$25,000
Koniak-Griffin, D.	Center For Vulnerable Populations Research	NIH/National Institute of Nursing Research	Research	9/1/99-8/31/04	\$1,553,941
Robbins, W.	Multifactorial Genetic Disease Model: Schizophrenia/Hla	NIH/National Institute of Nursing Research	Research	5/1/01-4/30/05	\$255,174

## Robert Schiestl:

### *Other Support - Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Kasahara	Evaluation of 6-thioguanine <i>in vivo</i> selection and HLA marker deletion for radiation emergency hematopoietic stem cell transplantation (HSCT)	UCLA-CBRP	Pilot Project	12/17/08 – 12/16/09	\$50,000
Schiestl	Effect of Intestinal Microbiota on Genetic Instability and Immune/ Inflammatory Responses in Atm Deficient Mice	UCLA-JCCC	Research Grant	09/01/08 – 08/31/09	\$150,000
Schiestl	Effect of Space Radiation on degenerative tissue disease, genetic instability, and oxidative DNA damage in Ataxia Telangiectasia deficient mice	NASA	Research Grant	05/01/05 - 04/30/09	\$1,200,000
McBride	UCLA Center for Biological Radioprotectors	NIH	Center Grant	09/01/05 – 08/31/10	\$288,293
Schiestl	Antioxidant Therapy for Ataxia Telangiectasia	NIH/NIEHS	Research Grant	07/01/05 - 06/30/10	\$1,714,818
Schiestl	Effect of Particulate Matter on DNA Deletions in Mice	NIH-FIRCA	Research Grant	02/15/06 - 1/31/09	\$200,060

### *Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Schiestl	Development of the DEL recombination assay in <i>S.cerevisiae</i> for high throughput detection of clastogens and mutagens	Pfizer	Sponsored research agreement	01/01/07 - 12/31/07	\$200,000
Schiestl	Effect of Dietary Supplementation with Tomato Products	UCLA Center for Human Nutrition	Pilot Project	07/01/06 - 06/30/07	\$25,000
Schiestl	Effect of Diesel Exhaust Particles on DNA Deletions	NIH	Research Grant	05/01/05 - 04/30/07	\$424,563
Schiestl	Effect of parkin on DNA damage induced rearrangements	NIH/NIEHS	Research Grant	07/01/05 - 06/30/07	\$386,250
Chessellet	Center for Gene -Environment Studies in Parkinson's Disease	NIH	Center Grant	08/01/02 - 07/31/07	\$7,359,573
Schiestl	Effect of Dietary Antioxidants on Genetic Instability and Cancer Incidence in Ataxia Telangiectasia	AICR	Research Grant	01/31/05-01/31-07	\$165,000
Schiestl	Base Excision Repair in ETS Caused DNA Deletions and Cancer	FAMRI	Research Grant	07/01/05 – 06/30/07	\$217,000
Schiestl	Determination of the suitability of the yeast DEL Assay to detect clastogens	Pfizer	Sponsored research agreement	5/01/04- 4/30/05	\$120,784
Zhang	Molecular Epidemiology and Gene-Environment Interactions	NIH	Research Grant	04/01/02 - 03/31/05	\$1,394,700
Schiestl	Helene Brown Award	UCLA JCCC	Award		\$10,000

## Mel Suffet:

*Other Support – Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
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*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Suffet, M (Co-PI)	Advanced Oxidation Processes for the Treatment of Candidate Contaminant (CCL) List Chemicals	US EPA	Research	2001-2004	\$214,762
Suffet, M	Analysis of Organochlorine Pesticides and PCBs to Support TMDL Development for Calleguas Creek	US EPA	Research	2001-2003	\$50,000
Stenstrom, M.	EPA Chlorinated Hydrocarbons Evaluation of Pesticide Data Available in Calleguas Creek for Development of TMDLs	California State Water Resources Control Board	Research	2002-2003	\$50,000
Stenstrom, M	Determination of the Primary Source of Chlorinated Pesticides Entering Lakes in Los Angeles County	California State Water Resources Control Board	Research	2007-2008	\$100,000

**Jason Wang:**

*Other Support – Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Wang, J.	An Ergonomics Intervention for Ironing in the Garment Industry	NIOSH/ERC	Research	9/18/07-9/18/09	
Sarkisian	Trial to Increase Walking among Sedentary Older Latinos	UCLA/Geriatrics	Research	07/01/08-7/31/10	
Crandall	Analyzing genetic data using data collected by Postmenopausal Estrogen/Progestin Interventions (PEPI)	UCLA/Geriatrics	Research	05/01/09-06/31/09	

*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Wang, J. (Co-PI)	Pilot Study of Pain, Substance Use, and HIV Risk Behaviors	UCLA AIDS Institute	Research	06/30/07-08/01/08	
Ritz, B.	Ergonomic Interventions for Sewing Machine Operators	CDC/NIOSH	Research	10/01/02-09/30/06	

**Michelle Wilhelm:**

*Other Support – Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Wilhelm, M.	Traffic-Related Air Pollution and Ultrasound Measures of Fetal Growth	NIEHS	R03	4/1/09-3/31/11	\$230,823
Wilhelm, M.	Ambient Air Toxics and Adverse Birth Outcomes	NIEHS	R03	12/15/08-11/30/10	\$143,958
Mortimer, K.	Influence of Genetics and Air Pollution Exposures on Birth Outcomes	NIEHS	R03	1/1/07-12/31/09	\$25,087 (UCLA Subaward)
Meng, Y.	Development of Exposure and Health Outcomes Indicators For Those with Asthma or Other Respiratory Problems	U.S. EPA	Research	9/1/07-8/31/10	\$510,000
Meng, Y.	Is Disparity in Asthma Among Californians due to Higher Pollutant Exposures, Greater Susceptibility, or Both?	CARB	Research	2/15/08-2/14/10	\$303,600
Ritz, B.	Traffic-Related Air Pollution and Asthma in Economically Disadvantaged and High Traffic Density Neighborhoods in Los Angeles County, California	CARB	Research	6/1/05-5/31/09	\$422,089

*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Wilhelm, M.	Re-Contact of a Birth Cohort for a Study of Outdoor Air Pollution and Respiratory Health in Early Childhood	UCLA School of Public Health Seed Money	Research	4/1/06-3/31/07	\$11,998
Wilhelm, M.	Outdoor air pollution and asthma exacerbations in LA FANS children	RAND	Research	5/1/04-5/31/05	\$25,000
Wilhelm, M.	Assessing the influence of different neighborhood SES measures on asthma and traffic-related air pollution in the LA FANS cohort	SCEHSC	Research	5/1/05-5/31/06	\$38,180
Ritz, B.	Traffic-related air pollution and risk of acute respiratory diseases in California children ages 0-5 from 1990-2001	SCAQMD	Research	1/1/04-12/31/05	\$57,691

**Arthur Winer:**

*Other Support – Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Winer, A.	Investigation and Characterization of Pollutant Concentrations and Gradients in the Ports, West and Downtown Areas of Los Angeles, CA Using an Instrumented Mobile Platform	CA EPA/ARB	Research	09/20/05— 6/30/2010	\$428,000

*Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Winer, A.	Measuring Heavy-Duty Diesel Truck Volumes in Port-Adjacent Communities*	University of California Transportation Center	Research	8/01/07-12/31/08	\$39,000
Winer, A.	Measurements of Ammonia and Nitrous Oxide from California In-Use Light Duty Vehicles	CA EPA/ARB	Research	6/15/06—06/30/08	\$149,000
Winer, A. (Co-PI)	Cyclical Deposition and Resuspension of Aerosol-Associated Toxic Contaminants	CA EPA/Air Resources Board	Research	7/1/04-12/31/06	\$77,000
Winer, A. (Co-PI)	Evaluation of Mechanisms of Exhaust Intrusion into School Buses and Feasible Mitigation Measures	CA EPA/Air Resources Board	Research	7/1/04 – 6/30/06	\$105,055

### Zuo-Feng Zhang:

#### *Other Support - Current*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
Zhang, Z	Cancer Epidemiology Training Program	NIH	Training	1998-2009	\$3,920,770
Zhang, Z	Training in Molecular Epidemiology of HIV related cancer in China	NIH Fogarty	Training	2008-2011	\$455,994
Zhang, Z	Training in HIV related cancer in China	NIH Fogarty	Training	2007-2010	\$110,000
Bastani, R.	UCLA Cancer Education and Career Development Program	NIH	Training	2000-2010	\$5,310,830
Zhang, Z	Project 1, Molecular Epidemiology of Cancer, UCLA Spore in Lung Cancer	NIH	Research	2001-2009	\$2,020,327
Detels, R	The Natural History of AIDS in Homosexual Men	NIH	Research	2004-2014	\$4,557,236

#### *Other Support – Expired (Last 5 Years)*

PI	Name of Award	Agency	Type of project	Project Period	Total Costs
deKernion	Developing Project: Molecular Epidemiology of Prostate Cancer	NIH	Research	2005-2007	\$75,000
DubINETTE	UCLA Spore in Prostrate Cancer	NIH	Research	2005-2007	\$11,271,274
deKernion	Developing Project: Molecular Epidemiology of Prostate Cancer	NIH	Research	2005-2007	\$75,000
DubINETTE	UCLA Spore in Lung Cancer	NIH	Research	2001-2007	\$12,237,912
Zhang, Z	Molecular Epidemiology and Gene-Environment Interaction	NIH	Research	2002-2007	\$650,694
Mao	Lung Cancer Chemo-prevention with Celecoxib in Ex-smokers.	NIH/NCI	Research	2002-2007	\$5,144,465
Belldegrun	Chemo-prevention of superficial bladder cancer	NIH/NCI	Research	2002-2007	\$12,337,912
Braun	Consented High-Performance Index/Retrieval Path System	NIH/NCI	Research	2001-2006	\$1,382,272
Roth	Pulmonary Effects of Habitual Use of Marijuana	NIH/NIDA	Research	2001-2006	\$2,635,213

**Appendix 7**  
**UCLA COEH Publications**  
**2000-2009**

**John R. Froines**

Fanning E, **Froines J**, Utell M, Lippmann M, Oberdorster G, Frampton M, Godleski J, and Larson T. Particulate matter (PM) research centers (1999-2004) and the role of interdisciplinary center-based research. Environ Health Perspect **117**(2):167-74, 2009.

Solomon PA, Hopke PK, **Froines J**, and Scheffe R. Key Scientific and Policy- and health-Relevant Findings from EPA's Particulate Matter Supersites Program and Related Studies: An Integration and Synthesis of Results. Air and Waste Management Association. 58:S3-S92, 2008.  
DiStefano, E., A. Eiguren-Fernandez, et al. Determination of metal-based hydroxyl radical generating capacity of ambient and diesel exhaust particles. Inhalation Toxicology **9999**(1): 1 - 8. 2009

Krudysz M, Moore K, Geller M, Sioutas C, **Froines J**. Intra-community spatial variability of particulate matter size distributions in southern California/Los Angeles. Atmospheric Chemistry and Physics Discussions **9**:1-15, 2009.

Shinyashiki, M., A. Eiguren-Fernandez, et al. Electrophilic and redox properties of diesel exhaust particles. Environmental Research **109**(3): 239-244. 2009

Eiguren-Fernandez, A., Miguel, A.H., Lu, R., Purvis, K., Grant, B., Mayo, P., Di Stefano, E., Cho, A.K., **Froines, J**. Atmospheric formation of 9,10-phenanthraquinone in the Los Angeles air basin. Atmospheric Environment **42**: 2312-2319, 2008.

Eiguren-Fernandez A, Miguel AH, Di Stefano EW, Schmitz D, Cho A, Thurairatnam S, Avol E, **Froines J**. Atmospheric distribution of Gas- and Particle-phase Quinones in Southern California. Aerosol Science & Technology **42**(10): 854-861, 2008

Ayres JG, Borm P, Cassee FR, Castranova V, Donaldson K, Ghio A, Harrison RM, Hider R, Kelly F, Kooter IM, Marano F, Maynard RL, Mudway I, Nel A, Sioutas C, Smith S, Baeza-Squiban A, Cho A, Duggan S, **Froines J**. Evaluating the toxicity of airborne particulate matter and nanoparticles by measuring oxidative stress potential—a workshop report and consensus statement. Inhal Toxicol. **20**(1):75-99, 2008.

Krudysz, M.A, **Froines, J.R.**, Fine, P.M. and Sioutas, C. Intra-community spatial variation of size-fractionated PM mass, OC, EC and trace elements in Long Beach, CA. Atmospheric Environment. **42**(21): 5374-5389, 2008.

Shinyashiki M, Rodriguez CE, Di Stefano EW, Sioutas C, Delfino RJ, Kumagai Y, **Froines JR**, Cho A. On the interaction between glyceraldehyde-3-phosphate dehydrogenase and air airborne particles: Evidence for electrophilic species. Atmospheric Environment **42**:517-529, 2008.

Taguchi, K., Shimada, M., Fujii, S., Sumi, D., Pan, X., Yamano, S., Nishiyama, T., Hiratsuka, A., Yamamoto, M., Cho, A, **Froines, J.**, and Kumagai, Y., Redox cycling of 9,10-phenanthraquinone to cause oxidative stress is terminated through its monoglucuronide



conjugation in human pulmonary epithelial A549 cells, Free Radical Biology and Medicine. **44**(8):1645-1655, 2008.

Iwamoto Noriko, Sumi Daigo, Ishii Takeshi, Uchida Koji, Cho Arthur, **Froines John**, Kumagai Yoshito. Chemical knockdown of protein tyrosine phosphate 1b by 1,2-naphthoquinone through covalent modification causes persistent translocation of epidermal growth factor receptor, The Journal of Biological Chemistry, **282**(46):33396-333404, 2007.

Ntziachristos L, **Froines J**, Cho A, Sioutas C. Relationship between redox activity and chemical speciation of size-fractionated particulate matter. Part Fibre Toxicology **4**:5, 2007.

Taguchi K, Fujii S, Yamano S, Cho AK, Kamisuki S, Nakai Y, Sugawara F, **Froines JR**, Kumagai Y. An approach to evaluate two-electron reduction of 9,10-phenanthraquinone and redox activity of the hydroquinone associated with oxidative stress. Free Radical Biology and Medicine **43**:789-799, 2007.

Eiguren-Ferndandez A, Avol E, Thurairatnam S, Hakami M, **Froines J**, Miguel AH. Seasonal influence on vapor- and particle-phase polycyclic aromatic hydrocarbons concentrations in school communities located in Southern California, Aerosol Science and Technology, **41**(4):438-446, 2007.

Kleinman, MT, Sioutas, C, **Froines, J**, Fanning, E, Hamade, A, Meacher, D and Oldham, M., Inhalation of concentrated ambient particulate matter near a heavily trafficked road stimulates antigen-induced airway responses in mice: relevance of particle composition and size, Inhalation Toxicology. **19**(S1):117-126, 2007.

De Vizcaya-Ruiz A, Guitierrez-Castillo ME, Uribe-Hernandez M, Cebrian ME, Mugica-Alvarez V, Sepulveda J, Rosas I, Salinas E, Martinez F, Garcia-Cueller C, Alfaro-Moreno E, Torres-Flores V, Osornio-Vargas A, Sioutas C, Fine P, Singh M, Geller M, Kuhn T, Eiguren-Fernandez A, Miguel A, Schiestl R, Reliene R, Cho A, Patel-Coleman K, **Froines J**. (2006) *In Vitro* Effects Induced by Particulate Matter from Mexico City Collected with the VACES system. Atmospheric Environment, **40**(S2):583-592.

Geller, M. D., Ntziachristos L, Mamakos A, Samaras Z, Schmitz D, **Froines JR**, Sioutas C. (2006). "Physicochemical and Redox Characteristics of Particulate Matter (PM) Emitted from Gasoline and Passenger Cars." Atmospheric Environment **40**: 6988-7004.

Kikuno S, Taguchi K, Iwamoto N, Yamano S, Cho AK, **Froines JR**, Kumagai Y. (2006) 1,2-Naphthoquinone Activates Vanilloid Receptor 1 Through Increased Protein Tyrosine Phosphorylation, leading to Contraction of Guinea Pig Trachea. Toxicology and Applied Pharmacology. **210**(1-2):47-54.

Cho, AK, Sioutas, C, Miguel AH, Kumagai Y, Schmitz DA, Misra C, Singh M, Eiguren-Fernandez A, **Froines JR**. (2005) Redox Activity of Airborne Particulate Matter (PM) at different sites in the Los Angeles Basin. Environmental Research, **99**(1):40-7.

Hiyoshi, K., Takano H, Inoue K, Ichinose T, Yanagisawa R, Tomura S, Cho A, **Froines JR**, Kumagai Y. (2005) "Effects of Single Intratracheal Administration of Phenanthraquinone on Murine Lung." Journal of Applied Toxicology. **25**(1):47-51.

Kleinman, M.T., Sioutas C, Stram D, **Froines JR**, Cho AK, Chakrabarti B, Hamade A, Meacher D, Oldham M. (2005) Inhalation of Concentrated Ambient Particulate Matter Near a Heavily Trafficked Road Stimulates Antigen-Induced Airway Responses in Mice. Journal of Air and Waste Management Association, **55**(9):1277-88.

Kuhn T, Zhu Y, Hinds W, Krudysz M, Fine PM, **Froines J**, Sioutas C. (2005) Volatility of indoor and outdoor ultrafine particulate matter near a freeway. Journal of Aerosol Science, **36**(3): 291-303.

Rodriguez, C, Fukuto JM, Taguchi K, **Froines J**, Cho A. (2005) The interactions of 9,10-phenanthrenequinone with glyceraldehydes-3-phosphate dehydrogenase (GAPDH), a potential site for toxic actions, Chemico-Biological Interactions, **155**: 97-110.

Sabty-Daily R, Hinds WC, **Froines J**. (2005) "Size Distribution of Chromate Paint Aerosol Generated in a Bench-Scale Spray Booth" Annals of Occupational Hygiene, **49**(1): 47-59.

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Pan, C. G., Cho A, **Froines JR**, Fukuto JM. (2004) "Inherent Redox Properties of Diesel Exhaust Particles: Catalysis of the Generation of Reactive Oxygen Species by Biological Reductants." Toxicological Sciences, **81**: 225-232.

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Sabty-Daily R, Luk KK, **Froines JR**. (2002) The Efficiency of Alkaline Extraction for the Recovery of Hexavalent Chromium (CR<sup>VI</sup>) From Paint Samples and the Stability of CR<sup>VI</sup> in Paint. The Analyst, **127**:852-858

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Kim SY, Que Hee SS, **Froines JR**. (2000) Optimized Portable Cordless Vacuum Method for Sampling Dry, Hard Surfaces for Dusts. Applied Occupational and Environmental Hygiene, **15**(6): 503-511.

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### **Arthur Cho:**

Shinyashiki, M., A. Eiguren-Fernandez, et al. Electrophilic and redox properties of diesel exhaust particles. Environmental Research **109**(3): 239-244. 2009

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### **Michael Collins:**

Liao, X. and **M.D. Collins**. “All-*trans* retinoic acid-induced ectopic limb and caudal structures: murine strain sensitivities and pathogenesis.” Developmental Dynamics 237(2008): 1553-1564.

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# **REFERENCE 4**

## **EHS Bylaws**

**UCLA - SCHOOL OF PUBLIC HEALTH  
DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCES**

**BY-LAWS**

**Professional Research Series Appointments**

Appointment as Associate Researcher and Researcher requires:

- a. A nomination letter by a Principal Investigator addressed to the Department Chair;
- b. A complete dossier;
- c. A letter by the Chair to the Dean requesting the appointment; and
- d. Dean and CAP approval.

Where no Principal Investigator can be identified in the Department, the Chair may act directly.

No faculty vote is required.

Appointment as Assistant Researcher:

The same requirements apply as listed above with the exception that CAP approval is not needed.

Voted on: March 11, 1992.

**UCLA - SCHOOL OF PUBLIC HEALTH  
DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCES**

**BY-LAWS**

**Rights of Emeriti/ae**

**Emeriti/ae, as a class, are extended the right to vote on all non-personnel matters.**

**Voted on: March 18, 1993.**

**UCLA - SCHOOL OF PUBLIC HEALTH**  
**DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCES**  
**BY-LAWS REGARDING ACADEMIC PROGRAMS AND DEGREES**

**EHS TRACK CONSTITUTION**

*By-Law 1:* The Department should continue to carry on and develop its educational and research programs along *tracks of specialization*.

*By-Law 2:* For a track to be approved by the EHS faculty it should be supported by at least two faculty members who must also be willing to assume the main responsibility for (a) the development of the track core curriculum and (b) the continuous advancement and educational obligations of the track (as specified below).

*By-Law 3:* Each track should be administered by two *track core faculty* appointed by the EHS Chair as *Head* and *Associate Head*.

*By-Law 4:* All interested in a track EHS faculty members could be appointed to the track faculty by the EHS Chair as *affiliated faculty*. A major condition for such an appointment should be the willingness to (a) develop and teach desirable track courses and (b) participate in track and student committees.

*By-Law 5:* If a deadlock develops among the track faculty when administering the track, the EHS Chair should resolve the issue with (if so chooses) the advice of the whole EHS faculty.

*By-Law 6:* The autonomy given to a track under no circumstance should be interpreted as superseding the authority and obligations of the EHS Chair and EHS academic senate faculty.

*By-Law 7:* Each EHS faculty member must belong to the core faculty of at least *one* track but can be the Head of only one track. The EHS Chair may choose to temporarily withdraw from his/her track faculty assignments during his/her tenure.

*By-Law 8:* The core and affiliated faculty of each track should submit to the department, via its chair, every three years: (a) a review of the track curriculum; (b) a report of educational and research accomplishments; (c) an assessment of track viability; and (d) an updated master plan of future activities and growth objectives.

*By-Law 9:* The following tracks appear viable given the present EHS faculty expertise and research interests:

Air Quality, Environmental Chemistry, Environmental Decision Theory and Policy, Environmental Health Management, Environmental Toxicology, Industrial Hygiene, Occupational Medicine Residence, and Water Quality.

## **M.S. REQUIREMENTS AND PROCEDURES**

### **School Core Curriculum**

By-Law 10: Waive the core curriculum required by the school for all MS degrees.

Presently, this curriculum consists of two courses in Biostatistics and one course in Epidemiology. The committee recognizes the value of these courses but recommends that the department asserts its right to establish its own degree curricula.

### **Departmental Core Curriculum**

By-Law 11: There should be no departmental core curriculum. Instead, the EHS faculty should approve a separate core curriculum for each track. Faculty who are interested in establishing a track should submit to this committee their recommendation and the committee should advance it to the EHS faculty with their comments.

By-Law 12: The **minimum** total credit hours of each track core curriculum should not be lower than 28 and the **maximum** should not exceed 50% of the total credit hours required for graduation (see next recommendation). These limits should not include required seminars and thesis or report research.

By-Law 13: The **minimum** total credit hours required for graduation may vary among tracks but it should not be less than 60. This limit should not include required seminars and thesis or report research.

By-Law 14: Each track core curriculum should include either the Biostatistics courses currently required or substitute courses from other campus departments.

By-Law 15: Each track core curriculum should also include at least one track seminar.

### **Admission and Other Degree Requirements**

By-Law 16: The faculty of a track should also submit to this committee for the approval of all the EHS faculty a proposed procedure and format for the comprehensive examination required for all of its Plan II students.

By-Law 17: MS thesis committees should include at least two faculty from the student's track.

By-Law 18: The existing admission requirements may be augmented by a track but not reduced. Additional track admission requirements should be approved by the EHS faculty and explicitly stated in the Department's handbook. When an applicant without a clear statement of track preference does not satisfy the admission requirements of all tracks, the letter of admission should also emphasize (a) for which tracks the admission is valid and (b) which additional requirements should be fulfilled for each of the remaining tracks.

By-Law 19: Applicants should be evaluated by a departmental admissions committee on the basis of the general departmental admission requirements. However,



applicants with a clear statement of track preference should be evaluated by the faculty of their chosen track.

By-Law 20: All MS students should declare their track choice no later than the beginning of their second year of study. However, this delayed action should not negate the requirement for the student to satisfy any additional admission requirements of the chosen track.

The declaration should take the form of the completion of a standardized track study form signed by the student, the two core track faculty, and the EHS Chair.

The track study form should include both the track core courses and the electives agreed upon by the student and his/her advisor.

## **PH.D. REQUIREMENTS AND PROCEDURES**

### **Core Curriculum**

By-Law 21: No doctoral student should graduate without satisfying the MS core curriculum of his/her track.

By-Law 22: It should be a track decision to require a Ph.D. core curriculum. However, all tracks must institute a Doctoral Seminar Series as a requirement.

### **Admission and Other Degree Requirements**

By-Law 23: The faculty of each track should submit to this committee for the approval of the EHS faculty an explicit set of procedures and requirements for (a) cognate fields and their satisfaction; and (b) advancement to candidacy examinations. These procedures and requirements should be uniform for all the students of the track.

By-Law 24: Admissions should be offered by each track according to its faculty strength, resources, and doctoral enrollment.

The current practice of admitting a doctoral student only if there is a sponsoring advisor should be phased out. Academic advisors should be appointed who may be different from Thesis research advisors. Thesis research advisors should be appointed at the beginning of the student's second year of study.

By-Law 25: Exceptional students without an M.S. may be admitted directly to the Ph.D. program, provided that they understand the requirement of having to complete the M.S. core curriculum of their track (according to recommendation 21).

## **M.P.H. REQUIREMENTS AND PROCEDURES**

By-Law 26: The M.P.H. degree should be offered only by the Industrial Hygiene (IH) track and a new track that should be called MPH-EHS.

By-Law 27: The MPH-EHS track could be formed and administered by only one core faculty because of its special nature.

### **School Core Curriculum**

The MPH is a PH School degree. Hence, the department has to accept the curriculum and other degree requirements imposed by the school.

### **Departmental Core Curriculum**

By-Law 28: A separate core curriculum could be approved for the IH and MPH-EHS tracks.

By-Law 29: The core courses might be developed by the IH and MPH-EHS tracks or by the other tracks depending on their focus area.

By-Law 30: EHS faculty involved in the core courses should assist the IH and MPH-EHS track faculty in the administration of the comprehensive examinations.

### **Admission and Other Degree Requirements**

By-Law 31: Current admission and graduation requirements should remain in effect.

Voted on: *February 8, 1992*

**UCLA - SCHOOL OF PUBLIC HEALTH**  
**DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCES**  
**RULES AND REGULATIONS**

**ACCELERATED MERIT ADVANCEMENTS**

*The rules for EHS Faculty promotion and merit advancement are amended as follows:  
Accelerated merit advancement for more than one year requires at least four letters from  
extramural evaluators, two from evaluators selected by the Chair and two from evaluators  
selected by the Faculty member under evaluation.*

Voted on: March 23, 1994 [10 yes votes with two eligible faculty absent]

**UCLA - SCHOOL OF PUBLIC HEALTH  
DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCES**

**BY-LAWS**

**Rights of Emeriti/ae**

**Emeriti/ae, as a class, are extended the right to vote on all non-personnel matters.**

**Voted on: March 18, 1993.**

**Department of Environmental Health Sciences  
Procedures for Faculty Actions**

Effective July 1, 1989  
(Revised February 1991)

- A. Voting eligibility
- For all faculty actions: All Senate faculty are eligible to vote.
- B. Normal Merit Increase
- 1) Dossier prepared by the candidate.
  - 2) Dossier reviewed by all faculty eligible to vote on the merit.
  - 3) Discussion at faculty meeting.
  - 4) Secret ballot vote.
  - 5) Chair prepares letter and forwards dossier to Associate Dean and Dean.
- C. Appointment (except categories listed in Section D), Promotion, Fourth Year Appraisal, Accelerated Merit, Merit to Professor VI and above, or five year review (if established).
- 1) Dossier and detailed self-evaluation letter prepared by candidate.
  - 2) Solicitation of extramural/intramural letters where required.
  - 3) Dossier reviewed by Promotion Evaluation Committee (PEC) (see Section E).
  - 4) PEC prepares a letter on adequacy and quality of candidate's Research, teaching and Service. See Section F for information to be included in evaluating teaching.
  - 5) PEC presents its conclusions and recommendations to faculty eligible to vote on the action (candidate excluded). Faculty discusses action.
  - 6) Secret ballot vote.
  - 7) Chair incorporates PEC's letter into his or her letter and forwards it to the Associate Dean and Dean. The Dean sends it to CAP.

D. Appointment and Reappointment of Adjunct Assistant Professor and all ranks of Lecturer, Researcher, Visiting Professor and Visiting Researcher.

- 1) Dossier prepared by candidate. This usually consists of a CV plus any teaching evaluations.
- 2) Dossier reviewed by faculty and discussed at faculty meeting.
- 3) Secret ballot vote.
- 4) Chair prepares letter and forwards dossier to Associate Dean and Dean.

E. Promotion Evaluation Committee (PEC)

An ad-hoc PEC is to be established for each faculty action under category C.

- 1) It will consist of two or three members.
- 2) One member is selected by the Chair and one is selected by the candidate.
- 3) The Chair may select an optional third member who may be from outside the Department; a third member from the ESE IDC is required for ESE candidates.

F. In its evaluation of the adequacy and quality of teaching the PEC should balance the importance of research teaching and class room teaching, and should consider the following whenever possible.

- 1) Quantitative information
  - a. Teaching load
    1. Number of classes, type of classes, number of advisees
    2. Chair or member of masters or doctoral committees
    3. Compare 1. and 2. above to median for department
    4. Member of Department Comprehensive Exam Committee
  - b. Numerical scores on student course evaluations - compare to department medians
  - c. Anonymous exit survey of graduating student - this survey will include evaluation of tracks, programs, and the department
  - d. Surveys, similar to c. above, conducted for alumni two to five years after graduation
- 2) Qualitative information
  - a. Written comments on student course evaluations
  - b. Course materials, syllabi, reading lists, hand outs, and exams
  - c. Solicit input from faculty by questionnaire that will include:
    1. Assessment of the quality of seminar presented by faculty member

2. Assessment of preparation of doctoral candidates for qualifying exams
  3. Evaluation by co-instructors in co-taught courses
  4. Other appropriate information
- d. Lists of theses and MS reports and duration of MS and PhD students

ADDENDUM TO EHS PROCEDURES FOR FACULTY ACTIONS

7/21/91 (updated 12/16/91)

Ballots:

1. Ballot packets to include small blue envelopes to ensure confidentiality of ballots. Faculty members will place completed ballot inside small envelope, which s/he will then place in a larger envelope and seal and sign this larger envelope. Envelope to be returned to Department Administrator.
2. Two faculty members to open and count ballots with assistance of Department Administrator (or, in Administrator's absence, the Department Secretary).

The faculty members to sign the completed Department Vote form. Form is then submitted to Department Chair.



## Department of Environmental Health Sciences

### Policy on S/U Grading

2/28/91

- 1) MSEHS students may take up to one course outside our department per quarter on an S/U basis, but all school, department (including ESE), and track core courses that are offered on an ordinal grading basis must be taken on that basis.
- 2) Courses taken on an S/U basis do not count towards school or department unit requirements.
- 3) The department recommends the above policy for MPH students.

7/31/91 - from Glenda Baker, SAO:

This is internal Department policy. Does not need to be approved by Graduate Division.

**REFERENCE 5**  
**Urban Planning concurrent**  
**degree proposal**

# PROPOSAL

## **Concurrent Degree Program: Master of Public Health (MPH) in Environmental Health Sciences and Master of Arts (MA) in Urban Planning**

11/9/09

### **I. Introduction**

There is a growing awareness among scholars and practitioners in public health and urban planning that the significant interconnections between these two disciplines provide innovative opportunities for solving some of today's most critical health and environmental challenges. From scholarly and funder organizations, such as Robert Wood Johnson Foundation and the National Academies of Science, to professional associations, such as the American Planning Association and the American Public Health Association, there is wide acknowledgement that the issues facing planning and public health require an incorporation and integration of knowledge and skills.

There have been increasing efforts to bridge the disciplinary divides that separate these two areas to develop innovative and effective policies and programs that address the leading health and environmental challenges of the 21<sup>st</sup> century. Much of this effort has focused on research on the environmental impacts of urban development. From air and water pollution to creation of urban heat islands and the degradation of natural ecosystems, public health and urban planning professionals and scholars are finding common ground in designing and implementing policies that address the very complex world in which we live. Although faculty at UCLA have been working together across this disciplinary divide to devise research projects that address such complex and urgent problems as urban air pollution, land use and physical activity, and environmental justice, there is no graduate training program that educates future practitioners in this exciting and expanding field linking urban planning to environmental health sciences.

The time is right for a joint Masters degree program in the School of Public Health (Department of Environmental Health Sciences) and the School of Public Affairs (Department of Urban Planning) to provide the interdisciplinary skills and knowledge that will enable practitioners to be effective at the community, municipal, regional, state, national, and international levels in addressing these problems.

In this proposal, we describe the scholarly rationale and motivation for this concurrent degree program, present an overview of existing similar programs in California and nationally, and provide an articulation of a three-year program and a curriculum that would satisfy the requirements for a concurrent graduate degree in both departments.

## **II. Academic Rationale: A growing nexus between public health and urban planning**

This concurrent degree program would train future scholars and practitioners at the interface between urban planning and public health/environmental health sciences. The graduates of the program would be uniquely poised to develop approaches and strategies that effectively address the complex nature of contemporary public health/environmental challenges that arise from urban development.

The field of urban planning owes its origins in part to public health efforts to design environments that limit the spread of diseases and epidemics (*e.g.* by creating infrastructure to provide citizens in urban environments with clean, potable water). Recently, public health and urban planning scholars and practitioners have been strengthening the connections between the two disciplines, particularly with respect to the links between urbanization and environmental impacts. Public health scholars have increasingly emphasized the linkages between population/environmental health and land use/development patterns.<sup>1 2</sup> In addition, there is a renewed focus on community-based approaches in urban planning that necessarily dovetails with studies on how to promote environmental health and minimize environmental impacts. At the national level, the interconnectedness of the disciplines is now increasingly recognized. In 2002, the Centers for Disease Control and Prevention convened a workshop to develop a scientific research agenda on how the built environment impacts health. Public health practitioners tended not to understand the principles and practices of community planning and its many implications for the mental, physical, and social well-being of the population. The resulting research agenda contained 37 specific questions, and highlighted the need for more education and training to address these critical health issues.<sup>3</sup>

In recent years, practitioners and scholars in both environmental health and urban planning have increasingly focused on transportation and land use patterns, as well as on physical activity and urban form, especially sprawl and suburban neighborhood developments, to understand national trends in obesity.<sup>4</sup> Urban planning and environmental health scholars have provided conceptual frameworks, empirical studies, and evaluations of programs that inform policy makers, practitioners, and communities about improving community and population health by reducing

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<sup>1</sup> See for example a volume of the *American Journal of Public Health* (Sep 2003, vol. 93) devoted to papers outlining varying impacts of land use and development on health. Editor: Jackson R. as well as a volume of the *Journal of the American Planning Association* (2006, vol. 72, no 1) devoted to the interlink between planning and health.

<sup>2</sup> Frumkin, H. Frank, L., Jackson, R. (2004). *Urban Sprawl and Public Health: Designing, Planning, and Building for Healthy Communities*. Washington, D.C.: Island Press.

<sup>3</sup> Dannenberg A, Jackson R, Frumkin H, Schieber R, Pratt M, Kochtitzky C, Tilson H. (2003). The Impact of Community Design and Land-Use Choices on Public Health: A Scientific Research Agenda. *Am J Pub Health* 93:1500-1508.

<sup>4</sup> Frumkin H. Urban Sprawl and Public Health. (2001). *Public Health Reports* 117(May-June): 201-217, 2002; Lawrence D. Frank and Peter O. Engelke, (2001). "The Built Environment and Human Activity Patterns: Exploring the Impacts of Urban Form on Public Health," *Journal of Planning Literature*, Vol. 16, No. 2, 202-218.

environmental impacts across a variety of substantive areas and geographic scales. From household nutrition to environmental justice, planners and public health researchers have increasingly contributed in critical ways to understanding the influence of environmental, built environment, and land use factors on health. Similarly, an analysis of the impacts of climate change and the built environment on each other – and the development of tractable and innovative solutions that will help improve the quality of life for future generations -- require individuals who are fluent in the languages, tools, and methodologies of both environmental health and urban planning. The program that we propose will explicitly address this training need.

There are five primary themes or areas that guide and organize much of what professionals trained in this concurrent masters degree program would address: (a) urban design and land use patterns, (b) economic impacts, (c) equity and social justice, (d) governance and institutional management, and (e) sustainability.<sup>5</sup> The concurrent degree program proposed herein is designed so that all students who complete the program will receive training in each of these five thematic areas. In some cases, there are specific courses which are required for the concurrent degree program which cover the thematic area; in others, the topics are covered as integral components of a number of the required courses.

#### **A. Urban design and land use patterns**

Using urban design to alter and steer land use patterns is a subfield in which public health and urban planning collaborations have been increasingly visible and effective. This is primarily because land use and development patterns influence physical activity with its own health benefits, and less directly, obesity.<sup>6</sup> There has been a proliferation of studies in both public health and urban planning that have examined the possible linkages among urban design, development patterns, and physical activity.<sup>7</sup> A recent National Academies committee which was convened to study this topic specifically identified the need for greater collaboration for devising interdisciplinary approaches to address these problems.<sup>8</sup>

#### **B. Economic impacts**

This area is broadly concerned with the economic vitality of communities, cities, counties, regions, states, and nations. Research in this area spanning the public health-urban planning divide has typically highlighted the health dimensions of transportation, housing, and community economic development. Indeed, the historical roots of urban planning stem from a societal acknowledgement in the early 1900s that substandard housing for immigrants and impoverished

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<sup>5</sup> Boarnet M, Takahashi LM. (2005). Bridging the Divide between Urban Health and Urban Planning, in *Handbook of Urban Health: Populations, methods, and practice*. Eds: Galea, Sandro and David Valhov.

<sup>6</sup> Handy SL, Boarnet MG, Ewing R, Killingsworth RE. (2002). How the built environment affects physical activity: Views from urban planning. *Am J Prev Med* 23:64-73.

<sup>7</sup> Cervero R, Kockelman K. (1997). "Travel demand and the three Ds: Density, diversity, and design." *Transportation Research Part D* 2: 199-219.

<sup>8</sup> Transportation Research Board and the Institute of Medicine, The National Academies. (2005). *Does the Built Environment Influence Physical Activity? Examining the Evidence*. Washington DC: Transportation Research Board.

groups was unacceptable, though not always for the contemporary arguments of equity and justice.<sup>9</sup> For instance, economic approaches for investigating health have linked health disparities with income inequality and maldistribution of wealth across places and populations.<sup>10</sup> Likewise, economic strategies that address uneven distribution of resources have focused on the urban health dimensions of transportation (*e.g.*, enhancing transit and automobile access, and addressing the deleterious effects of traffic congestion), housing (*e.g.*, working for more and better quality affordable housing), and community economic development (*e.g.*, expanding economic opportunities in local communities experiencing marginal income earning capacity or relatively low rates of economic growth). Students who wish to pursue careers addressing these problems must be cross-trained not only in urban planning and environmental health, but must also have a firm grounding in economics and policy.

### **C. Equity and social justice**

Equity and social justice concerns are common themes guiding cutting edge research that spans urban planning and public health. Research in this area frequently builds on the health disparities approach (discussed in the economics section previously) to prioritize improved and expanded services and to address historical and contemporary concentrations of environmental and other public burdens experienced by particular communities, for example, low-income, elderly, racial/ethnic minority, and immigrant households. Environmental justice and uneven concentrations of public “bads” such as air pollution constitutes a mainstay of research and practice in this area.<sup>11</sup> From this perspective, research and practice is “applied, action oriented, problem-solving, ...particularly concerned with socially, economically and politically disadvantaged populations” and “seeks to promote social justice through such activities as critical analyses of the distribution costs and benefits of public policies and the development of institutions that empower people at the grassroots.”<sup>12</sup>

### **D. Governance and institutional management**

Governance relates to decisions that define expectations, grant power, or verify performance. While governing may primarily reside in the public sector, effective governance depends on a much broader base that includes the nonprofit and charitable sectors and the private sector, as

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<sup>9</sup> Hall P. (2002). *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century* (3<sup>rd</sup> edition). Malden, MA: Blackwell.

<sup>10</sup> See for example Kawachi I, Kennedy BP. (1999). “Income inequality and health: pathways and mechanisms.” *Health Serv Res* 34(1): 215-227.

<sup>11</sup> Naumova YY, Eisenreich SJ, Turpin BJ, Weisel CP, Morandi MT, Colome SD, Totten LA, Stock TH, Winer AM, Alimokhtari S, Kwon J, Shendell D, Jones J, Maberti S, and Wall SJ. (2002). Polycyclic Aromatic Hydrocarbons in the Indoor and Outdoor Air of Three Cities in the U.S. *Environ. Sci. Technol.*, 36 (12), 2552 -2559; Schweitzer, L. and Valenzuela, A. Jr., (2004). "Environmental Injustice and Transportation: The Claims and the Evidence," *Journal of Planning Literature*, Vol. 18, No. 4, 383-398; Houston, D. Wu, J., Ong P., and Winer A. (2004). "Structural disparities of urban traffic in southern California: Implications for vehicle-related air pollution exposure in minority and high-poverty neighborhoods," *Journal of Urban Affairs*, vol. 26, no5, pp. 565-592

<sup>12</sup> UCLA Department of Urban Planning web site, <http://www.spsr.ucla.edu/dept.cfm?d=up&s=home&f=welcome.cfm>, accessed 29 March 2006.

well as individuals and communities. As they have become an important sector in health care design and delivery, non-governmental agencies (*e.g.*, health care organizations, foundations, and community-based organizations), have experienced both an expanding presence in service delivery and a growing influence in designing and enforcing regulations.<sup>13</sup> Institutional management refers to the challenges and opportunities inherent in the intra- and inter-organizational relationships that often define health care, transportation, environmental management, etc. Scholars have pointed to varying types of organizational relationships that define intra- and inter-organizational relationships: cooperation, collaboration, and conflict.<sup>14</sup> The management of these new institutional relationships and the contemporary shifting context that defines governance in the US and abroad will require cross-disciplinary efforts, both within the academy and in practice, and certainly will require a cadre of new professionals who have been explicitly trained across these disciplines.

### **E. Sustainability**

Sustainability is a widely diverse field that offers a larger framework within which planning and health must be considered. A sustainability approach focuses research and practice on the multi-faceted issues of environmental degradation and regeneration, pollution and pollution control and prevention, habitat regulation and protection, and environmental management (so called “green” development).<sup>15</sup> Beyond the issues typically associated with environmentalist ideals, sustainability also concerns the development of so-called brownfields and formerly toxic sites, the effective management of water, air, and other natural resources,<sup>16</sup> and the long-term planning of land development. Within the fields of urban planning and public health, there is recognition that growth and expansion cannot be sustained without understanding environmental impacts at the local, regional, and national levels, over short and long time frames, and across ecological types and population centers. However, to tackle these complex and significant problems, society needs new kinds of practitioners who have been trained in an innovative and forward looking concurrent graduate degree program that provides an interdisciplinary set of knowledge and skills.

### **III. Urban Planning/Public Health Graduate Degrees in California and Nationally: Top-ranked programs are instituting similar degree programs**

Other institutions have recognized this need as well, and have already instituted joint/dual graduate degree programs. Many of the elite public health and urban planning programs in the

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<sup>13</sup> Wolch J. (1990). *The Shadow State: Government and Voluntary Sector in Transition*. New York: The Foundation Center; Lois Takahashi, (2006). "Synchronizing Social Services with Labor Market Participation<" in *Jobs and Economic Development in Minority*, edited by P Ong and A Loukaitou-Sideris, Temple University Press, Philadelphia, PA, pp. 277-293.

<sup>14</sup> Gaber SL. (1996). From NIMBY to Fair Share: The Development of New York City's Municipal Shelter Siting Policies, 1980-1990. *Urban Geography* 17:294-316.

<sup>15</sup> Campbell S. (1996). Green Cities, Growing Cities Just Cities? Urban Planning and the Contradictions of Sustainable Development. *Journal of the American Planning Association* 62(3): 296-312.

<sup>16</sup> Pendleton L. (2001). Managing Beach Amenities to Reduce Exposure to Coastal Hazards: Storm Water Pollution. *Coastal Management* 29(3): 239 – 251.

nation have instituted joint graduate degree programs. The University of Michigan, the University of North Carolina – Chapel Hill, and Columbia University, all highly rated institutions in both public health and urban planning, have joint/dual masters programs in public health and urban/city planning. In the UC system, only Berkeley has a concurrent degree program in public health and urban planning.

The University of Michigan’s three-year joint degree program (Master of Urban Planning/Master of Public Health) is a “student-initiated dual degree” in Urban and Regional Planning and Health Behavior and Health Education.<sup>17</sup> The M.U.P./M.P.H. degree requires 90 units (60 for the M.P.H. and 48 for the M.U.P., with 18 units counted concurrently), with at least 30 units in Urban and Regional Planning and at least 30 units in Health Behavior and Health Education and 10 units in Public Health but not in Health Behavior and Health Education.

The University of North Carolina – Chapel Hill offers three different dual degrees that can be completed in three years between the School of Public Health (SPH) and the Department of City and Regional Planning (DCRP). There are 39 units required in Public Health and 36 units in City and Regional Planning to fulfill the dual degree program requirements; in addition, students are required to “produce Master’s Projects for both DCRP and SPH at the end of the program that demonstrate mastery of the two fields and an understanding of the interconnections between the fields.”<sup>18</sup> The three dual degree programs are: an MPH/MRP in the Department of Health Behavior and Health Education in SPH and the DCRP; an MHA/MRP in the Department of Health Policy and Administration in SPH and the DCRP; and an MSPH/MRP in the Department of Health Policy and Administration in SPH and DCRP. Students in the dual degree program spend the first year taking courses in one department, the second year taking courses in the other department, and the third year taking courses in both departments.

The UC Berkeley MPH/Master of City Planning (MCP) concurrent degree program requires that students complete the core curricula in both departments, “after which they may specialize in areas such as community health and human development, environmental health, or economic and regional planning.”<sup>19</sup>

Columbia University offers a dual MPH/MSUP degree with the Graduate School of Architecture, Planning, and Preservation. The dual degree is open to students from the General Public Health program or the Environmental Health Sciences or Health Policy and Management departments in the School of Public Health.<sup>20</sup> Additionally, students in the Sociomedical Sciences department of the SPH can pursue a MPH in Urbanism and Built Environment. This concentration focuses on the “special health challenges of urban populations...[and] is designed for students with an interest in city life and the intersections between the built environment, urban planning, and public health.”<sup>21</sup>

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<sup>17</sup> [www.tcaup.umich.edu/urp/studentdual\\_healthbehavior.html](http://www.tcaup.umich.edu/urp/studentdual_healthbehavior.html) accessed 29 March 2006.

<sup>18</sup> [www.planning.unc.edu/program/jointHealth.htm](http://www.planning.unc.edu/program/jointHealth.htm) accessed 29 March 2006.

<sup>19</sup> [sph.berkeley.edu/degrees/degreeprog/city.htm](http://sph.berkeley.edu/degrees/degreeprog/city.htm) accessed 29 October 2009.

<sup>20</sup> <http://mailman-handbook.com/2009/node/148> accessed 29 October 2009.

<sup>21</sup> <http://www.mailman.columbia.edu/academics/degree-offerings/sociomedical-sciences/urbanism-built-environment> accessed 29 October 2009.



## **IV. Proposed Program and Sample Curricula**

### **A. Overview**

The proposed three-year concurrent degree program takes the best components of these competing programs and leverages the extensive expertise and resources in the Department of Environmental Health Sciences (EHS) in the School of Public Health, and the Department of Urban Planning (UP) in the School of Public Affairs. The strengths of the proposed concurrent degree program compared to competing programs in California and across the nation are its substantive complementarities in terms of courses, and the clear curricular structure that the program offers to prospective students.

Given the increasing popularity of integrating these disciplines at the graduate level, scholars have identified a number of model curricula from universities across the nation, each of which addresses the linkages between the built environment and health. These curricula provide practical guidance on how to structure courses, directing faculty and students on how to bridge the divide between disciplines.<sup>22</sup>

Because we believe that the professional master's degree offered within Environmental Health Sciences (MPH) is a better fit for students who are likely to be interested in the concurrent degree program, we are proposing that the concurrent degree program be for a Masters in Public Health (MPH) with an emphasis in Environmental Health Sciences and a Master Degree (M.A.) in Urban Planning. The Department of Urban Planning has recently proposed to change their master's program to a Professional Degree (Master's of Urban and Regional Planning, MURP); this proposal is currently under review by the Graduate Council. We anticipate that it will take a while for the MURP proposal to go through all of the necessary approving bodies and are therefore submitting the proposal for the concurrent degree to be for the MA in Urban Planning. However, assuming that the separate MURP proposal is eventually approved, it is our intention that the concurrent degree program would be for the MPH in Environmental Health Sciences and the MURP in Urban Planning.

The proposed concurrent program (MPH in Environmental Health Sciences and MA in Urban Planning) at UCLA has an integrated curriculum of a 110 units. A suggested curriculum is outlined below with a view toward a balanced exposure to both PH and UP. The 110 units required for the concurrent degree program are significantly less than the number of units that would be required were a student to pursue both degrees independently. Currently, students who elect to pursue the two degree programs sequentially would need to take 128 units (56 units for the MPH in Public Health with an emphasis in Environmental Health Sciences<sup>23,24</sup> and 72 units

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<sup>22</sup> Botchwey N, Hobson S, Dannenberg A, Mumford K, Contant C, McMillan T, Jackson R, Lopez R, Winkle C. A Model Curriculum for a Course on the Built Environment and Public Health. *Am J Prev Med* 36(2S):S63–S71, 2009.

<sup>23</sup> Please see Appendix I for the current program requirements (downloaded from the Graduate Division website on November 9, 2009) for the M.P.H with an emphasis in Environmental Health Sciences.

for the M.S. in Urban Planning<sup>25</sup>). Please note that there was confusion based on our last application because the degree requirements for EHS that are posted on the Graduate Division Website are not as clearly written as they could be. Therefore, we have attached (See Appendix II) a table showing the units for all of the courses required for the M.P.H. with an emphasis in Environmental Health Sciences (which corresponds directly to those courses listed in the program requirements on the Graduate Division Website). When all of the units for the required courses for the M.P.H. in Environmental Health Sciences are added up, they equal 56, which is the number of units required by our accrediting body, the Council on Education for Public Health (CEPH).

### **B. Advising and Administration**

An oversight committee for the concurrent degree program will be established, which will consist of at least two faculty from each department (Environmental Health Sciences and Urban Planning) who work at the interface of the two disciplines. This committee will be responsible for providing administrative oversight for the program and will have the following roles:

- Serve as liaisons to the admissions committees in the two departments to help identify potential students for the concurrent degree program;
- Serve as advisors to students in the concurrent degree program (each student in the program will be assigned to one advisor from each department);
- Provide guidance and contacts for internships that would allow students in the concurrent degree program to synthesize knowledge and skills from the two disciplines.
- Identify important emerging areas at the interface of Environmental Health Science and Urban Planning and suggest new courses that would strengthen the program (or help to disseminate critical aspects of the program to a broader audience).

As the proposed size of the concurrent degree program is small, both UP and EHS expect to accommodate student advising with current staff and faculty. No new staff or faculty is required to manage the concurrent degree program.

### **C. Admissions**

This proposal projects that a minimum of 3-4 students would be admitted each year, eventually becoming a cohort of at least 9-12 students in a steady state.

To enroll in the concurrent degree program, prospective students will be required to satisfy the regular admissions requirements of both schools and departments. In addition, students enrolled in the graduate program in EHS or UP will be allowed to apply for admission to the concurrent degree program during their first year of residence. Because each school/department has its own entrance requirements, there is no guarantee that an individual who is already a student in good standing in one school will be accepted by the other school/department. As noted above, the

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<sup>24</sup> Please see Appendix II for a table of course requirements for the M.P.H. with an emphasis in Environmental Health Sciences (which corresponds directly to those courses listed in the program requirements on the Graduate Division Website).

<sup>25</sup> Please see Appendix III for the current program requirements (downloaded from the Graduate Division website on November 9, 2009) for the M.S. Urban Planning.

faculty oversight committee will serve as liaisons to the admissions committees in the two departments to help identify potential students for the concurrent degree program.

#### **D. Degree Requirements**

Students enrolled in the concurrent degree program in Environmental Health Sciences (MPH) and Urban Planning (UP) must take a total of 110 units (see **PROGRAM REQUIREMENTS FOR CONCURRENT DEGREE PROGRAM IN EHS (MPH) AND UP (MA)**, below):

- 82 units of required courses
- 16 units of Urban Planning Stream electives
- 12 units of Environmental Health Sciences/Public Health electives

The differences between the requirements for the concurrent degree program versus the courses that would be required if a student were to pursue the MPH in Environmental Health Sciences and MA in Urban Planning sequentially are as follows:

- Students in the concurrent degree program are required to take two courses that are not required for “regular” students in either of the two degree programs:
  - EHS 208 (Built Environment and Health), which should be taken in the first year of study and provides a critical overview of the interface between Environmental Health Sciences and Urban Planning) *and*
  - UP269 (Special Topics in Environmental Analysis and Policy: Introduction to Environmental Policy and Planning), which provides an important background in policy which is deemed to be essential to students working at this interface (see **II. Academic Rationale: A growing nexus between public health and urban planning/D. Governance and institutional management**, above) but is not usually required for “regular” EHS MPH or UP MA students.
- Students in the concurrent degree program may elect to take *either* Biostat 100A or UP 220A, which the two departments consider to be roughly equivalent in scope, although the examples used in the two courses differ. Likewise, students in the concurrent degree program may elect to take *either* Biostat 100B or UP 220B. By contrast, students who pursued the two degrees independently would be required to take all four of these courses.
- Students in the concurrent degree program are required to complete a 400-hour summer internship (usually during the summer after their first year) that *combines* concepts and skills from the two fields of Public Health and Urban Planning. Students in the concurrent degree program are expected to write a single report describing this experience (to be submitted to both departments for approval) and register for *either* EHS 400 (Field Studies in Environmental Health Sciences) *or* UP 496 (Field Studies in UP and Environmental Health Sciences). By contrast, students who pursued the two degree programs independently would be required to perform a 400 hour internship in Environmental Health Sciences/Public Health (and write a report/register for EHS 400) *and* perform a 300 hour internship in Urban Planning (and write a report/register for UP 496). Students in the concurrent degree program are expected to work jointly with their two faculty advisors (one from EHS and one from UP) to ensure that the internship project and report have a scope that allows them to synthesize information and concepts from the two fields.

- Students in the concurrent degree program are expected to pursue a capstone project (a requirement of all students pursuing a MA in UP, including those in the concurrent degree program) that allows them to demonstrate that they can *synthesize and integrate* concepts from the two fields (Urban Planning and Public Health). By contrast, “regular” students in the UP planning are not required to choose a capstone project that overlaps with the field of Environmental Health Sciences/Public Health.

## **PROGRAM REQUIREMENTS FOR CONCURRENT DEGREE PROGRAM IN EHS**

### **(MPH) AND UP (MA) – 110 units**

#### *REQUIRED COURSES (82 Units)*

BIOST 100A (Introduction to Biostatistics) *or* UP 220A (Quantitative Analysis in Urban Planning) - **4 units**

BIOST 100B (Introduction to Biostatistics) *or* UP 220B (Quantitative Analysis in Urban Planning II) - **4 units**

CHS 100 (Introduction to Community Health Sciences) - **4 units**

HS 100 (Health Services Organization) - **4 units**

EPID 100 (Principles of Epidemiology) - **4 units**

EHS C200A (Foundations of Environmental Health Sciences) - **6 units**

EHS C200B (Foundations of Environmental Health Sciences) - **6 units**

EHS 201 (Seminar Health Effects of Environmental Contaminants) - **2 units**

EHS 208 (Built Environment and Health) - **4 units**

EHS C240 (Fundamentals of Toxicology) - **4 units**

EHS 401 (Environmental Measurements) - **4 units**

EHS M411 (EHS Seminar) once a year for two years - **4 (2 X 2) units**

EHS 400 (Field Studies in Environmental Health Sciences) OR UP 496 (Field Studies in UP and Environmental Health Sciences) - **4 units**

UP 205-1 OR UP205-2 (MA Thesis/Applied Planning Research Project) - **4 units**

UP207 (Applied Microeconomics for Urban Planning) - **4 units**

UP222A (Introduction to Histories and Theories of Urban Planning) - **4 units**

UP 254 (Transportation, Land Use and Urban Form) - **4 units**

UP269 (Special Topics in Environmental Analysis and Policy: Introduction to Environmental Policy and Planning) - **4 units**

UP 281 (Introduction to the History of the Built Environment) - **4 units**

UP598 (Preparation for MA Thesis) - **4 units**

*URBAN PLANNING STREAM ELECTIVES (16 units).* Students in the concurrent degree program must choose 4 electives (total) from the courses listed for their two streams listed below (*Built Environment Stream* and *Natural Environment Stream*), with at least one elective in each stream.

*Built Environment Stream*

UP219 (Special Topics in the Built Environment: Green Urbanism)

UP253 (Sprawl)

UP256 (Travel Behavior Analysis)

UP261 (Land Use Planning)

UP273 (Site Planning)

UP274 (Introduction to Physical Planning)

UP279 (Seminar on Public Space)

UP282 (Urban Design: Theories, Paradigms, Applications)

M291 (Introduction to Sustainable Architecture and Community Planning)

UP206B (Advanced Geographic Information Systems)

*Natural Environment Stream*

UP242 (Locational Conflict)

UPM258 (Transportation and Environmental Issues)

UP260 (Environmental Politics and Governance)

UP262B (Urban Environmental Problems: Water Resources)

UPM264 (Environmental Law)

UP265 (Environmentalism: Past, Present, and Future)

UP266 (Global Environment and Development: Problems and Issues)

UP267 (Environmental and Resource Economics and Policy)

UP269 (Advanced Seminar in Environmental Justice)

*ENVIRONMENTAL HEALTH SCIENCE/PUBLIC HEALTH ELECTIVES (12 units)*

To fulfill the requirement from our accrediting body (CEPH) that all MPH students take at least 56 unit of public health (or equivalent) coursework, students in the concurrent degree program must also take 12 units of electives from courses offered in any of the departments within the School of Public Health (Biostatistics, Community Health Sciences, Environmental Health Sciences, Epidemiology, or Health Services). Students are encouraged to consult with their advisor(s) regarding which courses may be most appropriate given their background and interests.

**SAMPLE SCHEDULE (THREE-YEARS) FOR THE CONCURRENT MA IN URBAN PLANNING AND MPH IN ENVIRONMENTAL HEALTH SCIENCES DEGREE PROGRAM. (Total units: 110)**

	FALL	WINTER	SPRING
1 <sup>st</sup> YEAR	UP 207 (4 units)	UP 269 (4 units)	CHS 100 (4 units)
	UP 222 (4 units)	BIOSTAT 100B OR UP 220B (4 units)	EHS 208 (4 units)
	BIOSTAT 100A (4 units)	EPID 100 (4 units)	UP 281 (4 units)
	12 Units	12 units	12 Units
2 <sup>nd</sup> YEAR	EHS C200A (6 units)	EHS C200B (6 units)	HS 100 (4 units)
	EHS 400 OR UP496 (4 units)	UP 254 (4 units)	EHS 207 OR GEOG 168 (4 units)
	EHSM 411 (2 units)	UP Elective (4 units)	UP Elective (4 units)
	12 units	14 units	12 units
3 <sup>rd</sup> YEAR	UP 205-1 OR UP205-2 (4 units)	UP 598 (4 units)	EHS 401 (4 units)
	EHS M 411 (2 units)	UP Elective (4 units)	EHS C240 (4 units)
	EHS 201 (2 units)	UP Elective (4 units)	UP Elective (4 units)
	EHS Elective (4 units)		
	12 units	12 units	12 units

**REFERENCE 6**  
**2009 EHS Independent**  
**Department Review**





## SCHOOL OF PUBLIC HEALTH

UNIVERSITY of WASHINGTON

*Professor Richard A. Fenske, PhD, MPH  
Department of Environmental and Occupational Health Sciences  
P.O. Box 357234, Seattle, WA 98195-7234*

May 18, 2009

Richard J Jackson MD MPH  
Professor and Chair, Environmental Health Sciences  
UCLA School of Public Health, 56-070 CHS  
650 Charles E Young Drive South  
Los Angeles, California 90095-1772

Dr. Jackson,

I am writing on behalf of Dr. Patricia Buffler, Dr. Jack Spengler and myself regarding our recent visit to the Department of Environmental Health Sciences. We would first like to thank you for the very cordial reception afforded us by all members of the EHS community and for the generous amount of time that faculty, students and staff set aside to meet with us. We wanted to provide you with our observations and suggestions regarding the current status and future direction of the department.

We had the opportunity during this visit to meet with SPH Dean Rosenstock, Associate Dean Godwin, Assistant Dean for Student Affairs Clark, and the leaders of several programs housed within the department, including Rich Ambrose and Mel Suffet (ES&E), Bill Hinds (ERC), and John Froines (COEH). We received written materials describing each of these programs, as well as faculty biographies, course listings and other relevant information. In addition, Jack and I had a productive and quite enjoyable discussion with a group of EHS students on the second day of our visit.

We were very pleased with the enthusiasm expressed by students as they recounted their experiences in the department and their career plans. They all seem to feel that their EHS education will provide a solid foundation for the work they hope to undertake after graduation.

We also learned that Environmental Science and Engineering has a very strong endorsement from students, and our meeting with its faculty leaders impressed upon us the great value of this program for the region, the state and the country. We believe the department should fully support the program and encourage more EHS faculty to play an active role in its unique educational mission.

Finally, we recognize the high quality of research being conducted by many EHS faculty, and particularly the exceptional program that John Froines has developed in the field of air quality and health. We hope that this critical area of research will continue to thrive at UCLA in order to meet the special challenges of the southern California region.

Beyond these very positive aspects of the department, however, we noted several potential areas for improvement over the next several years.

We were surprised by the organizational structure of the department. It seems that the very programs that bring strength to the department tend to have a deleterious impact on the overall

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coherence of the EHS academic community. During our visit, departmental faculty lines were discussed as if they were owned by particular programs, and in fact some of these programs were referred to as 'departments' in the course of several conversations. We view these fissures in the department to be a very serious impediment to the development of an outstanding academic enterprise. We also noted that there appears to be ample administrative support overall, but the distribution of this support across centers and programs limits to a great degree the ability of the chair to guide the department effectively or implement new initiatives. Consolidation of administrative staff would likely lead to greater efficiencies and higher productivity within the department.

While the retirement of William Hinds from the faculty and as the Director of the ERC creates a gap, it also presents an opportunity for new leadership for the ERC. As the search for a new director continues it would make sense to place the ERC management in the Dean's office. Dr. Rosenstock is eminently qualified to serve as interim ERC director until a new appointment is made. As new faculty are hired it will be important to make clear to them that they are faculty members of EHS first and that they report to the department's chair.

The Environmental Science and Engineering program should be encouraged to develop a closer relationship with the Institute of the Environment and expand the influence of environmental health in other sectors of the university. The EHS chair should play a more active role in this integrative function. When new faculty are added to the core faculty of ES&E, they should consider that they remain in the first instance EHS faculty who contribute to the overall mission of the EHS department.

The EHS chair, in concert with the Dean's office and the other SPH department chairs, should explore the feasibility of developing an undergraduate major in Urban Health. We believe such a major could create a multi-disciplinary curriculum that would make use of resources across the campus and that would be very popular among students. This new initiative could be used as the focus for bringing additional faculty and resources to the school, and would serve as an opportunity to reorient the efforts of some existing faculty.

The UCLA Department of Environmental Health Sciences is among the strongest departments of its kind in the nation. Still, we see the need for substantial reorganization and refocusing if the department is to reach its full potential. Happily, the department has secured as its chair a truly outstanding environmental health leader who is fully capable of building an innovative and visionary program to serve the needs of the public, and who enjoys the full support of the Dean's office in his efforts to build an innovative program in this critical period for our nation.

We thank you again for the opportunity to provide these comments and would be happy to follow up with you on any or all of these observations and suggestions.

Best regards,

*Richard Fenske*

Richard Fenske, Ph.D., M.P.H.  
Professor & Associate Chair, Department of Environmental and Occupational Health Sciences  
Director, Pacific Northwest Agricultural Safety and Health Center

**REFERENCE 7**  
**EHS Faculty *Curriculum Vitae***

**CURRICULUM VITAE**  
**RICHARD F. AMBROSE**

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**EDUCATION**

**Ph.D.** 1982 University of California, Los Angeles.  
**B.S.** 1975 University of California, Irvine.

**PROFESSIONAL EXPERIENCE**

1998-present Director  
Environmental Science and Engineering Program, UCLA

2000-present Professor  
Department of Environmental Health Sciences  
Institute of the Environment (joint appointment 2008-present)  
University of California  
Los Angeles, CA 90095-1772

1992-2000 Associate Professor  
Department of Environmental Health Sciences  
University of California  
Los Angeles, CA 90095-1772

1991-1997 Associate Research Biologist  
Marine Science Institute  
University of California  
Santa Barbara, CA 93106

1985-1991 Assistant Research Biologist  
Marine Science Institute  
University of California  
Santa Barbara, CA 93106

1983-1984 Postdoctoral Fellow  
Department of Biological Sciences  
Simon Fraser University  
Burnaby, B.C., Canada V5A 1S6

1982 Visiting Lecturer  
Department of Biology, UCLA

**RESEARCH**Major Research Interests

- Restoration ecology, especially for coastal marine and estuarine environments
- Ecology of coastal wetlands and estuaries
- Long-term ecological monitoring
- Development and scientific evaluation of mitigation techniques
- Development of habitat valuation techniques
- Ecology of artificial and natural reefs
- Marine ecology
- Interface between environmental biology and resource management policy

Research Grants and Contracts, R.F. Ambrose - Principal Investigator

Marine Review Committee, Inc.	A study of mitigation	3/1/85-9/30/92 \$1,134,154
California State Lands Commission	Assistance on the California Comprehensive Offshore Resource Study	4/17/89-7/17/89 \$24,758
Minerals Management Service	An Updated Inventory of Shoreline Resources	8/15/91-12/31/95 \$304,916
California State Lands Commission	Assistance on Assessing Impacts to the Marine Environmental	1/1/92-9/30/94 \$40,000
California Coastal Commission	Mitigation Analysis and Habitat Evaluation Techniques for Coastal Development in California	6/1/92-9/30/94 \$35,000
County of Santa Barbara	Inventory of Coastal Wetland Resources in Santa Barbara County	7/1/92-12/31/95 \$76,011
Las Virgenes Municipal Water District (with I.H. Suffet & S. Que Hee)	Enhanced Monitoring Program for Malibu Creek and Lagoon	3/1/93-5/31/94 \$112,686
UC Toxic Substances Research and Teaching Program - Coastal Environmental Toxicology Component	Ecotoxicology of Southern California Wetlands	7/1/93-6/30/06 \$405,000
California Coastal Commission (through Southern California Educational Initiative [SCEI])	Inventory of Coastal Ecological Resources in Ventura and Los Angeles Counties	3/1/94-10/31/98 \$318,579
California Coastal Commission (through SCEI)	Inventory of Coastal Ecological Resources of the Northern California Channel Islands	3/1/94-10/31/98 \$27,010

Research Grants and Contracts, R.F. Ambrose - Principal Investigator (continued)

California Coastal Commission (through SCEI) (with J. Engle & P. Raimondi)	Inventory of Coastal Ecological Resources of the Northern California Channel Islands	3/1/94-10/31/98 \$276,206 (through UCSB)
UC Toxic Substances Research and Teaching Program	An Integrated Assessment of Three Wetlands at Mare Island Naval Shipyard: Wetland Restoration	7/1/95-6/30/03 \$47,000
Minerals Management Service - Coastal Marine Institute (with J. Engle & P. Raimondi)	Inventory of Rocky Intertidal Resources in San Luis Obispo, Santa Barbara & Orange Counties	10/1/95-9/30/97 \$197,199 (\$59,097 through UCLA)
City of Malibu	Evaluation of Marine Protected Areas: Analysis and Management Recommendations for the Proposed Malibu Marine Refuge	6/1/96-6/16/97 \$20,869
U.S. Navy (with R. Vance)	Wetland Ecology and Restoration Planning at Mugu Lagoon	1/1/96-9/30/04 \$786,500
UCLA Academic Senate	Restoring damaged coral reef habitats in the South Pacific	7/1/96-6/30/97 \$2,688
Southern California Educational Initiative	Evaluating the Impact of Oil Spills on Southern California Rocky Intertidal Populations and Communities	7/1/96-6/30/97 \$58,108
Minerals Management Service (With J. Engle & P. Raimondi)	Interagency Rocky Intertidal Monitoring Network Workshop	12/9/96-7/14/97 \$36,942 (through UCSB)
California State Coastal Conservancy (with A. Orme and 5 co- investigators)	Lower Malibu Creek and Malibu Lagoon Resource Enhancement and Management Project	8/14/97-12/31/99 \$246,805
Minerals Management Service - SCEI	Inventory of Rocky Intertidal Resources in Santa Barbara, Ventura and Orange Counties	1/1/98-6/3/00 \$139,730

Research Grants and Contracts, R.F. Ambrose - Principal Investigator (continued)

County of Santa Barbara - SCEI	Inventory of Rocky Intertidal Resources in Santa Barbara, Ventura and Orange Counties	3/6/98-3/6/01 \$21,289
U.S. Navy (with R. Vance)	Monitoring Wetland Restoration Sites at Mugu Lagoon	10/1/99-4/30/06 \$620,688
U.S. Environmental Protection Agency (with M. Suffet and M. Stenstrom)	A Study of Analytical Chemical Procedures for a Southern California Watershed Monitoring and Assessment Program	11/1/98-10/31/00 \$396,500
Minerals Management Service - SCEI	Inventory of Rocky Intertidal Resources in Southern Santa Barbara, Ventura and Los Angeles Counties	7/1/00-12/31/02 \$103,083
Environmental Defense	A test of the spillover effect from no-take marine reserves using benthic rockfish in central California	1/1/01-6/30/01 \$15,000
UC Pacific Rim Research Program	Assessment of coral reef marine protected area health and management practices in Australia and Thailand	9/1/00-8/31/01 \$35,000
Los Angeles Regional Water Quality Control Board	Environmental monitoring and bioassessment of Ventura and Los Angeles County watersheds	1/1/01-6/30/02 \$125,000
California Department of Transportation	Environmental monitoring of rocky intertidal habitats near sediment disposal sites along the Malibu coast	2/6/01-7/30/01 \$20,976
Coastal Marine Institute/UCSB (through UCSC with P. Raimondi)	Spatial and temporal variation in recruitment to rocky shores: Relationship to recovery rates of intertidal communities	7/1/01-9/30/04 \$140,877 (\$14,042 through UCLA)

Research Grants and Contracts, R.F. Ambrose - Principal Investigator (continued)

Santa Monica Bay Restoration Project	Feasibility study for the restoration of natural resources in rocky intertidal habitats in Santa Monica Bay	4/1/02-9/30/03 \$88,421
University of California Center for Water Resources (with P. Rundel)	Influence of nutrient loading in the invasion of an alien plant species, Giant Reed ( <i>Arundo donax</i> ), in Southern California Riparian Ecosystems	7/1/02-6/30/04 \$56,000
Minerals Management Service (subcontract through UCSC)	Determining Long-Term Changes in Species Abundances and Community Structure in Southern California Rocky Intertidal Habitats	5/30/02-4/30/10 \$690,511
Los Angeles Regional Water Quality Control Board	Success of wetland mitigation sites in Los Angeles and Ventura Counties, California	4/1/03-10/30/04 \$93,999
Southern California Coastal Water Research Project	Assessment of water quality loadings from natural landscapes	1/1/04-3/15/06 \$125,735
California State Water Resources Control Board	Success of compensatory wetland mitigation required under Section 401 of the Clean Water Act in California	6/1/04-3/31/06 \$500,000
California Department of Fish and Game, Office of Spill Prevention and Response	Development of a response protocol to spills that can be formalized into "Coastal Habitats Quick-Response Procedures Kits" for sandy, rocky and wetland shoreline habitats	11/1/05-9/30/07 \$59,104
California State Water Resources Control Board	Review of Compensatory Mitigation Compliance Monitoring Study	6/1/05-3/31/07 \$16,691
California State Coastal Conservancy	Development of Field Sampling Protocols for the Integrated Wetlands Regional Assessment Program (IWRAP)	7/1/07-6/30/07 \$44,600



U.S. Minerals Management Service	Field testing of Pre-Spill biological assessment protocols for rocky intertidal, wetland and sandy beach habitats	9/24/07-9/21/08 \$5,177
Southern California Coastal Water Research Project	Habitat mix and distribution framework for restoration of coastal wetlands of southern California	1/8/08-9/30/08 \$30,802
<u>Co-Investigator:</u>		
U.S. Environmental Protection Agency R. Turco (PI), with 19 co-investigators	Integrated Urban Watershed Analysis: The Los Angeles Basin and Coastal Environment	1/1/97-12/31/99 \$1,200,000
U.S. Environmental Protection Agency Dick Berk (PI), with Jan DeLeeuw, Robert Gould, and Rich Turco	Using Multilevel Statistical Models to Address Representativeness and Data at Different Spatial and Temporal Scales	7/1/98-6/30/00 \$415,381
UC Marine Council S. Grant (PI, UCI), with B. Sanders, L. Levin, and C. Winant	Coastal Water Quality: The Role of Wetlands in Mitigating the Effects of Urban and Rural Runoff	7/1/02-6/30/06 \$611,146
National Science Foundation W. Kaiser (PI), with co-investigators	Information Technology Research (ITR): Networked Infomechanical Systems (NIMS)	10/1/03-9/30/08 \$7,499,303
Sweetwater Reservoir Organization I.H. Suffet (PI), with M. Stenstrom	Development of Best Management Practices for Sweetwater Reservoir	11/2/03-12/31/04 \$250,000
UC Marine Council Sharon Walker (co-PI, UCR), Jenny Jay (co-PI), Trish Holden (UCSB)	Fate, persistence and source identification of pathogens, pathogen indicator bacteria and human specific markers in coastal beach and wetland sediments of southern California	7/1/08-6/30/09 \$250,000

Scientific Expeditions and Research Locales

- Research along California coast, including Channel Islands (Anacapa Island, Santa Barbara Island, Santa Catalina Island, Santa Cruz Island, San Miguel Island, San Nicolas Island).

- U.C. Berkeley Gump Marine Laboratory, Moorea, French Polynesia, 1996.
- Heron Island Research Station, Great Barrier Reef, Australia, 2001.
- West Indies Laboratory, St. Croix, U.S. Virgin Islands, 1981. (Including a week-long mission in the undersea laboratory HYDROLAB.)
- Laboratoire Arago, Banyuls-sur-Mer, France, on the Mediterranean, 1980.
- Scripps Institute of Oceanography Expedition, Baja California, 1977. (Co-Organizer)
- Other field experience: Baja California, British Columbia, Alaska, Hawaii.

## HONORS

Commendation from California Senate for service to Santa Monica Bay Restoration Commission  
Delta Omega Society  
University Fellowship, UCLA  
Chancellor's Intern Fellowship, UCLA  
President's Scholarship, UC Irvine  
Honors in Biological Sciences at graduation, UC Irvine

## TEACHING

### Courses Taught

**University of California, Santa Barbara.** Environmental Studies Program.

*Coastal Processes and Management* (Environmental Studies 134) - 1991

**University of California, Los Angeles.** Biology Department.

*Oceans* (Biology 25) - 1977

*Ecology and Evolution* (Biology 6) - 1982

*Introductory Biology* (Biology 5) - 1982

**University of California, Los Angeles.** Environmental Science and Engineering Program,  
Department of Environmental Health Sciences, School of Public Health.

*Applied Ecology* (Environmental Health Sciences 212) - 1993-2008

*Environmental Science and Engineering Problems Course* (Environmental Science and Engineering 400 A, 400B, 400C) - 1993-2007

*Environmental Science and Engineering Problems Course Workshop* (Environmental Science and Engineering 410 B) - 1995-97

*Graduate Seminar in Ecotoxicology* (Environmental Health Sciences 203) with M. Collins - 1995-2006

*Graduate Seminar in Coastal Ecology and Management* (Environmental Health Sciences 206) – 2000-2004

*Fundamentals of Environmental Health Sciences* (Environmental Health Sciences 200B)  
– 1999-2008 (co-organizer 2008)

**University of California.** Multicampus course.

*Experimental Approaches to Problems in Coastal Toxicology* (UC Davis PTX 230) –  
Summer 1999-2005

Doctoral Committees - Ph. D. Degree

*Chair*

*Current Students*

Donna Ferguson (co-chair with J. Jay)  
Robert Gilbert  
Steven Lee  
Demian Willette

*Graduates*

Michelle Anghera, 2004. “Detecting Contaminant Impacts to the Benthic Community in a Coastal Wetland.” (current employer: Weston Solutions)  
Perla Atiyah, 2009 (Acting as chair for Linwood Pendleton). “Non-Market Valuation and Marine Management: Using Panel Data Analysis to Measure Policy Impacts on Coastal Resources.”  
Gretchen Coffman, 2007. “Factors influencing invasion of Giant Reed (*Arundo donax*) in riparian ecosystems of Mediterranean-type climates.” (current employer: WRA Environmental Consultants)  
W. Mark Hanna, 2003 (Civil and Environmental Engineering, co-chair with J. Dracup). “Real-time Adaptive Wetland Water Quality Management.” (current employer: Los Angeles Department of Water and Power)  
Travis Longcore, 1999 (Geography, co-chair with M. Savage). “Terrestrial Arthropods as Indicators of Restoration Success in Coastal Sage Scrub.” (current employer: USC and UCLA)  
Jayson Smith, 2005 (Ecology and Evolutionary Biology [EEB], co-chair with P. Fong). “Factors Affecting Geographic Patterns and Long-Term Change of Mussel Abundances (*Mytilus californianus* Conrad) and Bed-Associated Community Composition along the California Coast.” (current employer: California State University, Fullerton)  
Irene Tetreault, 2006. “The effects of marine reserves on fish inhabiting temperate rocky reefs.”

*Member*

*Current Students*

Sarah Bryson (EEB)  
Li-Cheng Chan (Civil and Environmental Engineering)  
Min-Mo Chung (Civil and Environmental Engineering)  
Lauri Green (EEB)  
Simon Ha (Civil and Environmental Engineering)  
Tonya Kane (EEB)  
Sunhyung (Sunny) Kim (Civil and Environmental Engineering)  
Shao-Yuan (Ben) Leu (Civil and Environmental Engineering)

Chu-Ching Lin (Civil and Environmental Engineering)  
Kathleen Shaver (EHS)  
Amarjeet Singh (Electrical Engineering)

*Graduates*

Aaron Allen, 1999 (Geography)  
Sean Anderson, 2004 (Organismic Biology, Ecology and Evolution [OBEE])  
Anna Armitage, 2003 (OBEE)  
Kathy Boyer, 2002 (OBEE)  
Karleen Boyle, 2002 (OBEE)  
Tracey Brown, 1999 (OBEE)  
Wei Chen, 2004 (EHS)  
Michael Chotkowski, 1994 (Biology)  
Risa Cohen, 2003 (OBEE)  
Cathy Crouch, 2002 (OBEE)  
Suzanne Dallman, 2001 (Geography)  
Paul Di Giacomo, 1999 (OBEE)  
Krista Kamer, 2000 (OBEE)  
Joohyon Kang, 2005 (Civil and Environmental Engineering)  
Rachel Kennison, 2008 (EEB)  
John Lambrinos, 2000 (OBEE)  
Raul Lejano, 1998 (EHS)  
Jeong-Hee Lim, 2005 (Civil and Environmental Engineering)  
Michael (Chen-Hung) Lin, 2001 (EHS)  
Kristina D. Louie, 2003 (OBEE)  
John Malone, 2002 (OBEE)  
Laura Martin, 1999 (OBEE)  
Sarah May, 2003 (OBEE)  
Jim Noble, 1996 (EHS)  
Daniel Pondella, 2001 (OBEE)  
Alex Reich, 2000 (OBEE)  
Ken Schwarz, 1999 (Geography)  
Linda Schweitzer, 1998 (EHS)  
Lei Lani Stelle, 2001 (OBEE)  
Mary A. Soliman, 2002 (EHS)  
Matt Wartian, 2006 (EEB)  
Karina Wiesenthal, 2006 (EHS)  
Louis Zeidberg, 2003 (OBEE)  
James Zoulas, 2007 (Geography)

Doctoral Committees - D.Env. Degree

*Chair*

*Current Students*

Todd Bear (current employer: Psomas)  
Valerie Chan (in residence at UCLA)  
Steven Estes (in residence at UCLA)  
Cori Farrar (co-chair with Linwood Pendleton) (current employer: U.S. Army Corps of Engineers)  
Amy Hensley (current employer: U.S. Environmental Protection Agency)  
Laurie Ikuta Monarres (current employer: U.S. Army Corps of Engineers)  
Stacey Jensen (current employer: U.S. Army Corps of Engineers)

Calvin Kwan (in residence at UCLA)  
Jennifer Liebler Michael (current employer: Chevron)  
Shannon Pankratz (current employer: U.S. Army Corps of Engineers)  
Glenn Sias (in residence at UCLA)  
Forrest Vanderbilt (current employer: U.S. Army Corps of Engineers)

*Graduates*

Matthew Buffleben (co-chair with Stan Trimble, Geography), 2009. "Assessment of Soil Creep Sediment Generation for Total Maximum Daily Load Development in a Northern Coastal California Watershed." (current employer: North Coast Regional Water Quality Control Board)

Joshua Burnam (co-chair with Tony Orme, Geography), 2004. "Impacts of Low Water Crossings on Aquatic Resources under the U.S. Army Corps of Engineers Nationwide Permit Program." (current employer: Anchor Environmental)

Jae Chung, 2006. "Cumulative Impacts to Riparian Wetlands in the Aliso Creek and San Juan Creek Watersheds." (current employer: U.S. Army Corps of Engineers)

Melissa Evanson, 2009. "Chinook Salmon Population Dynamics and Life History Strategies in the Squamish River Watershed, BC, Canada." (current employer: Golder Associates)

Felicia Federico, 2009. "Managing Hydromodification Impacts due to Urbanization through Regulation of New Development and Re-Development in Southern California." (current employer: Geosyntec)

Alice Kwan, 1996. "Evaluation of a Decision Making Method Utilizing Spatial, Stakeholder, and Multi-Attribute Analyses: Application to a Conflict between Habitat Preservation and Development." (current employer: Hong Kong Airport Authority)

Erik Larsen, 2006. "Regulation, Characterization, and Assessment of Riparian Habitat in Federal and State Jurisdiction, Orange County, CA." (current employer: P & D Consultants)

Jonathan Lilien, 2001. "Cumulative Impacts to Riparian Habitat in the Malibu Creek Watershed." (current employer: Chevron)

Cindy Lin, 2002. "Effects of Landscape Modification on Stream Ecology and Structure in a Mixed-Use Watershed in Mediterranean Southern California." (current employer: U.S. Environmental Protection Agency)

Shelley Luce, 2003. "Urbanization and Aquatic Ecosystem Health in Malibu Creek, California: Impacts on Periphyton, Benthic Macroinvertebrates, and Environmental Policy." (current employer: Santa Monica Bay Restoration Commission)

Spencer MacNeil, 2001. "Hydrogeomorphic Assessment of Aliso Creek Watershed Streams: Developing a Foundation for Holistic Permitting and Management." (current employer: U.S. Army Corps of Engineers)

Douglas Meffert, 1996. "The Effectiveness of the Coastal Wetlands Planning, Protection and Restoration Act in Achieving Louisiana's Coastal Restoration Objectives." (current employer: Tulane University)

Whitman Miller, 2001. "Assessing the Importance of Biological Attributes for Invasion Success: Easter Oyster (*Crassostrea virginica*) Introductions and Associated Molluscan Invasions of Pacific and Atlantic Coastal Systems." (current employer: Smithsonian Environmental Research Center)

Monique Myers, 2003. "Coral Reef Monitoring for Management Purposes and the Effect of Marine Protected Areas on Benthic Communities on the Great Barrier Reef." (current employer: University of California Sea Grant and Cooperative Extension)

Petra Pless, 2001. "Technical and Environmental Assessment of Thermal Insulation Materials from Bast Fiber Crops." (current employer: Lesos Consulting)

- Chuck Rairdan, 1998. "Regional Restoration Goals for Wetland Resources in the Greater Los Angeles Drainage Area: A Landscape-Level Comparison of Recent Historic and Current Conditions Using Geographic Information Systems." (current employer: U.S. Army Corps of Engineers)
- Sarah Rothenberg (co-chair with Jenny Jay, Civil and Environmental Engineering), 2007. "Mercury Cycling in a Coastal Estuary: Implications for Maximum Total Daily Loads."
- Ben Schwegler, 1999. "Engineering Ecosystems: an Ecosystem Function, Ecosystem Service Model for the Analysis of Private Sector Development Opportunities." (current employer: Walt Disney Imagineering)
- Arent (Barry) Schuyler, 1996. "The Risks of Marine Traffic and Oil Operations in the Santa Barbara Channel and the Santa Maria Basin."
- Craig Shuman, 2003. "The Marine Aquarium Trade in the Phillippines: Balancing Ecological Impacts with Livelihood Opportunities." (current employer: Reef Check Foundation)
- Eric Stein, 1995. "Assessment of the Cumulative Impacts of Section 404 Clean Water Act Permitting on the Ecology of the Santa Margarita, Ca. Watershed." (current employer: Southern California Coastal Water Research Project)
- Mark Sudol, 1996. "Success of Riparian Mitigation as Compensation for Impacts due to Permits Issued through Section 404 of the Clean Water Act in Orange County, California." (current employer: U.S. Army Corps of Engineers)
- Dan Swenson, 2005. "Habitat Loss, Cumulative Impacts, and the Clean Water Act Section 404 Program: A Spatial Analysis." (current employer: U.S. Army Corps of Engineers)
- Matthew Vandersande (co-chair with L. Pendleton, ESE), 2006. "Regulation of non-wetland riparian areas in the arid and semi-arid southwest: Section 404 of the Clean Water Act, bank stabilization, and a policy recommendation." (current employer: U.S. Army Corps of Engineers)
- Vada Yoon (co-chair with M. Stenstrom, CEE), 2006. "Quantification of Metals, Nutrients, and Solids from Natural Areas During Wet and Dry Weather in Southern California." (current employer: Flow Science Incorporated)

*Member*

*Current Students*

Jane Curren  
Fred Geringer  
Suzan Given  
Adrienne Katner  
Chad Nelsen

*Graduates*

Cara Augustenborg, 2007  
Gnachi Amah, 2004  
Laura Bloch, 1996  
Maria Echarte, 2006  
Chris Gabelich, 2001  
Betty Grizzle, 1993  
John Karlik, 1998  
Chad Lewis, 2005  
Tim McPherson, 2001  
Heesu Park, 2006  
Joel Pedersen, 2001

Danny Qin, 2006  
Fernando Rosario, 2006  
Farinaz Tabatabai, 1994  
Mitzy Taggart, 2002  
Keith Thomsen, 2005

Master's Students - M.S. Degree

*Chair*

*Current Students*

Melissa McMeechan  
Jackie Prange  
John Prokup  
Brianna Tarnower  
Tiffany Yap

*Graduates*

Shanti Abichandani, 2007. "The Potential Impact of the Invasive Species *Arundo donax* on Water Resources along the Santa Clara River: Seasonal and Diurnal Transpiration."  
Janel Marie Augello, 2008. « Development of a Bioassay to Detect Variations in Freshwater Nutrient Conditions."  
Tamira Cohen, 1995. "Trace metals in three California coastal wetland regions: Mugu Lagoon, Malibu Lagoon and Ballona Wetlands."  
Lesley Dobalian, 1999. "Can wetland restoration meet compensatory mitigation goals of overall no net loss?"  
John Howe, 2001  
Laurie Ikuta, 2002. "Do fences protect birds from human disturbance?"  
Sharon Landau, 1996  
Lena Maun, 2002. "Marine Reserves: Effective answers to the coral reef crisis or only part of the solution in the Caribbean Region?"  
Whitman Miller (co-chair with Dr. R.R. Vance, Biology), 1994  
Shannon Pankratz, 2003. "Effects of Mycorrhizal Infection and Salinity Stress on the Growth Performance of Three Salt Marsh Plant Species (*Frankenia grandifolia*, *Jaumea carnosa* and *Salicornia virginica*)."  
Glenn Sias, 2007. "A Comparison of Soil Salinity between Areas Dominated by Native Vegetation and Non-native Vegetation in a Tidal Wetland."  
Terry Young, 2005. "An assessment of tiger beetle populations at Mugu Lagoon, Ventura, California in 2003-04 compared to 1982 populations."

*Member*

Vanessa Thulsiraj (CEE)

*Graduates*

Navreet Aujla, 2003  
Kristine Becker, 2000  
Colleen Bouzan, 1999  
Richard Brody, 2004 (Geography)  
Jane Curren, 2007  
Steven Estes, 2007 (EEB)

Bryn Evans, 2001 (OBEE)  
Tom Ford, 2005 (EEB)  
Brett Fredericks, 1999 (OBEE)  
Dean Gerdeman, 1999 (OBEE)  
Suzie Given, 2003  
Kelly Havens, 2008 (CEE)  
Sapna Hira, 2003  
Setsuko Ichikawa, 2000  
Ruby Rowe, 1999  
Nancy Meck, 1998  
Tony Moeller, 1994  
Sylvia Rostami, 1995  
Katherine Smith, 2005 (EEB)  
Judi Tamasi, 2008 (EEB)  
Mayra Tinoco, 2001  
Laura Waltemath, 1993  
Michelle Wilhelm, 1994  
Joy Yoon, 2003 (OBEE)

#### Postdoctoral Scholars

Peter Raimondi (1991-92)  
Kevin Lafferty (1993-04)  
Monique Myers (2004)  
Raphael Sagarin (2004-06)

#### University Guest Lecturer

Ecology and Evolutionary Biology  
University of California, Los Angeles, 1982

Ecology  
Simon Fraser University, 1983

Advanced Topics in Marine Ecology  
University of California, Riverside, 1984

Conservation Biology  
University of California, Los Angeles, 1988-1992, 1995-2006

Ecology of Marine Communities  
University of California, Los Angeles, 1993

Introduction to Marine Science  
University of California, Los Angeles, 1994-95, 1997

Biodiversity and Extinction  
University of California, Los Angeles, 1994

People and the Earth's Ecosystems  
University of California, Los Angeles, 1996

Introduction to Environmental Health Sciences  
University of California, Los Angeles, 1998-99, 2002



Global Environment

University of California, Los Angeles, 1998-2007

Restoration Ecology

University of California, Los Angeles, 1999

Wetlands Ecology and Conservation

Scripps Institution of Oceanography, 1999, 2003

Understanding the Seas: Recent Advances in Marine Science

University of California, Los Angeles (Extension), 2002-3

Environmental Engineering Education

University of California, Los Angeles, 2005

University Seminar Speaker

"Population biology and behavioral ecology of *Octopus bimaculatus*"

Catalina Marine Science Center, Catalina, CA, 1977

"Interactions between predator and prey"

University of California, Los Angeles, 1983

"Predation by Octopuses"

Simon Fraser University, 1984

"Population Biology of *Octopus bimaculatus* at Santa Catalina Island"

University of Southern California, 1989

"Science and the Art of Mitigation: Mitigating the Marine Impacts of the San Onofre Nuclear Generating Station"

University of California, Los Angeles, 1991

"Evaluating the Alternatives for Mitigating the Impacts of the San Onofre Nuclear Generating Station"

University of California, Santa Barbara, 1992

"The San Onofre Nuclear Generating Station: Marine Impacts and Mitigation"

University of California, Los Angeles, 1994

"Predicting Environmental Impacts: Lessons from a Power Plant Environmental Impact Analysis"

University of California, Los Angeles, 1995

"The Barrens Facts: Ecology of a Southern California Urchin Barrens"

University of California, Los Angeles, 1995

"Spatial Variability in Southern California Salt Marshes: Implications for Assessing the Success of Mitigation"

San Diego State University, 1997.

"Wetland Mitigation in the United States: The Good, the Bad, and the Ugly"

RMIT University, 1998.

“Restoring southern California’s salt marshes: What do we use for a model?”  
Smithsonian Environmental Research Center, 2000.

“Restoring contaminated habitats: field experiments using sewage sludge in a southern  
California salt marsh”  
University of California, Davis, 2002.

“If you build it, will they come? Testing the Field of Dreams Hypothesis in restored wetlands.”  
Scripps Institution of Oceanography, 2003.

“Protecting wetland resources under the Clean Water Act: How is California doing?”  
University of California, Los Angeles, Institute of the Environment Environmental  
Colloquium, 2006.

## SERVICE

### Professional and Scholarly Service

- 1982-83      Consultant to Channel Islands National Park, VTN, Oregon, Inc. Design and pilot study to determine human impacts on rocky intertidal communities in the Channel Islands National Park.
- 1983-84      Scientific advisor to Cori International for nature films.
- 1988          Consultant to Channel Islands National Marine Sanctuary. Environmental Assessment of damage caused by shipwreck of *Tortuga* on San Miguel Island.
- 1990          Consultant to Woodward-Clyde Consultants. Spring assessment of Exxon Valdez oil in intertidal areas in Prince William Sound, Alaska.
- 1990          Consultant to California Coastal Commission, City of Chula Vista and City of Carlsbad. Evaluation of alternatives for mitigating impacts of proposed coastal power-plant expansion.
- 1991-1999    Consultant to National Oceanic and Atmospheric Administration. Evaluation of restoration alternatives for marine resource damages in Southern California.
- 1992          Florida Sea Grant Project Review Panel.
- 1992-present    Scientific Advisory Panel for the California Coastal Commission's San Onofre Nuclear Generating Station Marine Resource Mitigation Project, chair.
- 1993          Consultant to California State Coastal Conservancy. Review and evaluation of potential techniques for mitigating environmental impacts of Port development in California.
- 1995-96      Santa Monica Bay Restoration Project Wetlands and Birds Monitoring Program Committee.
- 1995-2007    Santa Monica Bay Restoration Commission Technical Advisory Committee (TAC).

- 1996-97 Scientific Review Panel for MEC Analytical Systems, Inc., Environmental Mitigation Monitoring project for the Minerals Management Service.
- 1996-97 Consultant to MEC Analytical Systems/ U. S. Dept. of Interior Minerals Management Service. Evaluation of mitigation techniques for oil and gas development projects.
- 1997 Santa Monica Bay Restoration Project Intertidal Monitoring Program Committee - Chair
- 1997 Consultant to California State Coastal Conservancy. Review of Southern California Wetlands Inventory for Los Angeles County.
- 1997-present Multi-Agency Rocky Intertidal Network (MARINE) Scientific Advisory Panel.
- 1997-1999 Scientific Advisory Panel on West Coast Marine Reserves. Pacific Ocean Conservation Network.
- 1998-99 Consultant to Advancia Corporation and the U.S. Army Corps of Engineers. Evaluation of biological effects of electrokinetics demonstration project.
- 1998-99 Los Angeles & San Gabriel Rivers Watershed Council Beneficial Uses Committee.
- 1998-present Southern California Wetlands Recovery Project (a partnership of state and federal agencies with wetlands responsibilities) Scientific Advisory Panel.
- 1998-2006 Scientific Advisory Board for the Ballona Wetlands Foundation.
- 1999 Consultant to U.S. Army Corps of Engineers. Evaluation of watershed and riparian habitat assessment methodologies.
- 1999-2000 Consultant to National Oceanic and Atmospheric Administration. Resource replacement alternatives involving constructed reefs in Southern California.
- 2001-2002 Scientific Review Board for National Oceanic and Atmospheric Administration's Montrose/DDT fish study.
- 2002 Panel of Experts for Final Selection of Toxicity Reference Values (TRVs) for Ecological Risk Assessments at Vandenberg AFB, California.
- 2003-2005 Malibu Lagoon Technical Advisory Committee (LTAC), established by Heal the Bay/California State Coastal Conservancy to oversee planning for the restoration of Malibu Lagoon.
- 2004-2007 Santa Monica Bay Restoration Commission Technical Advisory Committee (TAC), Habitats Subcommittee, chair.
- 2004-present Consultant to Aspen Environmental Group/California State Coastal Conservancy. Restoration planning for Ormond Beach wetlands.
- 2004-2005 Consultant to the City of Malibu. Wetland restoration planning for Malibu Civic Center region, including wetlands for stormwater treatment.

- 2005-present Ballona Wetland Restoration Planning, Scientific Advisory Committee (established by the California State Coastal Conservancy), co-chair.
- 2006-present Santa Monica Bay Restoration Commission Marine Protected Areas Technical Advisory Committee (MTAC).
- 2007-present Consultant to Geosyntec Consultants/RMC Water for the design of the Malibu Legacy Park.
- 2007-2008 Consultant to Psomas for design of South Los Angeles Wetland Park.
- 2007-2008 Consultant to the City of Malibu. Marine resources in the Malibu Area of Special Biological Significance.
- 2007-present United States Army Corps of Engineers Environmental Advisory Board (EAB).
- 2007-present Santa Monica Bay Restoration Commission Technical Advisory Committee (TAC), chair.
- 2008-present California Ocean Protection Council (OPC) Science Advisory Team (SAT).  
2008-09: co-chair.
- 2008-present California Marine Life Protection Act (MLPA) Science Advisory Team (SAT).

University Committee Service - UC Santa Barbara

- 1988 Search Committee for Assistant to the Director of the Marine Science Institute.
- 1989-91 *Ad hoc* Academic Review Committees, Marine Science Institute.

University Committee Service - UCLA

- 1982 Biology Graduate Student's Association Committee on Microcomputers, UCLA.
- 1992-93 School of Public Health Subcommittee on the MPH Comprehensive Exam.
- 1992-93 School of Public Health Strategic Planning Committee on Infrastructure.
- 1992-93 Department of Environmental Health Sciences Academic Policy and Procedures Committee.
- 1992-98 Graduate Advisor, Environmental Science and Engineering Program.
- 1992-present Interdepartmental Committee for Environmental Science and Engineering Program. (Chair, 1998-present)
- 1993-94,  
2001-02  
2003-present School of Public Health Committee on Student Affairs.  
Chair
- 1993-94 Department of Environmental Health Sciences Subcommittee on Course Approval - Chair

- 1993-94 Marine Science Center Committee for the Marina del Rey Aquarium and Facility.
- 1993-present Diving Control Board.
- 1994-95,  
2001-present Editorial Board of UCLA Public Health Magazine.
- 1994-2002 Advisory Board of UCLA Ocean Discovery Center.
- 1994-95 Biology Department Search Committee for Marine Biologist Positions.
- 1995 School of Public Health Public Health Practice Group Advisory Committee.
- 1994-1999 School of Public Health Academic Computing Committee.
- 1995-97 Department of Environmental Health Sciences Academic Policy and Procedures Committee - Chair
- 1995-97 Department of Environmental Health Sciences Recruitment and Alumni Relations Committee.
- 1995-2000 Marine Science Center Advisory Committee.
- 1996 Committee to Review the Marine Science Center.
- 1999-2002 School of Public Health Evaluation Committee.
- 1999-2000 Department of Organismic Biology, Ecology and Evolution Search Committee for Conservation Biologist Position (joint appointment with Institute of the Environment).
- 2000-present UCLA Committee for the UC Natural Reserve System.
- 2000-2001 Department of Organismic Biology, Ecology and Evolution Search Committee for Plankton Ecologist Position (joint appointment with Institute of the Environment).
- 2002-2005 Department of Environmental Health Sciences Search Committee for Chair of the Department.
- 2002-present Institute of the Environment Executive Committee
- 2005-present UCLA Campus Sustainability Committee  
(Academic Subcommittee 2006-present)
- 2006-2007 Institute of the Environment and Department of Urban Planning Search Committee for Environmental Policy position (joint appointment with Institute of the Environment and Department of Urban Planning).
- 2007-present Institute of the Environment Space Committee (chair)
- 2008-present Institute of the Environment Climate Change Research Initiative
- 2007-2008 School of Public Health Search Committee for Computational Biologist (chair)

Committee Service - University of California campuswide and others

- 1995-2001 Coordinating Board of the University of California Water Resources Center – Member (Chair of Aquatic Ecosystems section, 2000)
- 1995-present National Association of State Universities and Land-Grant Colleges Board on Oceans and Atmosphere – Delegate.
- 1999 University of California Rancho Marino Evaluation Committee.
- 1999 University of California. Water Resources Center, Committee on Reports and Publications
- 1999-2001 Natural Reserve System Universitywide Advisory Committee – UCLA representative.
- 1999-2000 Select Scientific Advisory Committee on Decommissioning Offshore Oil Production Facilities for the Office of the President, University of California.
- 2002 Panel of Experts for Final Selection of Toxicity Reference Values (TRVs) for Ecological Risk Assessments at Vandenberg AFB, California
- 2004-present Society of Wetland Scientists Student Grants Committee

Editorial Service to Scholarly Journals

Periodic referee of papers and proposals for:

Australian Environmental Studies  
Biological Bulletin  
Bulletin of Marine Science  
Channel Islands Symposium Proceedings  
Cooperative Institute for Coastal and Estuarine Environmental Technology  
Coral Reefs  
CRC Press  
Ecological Applications  
Ecological Restoration  
Ecology  
Environmental Management  
Evolution  
Florida Sea Grant College  
GEOIDE  
Journal of Experimental Marine Biology and Ecology  
Malacologia  
Marine and Freshwater Research  
Marine Behaviour and Physiology  
Marine Ecology Progress Series  
MMS-UC Coastal Marine Institute Program  
National Marine Fisheries Service  
National Research Council  
National Science Foundation  
National Undersea Research Program  
North American Journal of Fisheries Management

Restoration Ecology  
Santa Barbara Museum of Natural History Special Publication  
St. Martin's Press  
Studies in Tropical Oceanography  
UC Pacific Rim Research Program  
University of California Press  
USGS, Biological Resources Division  
US Environmental Protection Agency  
Veliger  
Wetland Ecology and Mangement  
Wetlands (Australia)

## PROFESSIONAL ACTIVITIES

### Participation in Professional Meetings

Presented paper, "Ecology of *Octopus bimaculatus*," Southern California Marine Ecology Conference, Catalina Marine Science Center. 1979.

Presented paper, "Importance of octopus predation in a Southern California subtidal community," Annual Meeting of the American Society of Zoologists and the Western Society of Naturalists. 1980.

Invited paper, "Population biology of *Octopus bimaculatus*," Annual Meeting of the National Shellfisheries Association, Octopus Symposium. 1983.

Presented paper, "Dynamics of shallow-water populations of *Octopus dofleini*," Annual Meeting of the American Malacological Union, Cephalopod Session. 1983.

Invited paper, "Population dynamics of *Octopus bimaculatus*: Influence of life history patterns and synchronous reproduction," Annual Meeting of the American Malacological Union, Cephalopod Symposium. 1986.

Presented paper, "Changes in urchin and kelp densities in a crust-dominated community at Anacapa Island," Third California Channel Islands Symposium. 1987.

Presented paper, "Comparison of fish assemblages on artificial and natural reefs off the coast of Southern California," Fourth International Conference on Artificial Habitats for Fisheries. 1987.

Presented paper, "Factors influencing fish recruitment to artificial and natural reefs in Southern California," Annual Meeting of the Western Society of Naturalists. 1987.

Presented paper, "Artificial reefs off the Santa Barbara Coast: What are the benefits?," The Marine Environment of Santa Barbara and its Coastal Waters--A Symposium/Workshop. 1988.

Invited paper, "Fishery potential of *Octopus bimaculatus*," Workshop on the fishery and market potential of octopus in California. 1989.

Presented paper, "Results of the Marine Review Committee's study on the San Onofre Nuclear Generating Station: Implications for future marine environmental decisions," Coastal Zone 91. 1991.

Session Chair, Mitigation and Restoration Session, Fifth International Conference on Artificial Habitats for Fisheries. 1991.

Presented paper, "Mitigating the effects of a coastal power plant on a kelp forest community," Fifth International Conference on Aquatic Habitat Enhancement. 1991.

Invited panelist, Mitigation Panel, California Symposium on Interactions Between Coastal Science and Policy, National Academy of Sciences Ocean Studies Board. 1992.

Invited paper, "An inventory of shoreline resources," Seventh Annual Information Transfer Meeting, Pacific OCS Region, Minerals Management Service. 1992.

Poster presentation, "Ecotoxicology of Malibu Lagoon," Seventh Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1993. T. Downs (presenter) and R.F. Ambrose

Invited paper and panelist, "Measuring the value of restored coastal ecosystems," Environmental Management of Enclosed Coastal Seas (EMECS) '93. 1993.

Invited paper, "Performance standards for coastal wetland restoration." Wetland Restoration Symposium, Southern California Academy of Sciences. 1994.

Poster presentation, "Contaminants in Coastal Wetlands: Preliminary Analyses of Metals in Fish and Clams in the Malibu Creek Watershed," Eighth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1994. S. MacNeil (presenter), R.F. Ambrose, T. Moeller and S. Que Hee

Symposium organizer and Session Chair, "Wetland Restoration Symposium," 75th Annual Meeting of the Western Society of Naturalists. 1994.

Presented paper, "Performance standards for coastal wetland restoration." National Interagency Workshop on Wetlands. 1995.

Invited paper, "Sampling rocky intertidal communities to detect the effects of an oil spill: What species should we study?" Response to Oil Spills Symposium, Southern California Academy of Sciences. 1995.

Invited Panelist, "If there were an oil spill today, and we had to make a decision, what method or approach would we choose to sample rocky intertidal biota?" Response to Oil Spills Symposium, Southern California Academy of Sciences. 1995.

Presented paper, "San Onofre Nuclear Generating Station Mitigation Reef: Monitoring Issues," International Conference on Ecological System Enhancement Technology for Aquatic Environments. Japan, 1995.

Poster presentation, "Wetland Restoration Planning at Mare Island Naval Shipyard," Ninth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1996. C. Rairdan (presenter) and R.F. Ambrose.

Poster presentation, "Wetland Restoration Planning at Mugu Lagoon," Ninth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1996. S. MacNeil (presenter) and R.F. Ambrose.



Contributed paper, "Evaluation of marine protected areas: analysis of a proposed marine refuge in Malibu, California," Southern California Academy of Sciences Meeting. 1997. C.J. Lin (presenter), R.F. Ambrose and I. Beers.

Contributed paper, "Establishing performance standards for wetland restoration at Mugu Lagoon", Southern California Academy of Sciences Meeting. 1997. T.N. McPherson (presenter), R.F. Ambrose and R.R. Vance.

Presented paper, "Developing performance standards for salt marsh restoration projects," 18<sup>th</sup> Annual Meeting of the Society of Wetland Scientists. 1997. R.F. Ambrose (presenter), T.N. McPherson, R.R. Vance and T.W. Keeney.

Contributed paper, "The last hundred years at Mugu Lagoon: A southern California wetland case study," Southern California Environmental History Conference. 1997. S. Anderson (presenter) and R. Ambrose.

Poster presentation, "Performance Standards for Wetland Restoration at Mare Island Naval Shipyard," Tenth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1997. S. Daley (presenter) and R.F. Ambrose.

Poster presentation, "Establishing Performance Standards for Restoration of Sewage Oxidation Ponds at Mugu Lagoon," Tenth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1997. T. McPherson (presenter), R.F. Ambrose and R. Vance.

Poster presentation, "Restoring Degraded Tidal Wetlands: An Opportunity at the Point Mugu Naval Air Weapons Station," Tenth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1997. S. Anderson (presenter), R. Ambrose and R. Vance

Contributed paper, "Creation of tidal wetland at Mare Island Naval Shipyard following remediation of a contaminated ordnance disposal site," Society of Environmental Toxicology and Chemistry Meeting. 1997. S. Daley (presenter) and R. Ambrose.

Poster presentation, "Contaminated soils and degraded habitats: coastal wetland restoration," 18<sup>th</sup> International Society of Environmental Toxicology and Chemistry Meeting. 1997. S.A. Anderson (presenter), R.F. Ambrose and R.R. Vance

Poster presentation, "The influence of natural variability on the establishment of performance criteria," National Conference on Goal Setting and Success Criteria for Coastal Habitat Restoration, National Oceanic and Atmospheric Administration. 1998. R.F. Ambrose (presenter), T.N. McPherson and M. Adams

Poster presentation, "Sewage Sludge as a Soil Amendment for Restoration: Field Evaluation of Toxicity to Wetland Plants," Eleventh Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1998. R. Ambrose, R. Vance, S. Que Hee, S. Anderson (presenter) and T. McPherson.

Poster presentation, "Ecological effects of electrokinetics demonstration project for remediation of heavy metal contamination at Mugu Lagoon," Eleventh Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1998. S. Adams (presenter) and R. Ambrose.

Invited paper, "Transforming sewage ponds into salt marsh at Mugu Lagoon," Southern California Academy of Sciences Meeting. 1998. R. R. Vance (presenter), R. F. Ambrose and T. W. Keeney.

Contributed paper, "Population differences in the responses of California killifish to varying environmental conditions," American Geophysical Union Meeting. 1998. B. Fredericks (presenter), D. Gerdeman, G. Forrester, R. Vance, R. Ambrose and L. Schweitzer.

Contributed paper, "Exposure Assessment and Differential Toxic Responses of Chemical Contaminants in Three Populations of California Killifish (*Fundulus parvipinnis*)," American Geophysical Union Meeting. 1998. Schweitzer, L. (presenter), Suffet, I.H., Fredericks, B., Gerdeman, D., Forrester, G., Vance, R., and Ambrose, R.

Contributed paper, "Utilizing Sewage Sludge in a Southern California Wetland Restoration: An Experimental Test," American Society of Limnology and Oceanography/Ecological Society of America Meeting. 1998. R. Vance, R. Ambrose and S. Anderson (presenter).

Invited keynote speaker, "Wetland Mitigation in the United States: The Good, the Bad and the Ugly," Conference on Wetland Mitigation in Australia, University of New South Wales. 1998.

Invited speaker, "Biodiversity along the Coast," "What is Happening Now" Panel for Conference on California's Biodiversity Crisis: The Loss of Nature in an Urbanizing World," sponsored by UCLA Institute of the Environment. 1998.

Poster presentation, "Incorporating Ecotoxicological Field Experiments into a Restoration Plan: Temporal and Spatial Scales of Assessment," Twelfth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1999. R.F. Ambrose, R.R. Vance, S.S. Anderson (presenter), S. Anghera.

Poster presentation, "Influence of Tidal Creek Characteristics on the Abundance Patterns of Fauna at Mugu Lagoon, CA," Twelfth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1999. E.S. Larsen (presenter), S. Anghera and R.F. Ambrose.

Poster presentation, "Sediment Contaminant's Influence on Large-Scale Spatial Distribution of Benthic Infauna at Pt. Mugu Using Porewater Toxicity Tests with Indigenous and EPA Recommended Organisms," Twelfth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 1999. S. Anghera (presenter) and R.F. Ambrose.

Contributed paper, "Influence of Tidal Creek Characteristics on the Abundance Patterns of Fauna at Mugu Lagoon, CA," Southern California Academy of Sciences Meeting. 1999. E.S. Larsen (presenter), S. Anghera and R.F. Ambrose.

Contributed paper, "Influence of tidal creek characteristics on salt marsh species: Lessons for salt marsh restoration," Society for Ecological Restoration Annual Meeting. 1999. R.F. Ambrose (presenter), E.S. Larsen and S. Anghera.

Contributed paper, "Experimental evaluation of the efficacy of using sewage sludge in salt marsh restoration," Society for Ecological Restoration Annual Meeting. 1999. R.F. Ambrose, R.R. Vance (presenter), S.S. Anderson, and T.W. Keeney.

Poster presentation, "Soil seed bank biodiversity in natural and restored salt marshes of California," Society for Ecological Restoration Annual Meeting. 1999. S.S. Anderson, B.C. Coffman (presenter) and R.F. Ambrose.

Poster presentation, "Using sewage sludge in salt marsh restoration: 1. A potted plant experiment," Estuarine Research Federation Annual Meeting. 1999. R.R. Vance (presenter), R.F. Ambrose, S.S. Anderson and T.W. Keeney.

Poster presentation, "Using sewage sludge in salt marsh restoration: 2. A pilot restoration experiment," Estuarine Research Federation Annual Meeting. 1999. R.R. Vance, R.F. Ambrose, S.S. Anderson (presenter), S. Adams and T.W. Keeney.

Symposium organizer and Session Chair, "Restoration Ecology Symposium," Annual Meeting of the Western Society of Naturalists. 1999.

Invited paper, "Restoring coastal wetlands in southern California: What is our model?" Annual Meeting of the Western Society of Naturalists. 1999.

Contributed paper, "A comparison of reef fish populations inside and outside of five no-take marine reserves in southern California," Annual Meeting of the Western Society of Naturalists. 1999. I.T. Beers (presenter) and R.F. Ambrose.

Contributed paper, "Variation in the distribution and abundance of salt marsh vegetation associated with elevation and tidal inundation" Annual Meeting of the Western Society of Naturalists. 1999. H. M. Page (presenter), S. Schroeter, D. Reed, R. F. Ambrose, J. Callaway, H. Elwany and J. Dixon.

Poster presentation, "A nutrient budget for Malibu Lagoon, California," 10th Annual West Coast Conference on Contaminated Soil and Water, American Environmental Health Association. 2000. S.E. Sheehan (presenter), C.B. Liban, R. Ambrose and I.H. (Mel) Suffet.

Poster presentation, "Development and Validation of a Mass Balance Nutrient Loading Model: Case Study - Malibu Lagoon, CA, USA," 10th Annual West Coast Conference on Contaminated Soil and Water, American Environmental Health Association. 2000. C.B. Liban (presenter), J.F. Moragrega-Font, S. Sheehan, R. Ambrose and I.H. (Mel) Suffet.

Poster presentation, "Sewage sludge as a soil amendment for restoration: Field evaluation of toxicity to wetland plants, heavy metal migration, and bioaccumulation," Thirteenth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2000. S. Anderson, B. Evans, J. Malone, S. Anghera, R.F. Ambrose and R.R. Vance.

Poster presentation, "Assessment of Southern California Wetland Toxicity Using the Sea Urchin 72-Hour Embryo Development Test," Thirteenth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2000. Myers, M.R., M.L. Anghera and R.F. Ambrose.

Poster presentation, "Evaluating Potential Impacts of Heavy Metal Deposition from Aircraft Overflights in Coastal Wetlands," Thirteenth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2000. Boyle, K.A., P. Fong, R. Ambrose and A.R. Flegal.

Poster presentation, "Use of a Small Native Fish Species (*Gila orcutti*) to Monitor Stream Health: Population Structure, Reproductive Parameters and biomarkers of Pesticide Exposure," Thirteenth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2000. Luce, S. and R.F. Ambrose.

Poster presentation, "Influence of Contaminants on Large-Scale Spatial Distribution of Benthic Infauna at Mugu Lagoon, California," Thirteenth Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2000. Anghera, M.L. and R.F. Ambrose.

Poster presentation, "Continued declines of black abalone due to withering syndrome along the coast of California," Thirteenth Annual Research Symposium of the U.C. Toxic Substances

Research and Teaching Program. 2000. T.E. Minchinton (presenter), P.T. Raimondi, M. Wilson, R.F. Ambrose and J.M. Engle.

Contributed paper, "A cumulative impact assessment method for Section 404 Permitting," Wetlands Regulatory Workshop. 2000. Lilien, J.P and R.F. Ambrose.

Contributed paper, "Soil seed bank biodiversity in restored and natural salt marshes of Mediterranean California," MEDECOS. 2000. G.C. Coffman (presenter), S.S. Anderson and R.F. Ambrose.

Contributed paper, "Restoring a Southern California salt marsh using sewage sludge: Preliminary results from a field experiment," Annual Meeting of the Society of Wetland Scientists. 2000. R.F. Ambrose (presenter), R.R. Vance and T.W. Keeney.

Contributed paper, "Assessment of wetland restoration success via ecological functioning," SERCAL. 2000. S. Anderson (presenter) and R.F. Ambrose.

Poster presentation, "Effects of Land Use on Stream Ecosystem Integrity in Calleguas Creek Watershed, Ventura County, CA," AWRA Annual Meeting. 2000. Cindy J. Lin (presenter), Richard F. Ambrose, Richard A. Berk, Gretchen Coffman, Steve Lee, Shelly Luce, Sean Bergquist, and Christine Chin.

Contributed paper, "Examining the Ecological Effects of Land Use on Stream Benthic and Fish Communities in Calleguas Creek Watershed, Ventura County, CA," SETAC. 2000. C.J. Lin (presenter) and R.F. Ambrose.

Poster presentation, "Influence of contaminants on benthic infauna in a coastal salt marsh, Mugu Lagoon, CA," SETAC. 2000. Anghera, M.L (presenter) and R.F. Ambrose.

Poster presentation, "Acetylcholinesterase inhibition in wild arroyo chub (*Gila orcutti*) from Calleguas Creek, California," SETAC. 2000. S. Luce (presenter), R.F. Ambrose and B. Wilson.

Poster presentation, "Land use effects on stream ecology in a mixed-use watershed in mediterranean California," 5<sup>th</sup> International Conference of IWA - Diffuse/Nonpoint Pollution and Watershed Management. 2000. C.J. Lin (presenter), J.A. Pedersen, I.H. Suffet and R.F. Ambrose.

Poster presentation, "Ecological functioning within Californian wetlands: novel indicators to evaluate restoration success," 14<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2001. S. Anderson (presenter), R.F. Ambrose and R. Vance.

Poster presentation, "Spatial patterns of contaminants and toxicity in wetland sediments: implications for ecological impact assessments," 14<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2001. M.L. Anghera (presenter), R.F. Ambrose and S. Bay.

Poster presentation, "Acetylcholinesterase inhibition in wild arroyo chub (*Gila orcutti*) from Calleguas Creek, California," 14<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2001. S. Luce (presenter), R.F. Ambrose, B.W. Wilson and W.H. Fry.

Poster presentation, "Monitoring wetland restoration success: is there an easy way?" 14<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2001. C.S. Shuman (presenter) and R.F. Ambrose.

Poster presentation, "Soil Compaction as a Factor in Salt Marsh Restoration," 14<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2001. D.P. Swenson (presenter) and R.F. Ambrose.

Poster presentation, "Sewage Sludge as a Soil Amendment in Ecological Restoration: Field Evaluation of Wetland Plant Performance," 14<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2001. J.C. Malone (presenter), R.R. Vance, R.F. Ambrose, S.S. Anderson, B.S. Evans, M.L. Anghera, and T.W. Keeney.

Contributed paper, "Spatial patterns of contamination and toxicity in wetland sediments: implications for ecological impact assessments," International Conference of the Society of Environmental Toxicology and Chemistry. 2001. M.L. Anghera (presenter), R.F. Ambrose and S. Bay.

Contributed paper, "Soil Seed Banks as Indicators of Ecological Functioning within Natural and Restored Salt Marshes in California," 2<sup>nd</sup> Annual Ballona Wetlands Symposium. 2001. Sean Anderson (presenter), Gretchen Coffman and Richard Ambrose.

Contributed paper, "Restoring a southern California salt marsh using sewage sludge: Results from field experiments." 16<sup>th</sup> Biennial Conference of the Estuarine Research Federation. 2001. R.F. Ambrose (presenter), R.R. Vance, S.S. Anderson and T.W. Keeney.

Contributed paper, "Using Indicators of Ecological Functions to Assess Wetland Restoration Success." 16<sup>th</sup> Biennial Conference of the Estuarine Research Federation. 2001. Sean S. Anderson (presenter), Richard F. Ambrose, Todd Huspeni, and Kevin Lafferty.

Contributed paper, "Evaluating impacts of heavy metal and nitrogen deposition from aircraft overflights of coastal wetlands." 16<sup>th</sup> Biennial Conference of the Estuarine Research Federation. 2001. K.A. Boyle (presenter), P. Fong and R. Ambrose.

Poster presentation, "Linking benthic infauna communities to toxicity and contaminants in a tidal wetland." Conference of the Society of Environmental Toxicology and Chemistry. 2001. M.L. Anghera (presenter), R.F. Ambrose and S. Bay.

Poster presentation, "Soil Microbial Activity and Mycorrhizal Associations in a Southern Californian Salt Marsh." 15<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2002. M.W. Vandersande (presenter) and R.F. Ambrose.

Poster presentation, "The ten-day amphipod sediment toxicity test: laboratory vs. field." 15<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2002. M. Anghera (presenter) and R.F. Ambrose.

Poster presentation, "Metal contamination arising from using sewage sludge as fertilizer in salt marsh restoration." 15<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2002. J. Samhuri (presenter), R.R. Vance, R.F. Ambrose, S. Anderson and M. Anghera.

Poster presentation, "Chelate-facilitated phytoextraction of heavy metals by exotic and native plants – Phase I: plant screening and treatability study." 15<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2002. K. Yoon (presenter), R.F. Ambrose and T. Harmon.

Contributed paper, "Monitoring subtidal community changes at Survey Rock, Anacapa Island: forty years and counting." Annual Meeting of the Southern California Academy of Sciences. 2002. J. Engle, J. Altstatt (presenter), R. Ambrose, J. Carroll and J.A. Coyer.

Poster presentation, "Soil microbial activity and mycorrhizal association in a southern Californian salt marsh." Annual Meeting of the Southern California Academy of Sciences. 2002. M.W. Vandersande (presenter) and R.F. Ambrose.

Interactive poster presentation, "The ten-day amphipod toxicity test: Laboratory vs. Field." Conference of the Society of Environmental Toxicology and Chemistry. 2002. M.L. Anghera (presenter), R.F. Ambrose and S.M. Bay.

Poster presentation, "Evaluating impacts of heavy metal and nitrogen deposition from aircraft in coastal wetlands." Conference of the Society of Environmental Toxicology and Chemistry. 2002. K.A. Boyle (presenter), M.L. Anghera, R.F. Ambrose, and P. Fong.

Poster presentation, "Watershed management through citizen monitoring: A new 303d listing and TMDL requirement for Malibu Creek, California." Conference of the Society of Environmental Toxicology and Chemistry. 2002. S. Luce (presenter), M. Abramson, and R. Ambrose.

Poster presentation, "California Native Plant-mediated Eco-remediation of Petroleum Hydrocarbon Contaminated Soil: UCLA Pilot Project." 16<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2003. E. Marish (presenter), T. C. Harmon, and R. Ambrose.

Poster presentation, "Phytoremediation for Soil Contaminated with Petroleum Hydrocarbons Using California Native Plants." 16<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2003. V.K. Yoon (presenter), E. Marish, T. C. Harmon, and R. Ambrose.

Poster presentation, "Are Southern California Coastal Wetlands Sources or Sinks for Fecal Indicator Bacteria?" 16<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2003. M. Evanson (presenter) and R.F. Ambrose. (Best poster award)

Poster presentation, "Evaluating impacts of heavy metal and nitrogen deposition from aircraft in coastal wetlands." 16<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program. 2003. M. Anghera (presenter), K.A. Boyle, P. Fong and R.F. Ambrose.

Poster presentation, "Phytoremediation for Soil Contaminated with Petroleum Hydrocarbons Using California Native Plants." Southern California SETAC meeting. 2003. Vada Kyonga Yoon (presenter), Elad Marish, Thomas C. Harmon\*, and Richard Ambrose.

Contributed paper, "Are coastal wetlands in southern California sources or sinks for fecal indicator bacteria?" Southern California Academy of Sciences meeting. 2003. Ambrose, R.F., M. Evanson (presenter), L.A. Levin and S.B. Grant.

Contributed paper, "Long-term change and human impacts of mussel communities (*Mytilus californianus*) along the coast of California." Annual Meeting of the Western Society of Naturalists. 2003. Smith, J.R. (presenter), R.F. Ambrose and P. Fong.

Poster presentation, "Current Condition and Long-Term Change in the Abundance and Biodiversity of Mussel Beds Communities of Wave-Exposed Rocky Intertidal Zones of the

Channel Islands.” Sixth Channel Islands Symposium. 2003. Smith, J.R. (presenter), R.F. Ambrose and P. Fong.

Poster presentation, “A Study of the Effects of Anacapa’s Natural Area and Pelican Closure on Fish Populations.” Sixth Channel Islands Symposium. 2003. Tetreault, I.L. (presenter) and R.F. Ambrose.

Invited speaker, “Influence of nutrient loading on the invasion of an alien plant species, Giant Reed (*Arundo donax*), in southern California riparian ecosystems. Joint meeting of Water Resources Center Coordinating Board and Advisory Council. 2004.

Contributed paper, “Invasion of *Arundo donax* in river ecosystems of mediterranean climates: causes, impacts and management strategies.” MEDECOS. 2004. Coffman, G.C. (presenter), R.F. Ambrose and P.W. Rundel.

Contributed paper, “Using monitoring to study unpredictable, high impact events: effects of human collection of the intertidal limpet *Lottia gigantea*.” Western Society of Malacologists. 2004. Raphael Sagarin (presenter), Richard Ambrose, Bonnie Becker, Jack Engle, Steve Murray, Peter Raimondi, Dan Richards.

Contributed paper, “Criteria for Ecological Risk Assessment at Vandenberg Air Force Base: issues and data gaps.” SETAC. 2004. Barry W. Wilson (presenter), Richard Ambrose, Brian Faulkner, D. Michael Fry and Michael Johnson.

Contributed paper, “Macrobenthic responses to natural and contaminant related variables in Mugu Lagoon, a tidal wetland in Southern California.” SETAC. 2004. M. Anghera (presenter), and R. Ambrose.

Invited presentation, “Using monitoring to study unpredictable, high impact events: effects of human collection of the intertidal limpet *Lottia gigantea*.” 2004. CEA-CREST Annual Environmental Science Conference. Sagarin R. (presenter), R. Ambrose, B. Becker, J. Engle, S. Murray, P. Raimondi, D. Richards.

Invited presentation, “Understanding Rocky Intertidal Communities Through Long-Term Monitoring: The MARINE Experience.” 2004. CEA-CREST Annual Environmental Science Conference.

Contributed paper, “Color change and consistency in the sea star *Pisaster ochraceus*.” 2004. Society for Integrative and Comparative Biology, San Diego, CA. Raimondi, P.T, R. Sagarin (presenter), R. Ambrose, M. George, S. Lee, D. Lohse, C. M. Miner, S. Murray, and C. Roe

Contributed paper, “Color change and consistency in the sea star *Pisaster ochraceus*.” 2004. Western Society of Naturalists, Rohnert Park, CA. Raimondi, P.T, R. Sagarin (presenter), R. Ambrose, M. George, S. Lee, D. Lohse, C. M. Miner, S. Murray, and C. Roe

Invited presentation, “Protecting Rocky Intertidal Resources.” Santa Monica Bay Restoration Commission’s State of the Bay Conference, 2005.

Invited presentation, “Monitoring the success of wetland mitigation.” California Estuarine Research Society Conference, 2005.

Invited presentation, “Assessing Similarity between Restored and Reference Wetlands.” Schroeter, S. (presenter), D. Reed, M. Page, M. Steele, P. Raimondi, and R. Ambrose. California Estuarine Research Society Conference, 2005.

Invited presentation, "Evaluating the success of wetland mitigation in Los Angeles and Ventura Counties: assessing permit compliance and wetland condition." Southern California Academy of Sciences Conference, 2005.

Invited presentation, "Monitoring plan for the San Dieguito Lagoon restoration." M. Page (presenter), S. Schroeter, D. Reed, R. Ambrose and M. Steele. Southern California Academy of Sciences Conference, 2005.

Invited presentation, "Algae-nutrient relationships and TMDL Development in Malibu Creek, California." S.L. Luce (presenter), R.F. Ambrose and M.A. Abramson. Southern California Academy of Sciences Conference, 2005.

Contributed presentation, "Are we creating the ideal conditions for *Arundo donax* invasion in California?" G.C. Coffman (presenter), T. Dudley, P.W. Rundel, and R.F. Ambrose. California Invasive Plant Council (Cal-IPC) Conference, 2005.

Invited presentation, "Restoring Southern California's Rocky Intertidal Habitats." Headwaters to Oceans Conference, 2005.

Poster presentation, "Mercury chclng and historical mercury deposition in Mugu Lagoon, a coastal estuary in southern California." S. Rothenberg (presenter), R.F. Ambrose, M. Kirby and J. Jay. 19<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program, 2006.

Poster presentation, "Assessing Rocky Intertidal Habitats before an Oil Spill." F. Vanderbilt (presenter) and R.F. Ambrose. 19<sup>th</sup> Annual Research Symposium of the U.C. Toxic Substances Research and Teaching Program, 2006.

Poster presentation, "An Application of Island Biogeography Theory to Riparian Restoration." J. Shevtsov (presenter) and R.F. Ambrose. Southern California Academy of Sciences Meeting, 2006. (Best poster award)

Invited presentation, "MARINE: A Long-Term Monitoring Program for Detecting Change in Rocky Intertidal Environments." S. Murray (presenter), R.F. Ambrose, J. Engle, P. Raimondi and M.E. Dunaway. National Monitoring Meeting, 2006.

Contributed presentation, "Wetland Mitigation in California: Has no net loss of wetland acreage been achieved throughout 10 years of policy and regulation?" Lee, S.F. (presenter), R.F. Ambrose, and J.C. Callaway. Western Society of Naturalists Conference, 2006.

Invited presentation, "Success of Wetland Mitigation Projects in California." R.F. Ambrose, S. Lee and J. Callaway. California Society for Ecological Restoration Meeting, 2006.

Contributed paper, "Fecal indicator bacteria in a coastal estuarine system." Evanson, M. (presenter) and R.F. Ambrose. Pacific Estuarine Research Society Meeting, 2007.

Poster presentation, "Will a reduction in Hg<sub>T</sub> result in a reduction in methylmercury? Evaluating the effectiveness of Mercury Total Maximum Daily Loads in four sites." Rothenberg, S.E.



(presenter), R.F. Ambrose and J.A. Jay. Society of Environmental Toxicology and Chemistry Annual Meeting, 2007.

Contributed paper, "Examining the health of rocky shores along the Pacific Coast – Can local government and citizens help?" Helix, M.E. (presenter), R.F. Ambrose, J.M. Engle, S.N. Murray and P.T. Raimondi. Coastal Zone '07, 2007.

Contributed paper, "MARINE: examining the health of rocky shores along the Pacific Coast." M.E. Helix (presenter), P. Raimondi, R. Ambrose, J. Engle, and S. Murray. Monterey Bay National Marine Sanctuary Currents Symposium, California State University Monterey Bay, Monterey, CA, 2007.

Contributed paper, "Success of Wetland Mitigation Projects in California." R.F. Ambrose, S.F. Lee and J.C. Callaway. Society of Wetland Scientists Annual Meeting, 2007.

Contributed paper, "Wetland Mitigation in California: Has "no net loss" of wetland acreage been achieved throughout 10 years of policy and regulation?" S.F. Lee (presenter), R.F. Ambrose, and J.C. Callaway. Society of Wetland Scientists Annual Meeting, 2007.

Contributed paper, "Natural Wetland Size and Tidal Creek Shape Matter for Southern California Coastal Water Quality." M.R. Myers (presenter) and R.F. Ambrose. Society for Conservation Biology, 2007.

Poster presentation, "Applications for High Resolution Biological Sensing in Aquatic Systems." R. Gilbert, C. Lee, J.A. Jay and R.F. Ambrose. CENS 5th Annual Research Review. Center for Embedded Network Sensing, Paper 367. <http://repositories.cdlib.org/cens/Posters/367>. 2007.

Contributed paper, "Do You Buy it? Mitigation Banking: A Study of Wetland Conditions and Functions." L.E. Wainer (presenter), J.C. Callaway, S.F. Lee and R.F. Ambrose. Society of Wetland Scientists Annual Meeting, 2007.

Contributed paper, "Success of Wetland Mitigation Projects in California." R.F. Ambrose, S.F. Lee and J.C. Callaway. Ecological Society of America/International Society for Ecological Restoration Joint Meeting, 2007.

Contributed paper, "A Multi-Metric Index for Evaluating the Condition of Riparian Corridors." F. Federico (presenter), S.L. Luce and R.F. Ambrose. WEFTEC (Water Environment Federation Technical Exhibition and Conference) 2007.

Contributed paper, "Regional comparisons and decadal changes in mussel populations (*Mytilus californianus*) and mussel bed community diversity along the California coast." J.R. Smith (presenter), R.F. Ambrose and P. Fong. Channel Islands Symposium, 2008.

Invited paper, "Establishing Goals for Restoration of Coastal Wetlands in Southern California Based on Historical and Contemporary Habitat Distributions." R.F. Ambrose and T. Bear. Southern California Wetlands Recovery Project Annual Symposium, 2008.

Contributed paper, "Carpinteria Salt Marsh: Large Wetland, Long Creeks, Clean Water." M. Myers (presenter) and R.F. Ambrose. Headwaters to Oceans (H2O) Conference, 2008.

Invited paper, "Using Historical Habitat Distributions when Planning for the Restoration of Coastal Wetlands in Southern California." R.F. Ambrose and T. Bear. Headwaters to Oceans (H2O) Conference, 2008.

Poster presentation, "The Impact of 100 Years of Wildfires on Mercury (Hg) Accumulation in Two Lakes in Southern California, USA." S.E. Rothenberg (presenter), M.E. Kirby, M.B. DeRose, B.W. Bird, C. Lin, R.F. Ambrose, J.A. Jay. American Geophysical Union Conference, 2008.

### Professional Associations

Ecological Society of America  
Coastal and Estuarine Research Federation  
International Society for Ecological Restoration  
Society for Conservation Biology  
Society of Wetland Scientists  
Southern California Academy of Scientists  
Western Society of Naturalists

## **OTHER PROFESSIONAL ACTIVITIES**

### Seminars, Lectures, Workshops and Briefings

Participant, Conference on National Science Foundation Program for Student Originated Studies, Washington, D.C. 1974.

Co-Organizer and Participant, Southern California Marine Ecology Conference, Catalina Marine Science Center. 1979.

Presented paper, "Optimal foraging in *Octopus bimaculatus*," James Reserve Meeting, University of California James Reserve. 1979.

Invited Speaker, Institute for Marine and Coastal Studies, University of Southern California. 1980.

Invited Lecturer, Elderhostel Group, Catalina Marine Science Center. 1986.

Interview on artificial reefs with the Los Angeles Times. 1987.

Interview on decline of black abalone with KSBY-TV, KCOY-TV, KNX News Radio, KTMS Radio, Santa Barbara News-Press, Underwater USA, Sunset Magazine, A'lul'quoy, and Santa Barbara Independent. 1988

Participant, Workshop on Biological Resources of the Santa Barbara Channel, Santa Barbara. 1988.

Participant, Abalone Mortality Meeting (sponsored by Sea Grant Marine Advisors and Department of Fish and Game), UCSB. 1988.

Invited Speaker, Meeting of California Sea Grant Marine Advisors. 1988.

Invited Speaker, "Ecological evaluation of artificial reefs," California Coastal Commission, San Francisco. 1988.

Participant, Ports of Long Beach and Los Angeles working group on evaluating fish production on artificial reefs. 1988.

Organizing Committee, Proceedings Editor and Participant, Workshop on the fishery and market potential of Octopus in California. 1989.

Session Chair, *Octopus* Fisheries and Biology Session, Workshop on the fishery and market potential of Octopus in California. 1989.

Testimony to the California Coastal Commission on alternatives for mitigating the coastal impacts of the San Onofre Nuclear Generating Station. 1989.

Participant, Workshop on Preliminary Evaluation of Restoration Alternatives for the Montrose Natural Resource Damage Case, National Marine Fisheries Service. 1991.

Testimony to the California Coastal Commission on Marine Review Committee recommendations for mitigating the coastal impacts of the San Onofre Nuclear Generating Station. 1991.

Testimony to the California Senate Committee on Energy and Public Utilities regarding the environmental impacts of the San Onofre Nuclear Generating Station. 1991.

Invited paper, "Summary of the Marine Review Committee's study on the effects of the San Onofre Nuclear Generating Station on giant kelp," Workshop on design and performance evaluation of a 300-acre artificial reef in Southern California, Fifth International Conference on Aquatic Habitat Enhancement. 1991.

Interview on inventory of coastal resources in Santa Barbara County with KSBY radio. 1991.

Testimony to the California Regional Water Quality Control Board, San Diego Region, on techniques for mitigating the coastal impacts of the San Onofre Nuclear Generating Station. 1992.

Invited participant and panelist, Second Southern California Artificial Kelp Reef Workshop. 1992.

Invited participant, Santa Monica Bay Monitoring Workshop: Intertidal Section, Santa Monica Bay Restoration Project. 1993.

Invited speaker, "Restoring coastal wetlands: Lessons from the San Onofre Nuclear Generating Station mitigation project", U.S. Army Corps of Engineers, Los Angeles Division. 1993.

Testimony to the California Legislative Oversight Committee on the California Ocean Resources Management Plan. 1993.

Invited participant, Workshop on Restoration of Coastal Marine Habitats, Southwest Regional Marine Research Program. 1993.

Interview on effects of fire on Malibu Lagoon with the Heal the Bay newsletter. 1994.

Invited participant, Workshop on Coastal Toxicology, U.C. Toxic Substances Research and Teaching Program Coastal Toxicology Component. 1994.

Moderator, Workshop on Coastal Ecological Issues and Oil Production in California, U.S. Minerals Management Service and California State Lands Commission. 1994.

Interview on inventory of coastal resources in Ventura and Los Angeles Counties and the northern Channel Islands with Ventura County Newspaper and the LA Times. 1994.

Press conference and interview on effects of Tapia Water Reclamation Facility on the ecology of the Malibu Creek Watershed and Malibu Lagoon. Malibu Times, 1994, LA Daily News and LA Times. 1995.

Briefing to the California Coastal Commission, Workshop on the San Onofre Nuclear Generating Station Mitigation Program. 1995.

Testimony to the California Coastal Commission on the San Onofre Nuclear Generating Station Mitigation Program. 1995.

Invited participant, UC Conservation Biology Planning Meeting. 1996.

Invited participant, "Developing the Conceptual Basis for Restoration Biology," Workshop funded by the National Science Foundation at the National Center for Ecological Synthesis and Analysis. 1996.

Interviews on Malibu Marine Life Refuge with the LA Times, Evening Outlook, Malibu Times, Outdoor News, Sacramento Bee. 1996. Interviews with Thousand Oaks Star. 1997.

Testimony to the California Senate Committee on Natural Resources and Wildlife, Oversight Hearing on the California Coastal Commission: What is the coastal impact of Southern California Edison's proposed change in mitigation for the San Onofre Nuclear Generating Station? 1996.

Interview on Southern California Edison's proposed change in mitigation for the San Onofre Nuclear Generating Station with the LA Times. 1996.

Testimony to the California Coastal Commission on the San Onofre Nuclear Generating Station Mitigation Program. 1996.

Testimony to the Malibu City Council on the evaluation of Marine Life Refuge alternatives. 1996.

Co-organizer, Workshop on an Interagency Rocky Intertidal Monitoring Network, UC Santa Barbara. 1997.

Testimony to California Senate Natural Resources and Wildlife Committee and California Assembly Water, Parks and Wildlife Committee on SB 1006 and AB 374, to establish Malibu Marine Life Refuges. 1997.

Interview on impacts of San Onofre Nuclear Generating Station to marine mammals with the Sacramento Bee. 1997.

Invited speaker, "Wetland Mitigation Practices in the United States," and workshop participant. Workshop on Wetland Mitigation in Australia, Sydney, Australia. 1998.

Interview on Malibu Watershed management and restoration alternatives with the Malibu Times. 1998.

Interview on Mugu Lagoon sewage pond restoration project with the Los Angeles Times. 1999.

Interview with LA Times (Westside Weekly) on Malibu Watershed management and restoration alternatives. 1999.

Organizing Committee, Annual Ballona Wetlands Symposium: Restoring an Urban Coastal Wetland. 2000-2005.

Interview with Barbara Dab, KPFK Radio, on Southern California wetlands.

Faculty-in-Residence at Bruin Woods (presenting three lectures). 2000-2004.

Interview with KCSN-FM on Malibu Creek Watershed. 2000

Interviews with LA Times and Orange County Register on success of wetland mitigation projects. 2000.

Interview with KPCC/Public Radio on coastal ecological effects of urban runoff. 2001.

Interview with PBS/KCET on science and policy issues related to Klamath River water allocations to farmers and impacts on salmon and downstream fishermen. 2002.

Testimony to the California Energy Commission on the modernization of the Morro Bay Power Plant. 2002.

Invited speaker at Tarzana Hospital. 2003.

Press conference on the restoration of Long Beach wetlands, and interview with KPCC/National Public Radio, LA Times and Long Beach Press-Telegram. 2003.

Invited speaker, "Feasibility study for the restoration of natural resources in rocky intertidal habitats in Santa Monica Bay." 2004. Santa Monica Bay Restoration Commission Technical Advisory Committee.

Interview with Canyon News on Malibu Lagoon Restoration Plan alternatives. 2004.

Interview with KPCC/Public Radio on the state of rocky intertidal resources in Santa Monica Bay, in association with the Santa Monica Bay Restoration Commission's State of the Bay conference. 2005.

Interview with KPCC/Public Radio on human impacts on rocky intertidal resources in Santa Monica Bay. 2005.

Quoted in Ventura County Star on the state of marine resources in southern California. 2005.

Interview with LA Times on the state of wetlands in Louisiana with respect to the damage caused by Hurricane Katrina. 2005.

Invited speaker, "Success of wetland mitigation projects in California." 2006. Southern California Wetlands Recovery Project Board of Governors Meeting, Santa Barbara.

Invited speaker, "Success of wetland mitigation projects in California." 2006. U.S. Environmental Protection Agency Workshop on Wetland Assessment, San Francisco.

Interview with *Science* magazine on Supreme Court decision regarding the Clean Water Act and the U.S. Army Corps of Engineers' jurisdiction over wetlands. 2006.

Interview with LA Times on the acquisition and restoration of the Los Cerritos wetlands. 2006.

Guest on live radio show (KPCC/Public Radio) with Patt Morrison discussing Bolsa Chica Wetland restoration project. 2006.

Interview with KPCC/Public Radio on Ballona Wetlands restoration project. 2006.

Interview with KPCC/Public Radio on the predicted effects of increased population in southern California on rocky intertidal resources ("Environmental Stresses Grow as the Population Does"). 2006.

Interview with American Physical Society (APS) News on environmental applications of sensor networks. 2006.

Interview with *Environmental Science and Technology* on U.S. EPA and Army Corps of Engineers Guidance document on U.S. Supreme Court *Rapanos* decision. 2007.

Interview with KTLA television news on the risks of building in California based on the then-widespread wildfires. 2007.

Interview with San Francisco Chronicle on the long-term ecological effects of the 58,000 gallon spill of bunker oil in San Francisco Bay. 2007

Interview with UCLA's Daily Bruin on global climate change. 2008.

Interview with San Diego Union-Tribune on the Wheeler North Reef, an artificial reef constructed off San Diego County as mitigation for the marine environmental impacts of the San Onofre Nuclear Generating Station. 2008.

Interview with KFVB radio on the ecological effects of the fuel oil spill in Uruguay. 2008.

Interview with *Which Way LA* (KCRW Public Radio) on the completion of the Wheeler North Reef. 2008.

Interview with KFVB radio on Governor's Schwarznegger's participation in the Governors' Global Climate Summit. 2008

## PUBLICATIONS

### A. PEER-REVIEWED PAPERS

#### Published

1. Ambrose, R.F. and T.E. Meehan. 1977. Aggressive behavior of *Perognathus parvus* and *Peromyscus maniculatus*. *Journal of Mammalogy* 58: 665-668.
2. Meehan, T.E., P.W. Rundel, R. Ambrose, G. Baker and A. Rappoport. 1977. The influence of intensive selective browsing by pocket mice (*Perognathus*) on the spatial distribution of *Polygala deserticum* in Baja California. *American Midland Naturalist* 97: 489-495.
3. Ambrose, R.F. 1981. Observations on the embryonic development and early post-embryonic behavior of *Octopus bimaculatus* (Mollusca: Cephalopoda). *Veliger* 24: 139-146.
4. Ambrose, R.F. and B.V. Nelson. 1982. Inhibition of giant kelp recruitment by an introduced brown alga. *Botanica Marina* 25: 265-267.
5. Ambrose, R.F. 1982. Shelter utilization by the molluscan cephalopod *Octopus bimaculatus*. *Marine Ecology Progress Series* 7: 67-73.
6. Ambrose, R.F. and B.V. Nelson. 1983. Predation by *Octopus vulgaris* in the Mediterranean. *P.S.Z.N. I: Marine Ecology* 4: 251-261.
7. Ambrose, R.F. 1983. Midden formation by octopuses: the role of biotic and abiotic factors. *Marine Behaviour and Physiology* 10: 137-144.
8. Hartwick, E.B., R.F. Ambrose and S.M.C. Robinson. 1984. Den utilization and movements of tagged *Octopus dofleini*. *Marine Behaviour and Physiology* 11: 95-110.
9. Hartwick, E.B., R.F. Ambrose and S.M.C. Robinson. 1984. Dynamics of shallow-water populations of *Octopus dofleini*. *Marine Biology* 82: 65-72.
10. Ambrose, R.F. 1984. Food preferences, prey availability and the diet of *Octopus bimaculatus* Verrill. *Journal of Experimental Marine Biology and Ecology* 77: 29-44.
11. Ambrose, R.F. 1986. Effects of octopus predation on motile invertebrates in a rocky subtidal community. *Marine Ecology Progress Series* 30: 261-273.
12. Coyer, J.A., J.M. Engle, R.F. Ambrose and B.V. Nelson. 1987. Utilization of purple and red sea urchins (*Strongylocentrotus purpuratus* Stimpson and *S. franciscanus* Agassiz) as food by the white sea urchin (*Lytechinus anamesus* Clark) in the field and laboratory. *Journal of Experimental Marine Biology and Ecology* 105: 21-38.
13. Ambrose, R.F., B.J. Leighton and E.B. Hartwick. 1988. Characterization of boreholes by *Octopus dofleini* (Wulker) in the bivalve *Saxidomus giganteus* (Deshayes). *Journal of Zoology (London)* 214: 491-503.
14. Hartwick, E.B., S.M.C. Robinson, R.F. Ambrose, D. Trotter and M. Walsh. 1988. Inshore-offshore comparison of *Octopus dofleini* with special reference to abundance, growth and condition during winter. *Malacologia* 29: 57-68.

15. Ambrose, R.F. 1988. Population dynamics of *Octopus bimaculatus*: influence of life history patterns, synchronous reproduction, and recruitment. *Malacologia* 29: 23-39.
16. Ambrose, R.F. and S.L. Swarbrick. 1989. Comparison of fish assemblages on artificial and natural reefs off the coast of Southern California. *Bulletin of Marine Science* 44: 718-733.
17. Ambrose, R.F. and T.W. Anderson. 1990. The influence of an artificial reef on the surrounding infaunal community. *Marine Biology* 107: 41-52.
18. Holbrook, S.J., R.J. Schmitt and R.F. Ambrose. 1990. Biogenic habitat structure and characteristics of temperate reef fish assemblages. *Australian Journal of Ecology* 15: 489-503. (Also published in: *Ecology of Temperate Reefs*, ed. by M.J. Keough, G. Quinn and A. King. Blackwell Scientific Publications, Melbourne.)
19. Coyer, J.A., R.F. Ambrose, J.M. Engle and J.C. Carroll. 1993. Interactions between corals and algae on a temperate zone rocky reef: mediation by sea urchins. *Journal of Experimental Marine Biology and Ecology* 167: 21-37.
20. Ambrose, R.F., J.A. Coyer, J.M. Engle and B.V. Nelson. 1993. Changes in urchin and kelp densities at Anacapa Island, California. In: F.G. Hochberg, ed. *Third California Islands Symposium: Recent Advances in Research on the California Islands*. Santa Barbara Museum of Natural History, Santa Barbara, CA. pp. 199-209.
21. Ambrose, R.F. 1994. Mitigating the effects of a coastal power plant on a kelp forest community: Rationale and requirements for an artificial reef. *Bulletin of Marine Science* 55 (2): 694-708.
22. Johnson, T.D., A.M. Barnett, E.E. DeMartini, L.L. Craft, R.F. Ambrose and L.J. Purcell. 1994. Fish production and habitat utilization of a southern California artificial reef. *Bulletin of Marine Science* 55 (2): 709-723.
23. DeMartini, E.E., A.M. Barnett, T.D. Johnson and R.F. Ambrose. 1994. Growth and production estimates for biomass-dominant fishes on a southern California artificial reef. *Bulletin of Marine Science* 55 (2): 484-500.
24. Holbrook, S.J., S.L. Swarbrick, R.J. Schmitt and R.F. Ambrose. 1994. Reef architecture and reef fish: correlates of population densities with attributes of subtidal rocky environments. pp. 99-106 in Battershill, C.M. et al. (eds.) "Proceedings of the Second International Temperate Reef Symposium", 7-10 January 1992, Auckland, New Zealand. NIWA Marine, Wellington. 252 pp.
25. Altstatt, J.A., R.F. Ambrose, J.M. Engle, P.L. Haaker, K.D. Lafferty and P.T. Raimondi. 1996. Recent declines of black abalone *Haliotis cracherodii* on the mainland coast of central California. *Marine Ecology Progress Series* 142: 185-192.
26. M.A. Palmer, R.F. Ambrose and N.L. Poff. 1997. Ecological theory and community restoration ecology. *Restoration Ecology* 5: 291-300.
27. Stein, E.D. and R.F. Ambrose. 1998. Cumulative impacts of Section 404 Clean Water Act permitting on the riparian habitat of the Santa Margarita, CA watershed. *Wetlands* 18: 379-392.



28. Stein, E.D. and R.F. Ambrose. 1998. A rapid impact assessment method for use in a regulatory context. *Wetlands* 18: 393-408.
29. Ambrose, R.F. and D. Meffert. 1999. Fish assemblage dynamics in Malibu Lagoon, a small hydrologically altered estuary in southern California. *Wetlands* 19(2): 327-340.
30. Lafferty, K.D., C.C. Swift and R.F. Ambrose. 1999. Post flood persistence and recolonization of endangered tidewater goby populations. *North American Journal of Fisheries Management* 19: 618-622.
31. Lafferty, K., C. Swift and R.F. Ambrose. 1999. Extirpation and recovery of local populations of the endangered tidewater goby, *Eucyclogobius newberryi*. *Conservation Biology* 13: 1447-1453.
32. Murray, S.N., R.F. Ambrose, J.A. Bohnsack, L.W. Botsford, M.H. Carr, G.E. Davis, P.K. Dayton, D. Gotshall, D.R. Gunderson, M.A. Hixon, J. Lubchenco, M. Mangel, A. MacCall, D.A. McArdle, J.C. Ogden, J. Roughgarden, R.M. Starr, M.J. Tegner and M.M. Yoklavich. 1999. No-take reserve networks: Protection for fishery populations and marine ecosystems. *Fisheries* 24: 11-25.
33. Miller, A.W. and R.F. Ambrose. 2000. Optimum sampling of patchy distributions: Comparison of different sampling designs in rocky intertidal habitats. *Marine Ecology Progress Series* 196: 1-14.
34. Stein, E.D., F. Tabatabai and R.F. Ambrose. 2000. Wetland mitigation banking: a framework for crediting and debiting. *Environmental Management* 26: 233-250.
35. Ambrose, R.F. 2000. Wetland mitigation in the United States: Assessing the success of mitigation policies. *Wetlands (Australia)* 19: 1-27.
36. Moeller, A., R.F. Ambrose and S.S. Que Hee. 2001. A comparison of techniques for preparing fish fillet for ICP-AES multielemental analysis and the microwave digestion of whole fish. *Food Additives and Contaminants* 18: 19-29.
37. Cohen, T., S.S. Que Hee and R.F. Ambrose. 2001. Comparison of trace metal concentrations in fish and invertebrates in three Southern California wetlands. *Marine Pollution Bulletin* 42: 224-232.
38. Boyer, K.E., P. Fong, R.R. Vance and R.F. Ambrose. 2001. *Salicornia virginica* in a southern California salt marsh: seasonal patterns and a nutrient enrichment experiment. *Wetlands* 21 (3): 315-326.
39. Stein, E.D. and R.F. Ambrose. 2001. Landscape-scale analysis and management of cumulative impacts to riparian ecosystems: Past, present and future. *Journal of American Water Resources Association* 37 (6): 1597-1614.
40. Downs, T. and R. Ambrose. 2001. Syntropic ecotoxicology: a heuristic model for understanding the vulnerability of ecological systems to stress. *Ecosystem Health* 7: 266-283.
41. Sudol, M.F. and R.F. Ambrose. 2002. The Clean Water Act and habitat replacement: Evaluation of mitigation sites in Orange County, California. *Environmental Management* 30: 727-734.

42. Raimondi P., M. Wilson, R. Ambrose, J. Engle and T. Minchinton. 2002. Continued declines of black abalone along the coast of California: Are mass mortalities related to El Niño events? *Marine Ecology Progress Series* 242: 143-152.
43. Moeller, A., S.D. MacNeil, R.F. Ambrose and S.S. Que Hee. 2003. Elements in fish of Malibu Creek and Malibu Lagoon near Los Angeles, California. *Marine Pollution Bulletin* 46: 424-429.
44. Forrester, G.E., B.I. Fredericks, D. Gerdeman, B. Evans, M.A. Steele, K. Zayed, L.E. Schweitzer, I.H. Suffet, R.R. Vance and R.F. Ambrose. 2003. Correspondence between field-measured growth rates of fish from several California estuaries and the inferred toxicity of multiple sediment contaminants. *Marine Environmental Research* 56: 423-442.
45. Vance, R.R., R.F. Ambrose, S.S. Anderson, S. MacNeil, T. McPherson, I. Beers and T.W. Keeney. 2003. Effects of sewage sludge on the growth of potted salt marsh plants exposed to natural tidal inundation. *Restoration Ecology* 11: 155-167.
46. Shuman, C.S. and R.F. Ambrose. 2003. A comparison of remote sensing and ground-based methods for monitoring wetland restoration success. *Restoration Ecology* 11: 325-333.
47. Page, H.M., S. Schroeter, D. Reed, R.F. Ambrose, J. Callaway and J. Dixon. 2003. An inexpensive method to identify the elevation of tidally inundated habitat in coastal wetlands. *Bulletin of the Southern California Academy of Sciences* 102: 130-142.
48. Shuman, C.S., G. Hodgson, and R.F. Ambrose. 2004. Managing the Marine Aquarium Trade: Is Eco-Certification the Answer? *Environmental Conservation* 31(4): 339-348.
49. Shuman, C.S., G. Hodgson, and R.F. Ambrose. 2005. Population Impacts of Collecting Sea Anemones and Anemone fish for the Marine Aquarium Trade in the Philippines. *Coral Reefs* 24: 564-573.
50. Lin, C.J. and R.F. Ambrose. 2005. Relations between Fish Assemblages and Urbanization in Southern California Coastal Streams. In: Brown, L.R., R.H. Gray, R.M. Hughes and M. Meador, eds. *Effects of Urbanization on Stream Ecosystems*. American Fisheries Society, Maryland. 423 pp. (American Fisheries Society Symposium 47: 229-238.)
51. Reed, D.C., S.C. Schroeter, D. Huang, T.W. Anderson, and R.F. Ambrose. 2006. Quantitative Assessment of Different Artificial Reef Designs in Mitigating Losses to Kelp Forest Fishes. *Bulletin of Marine Science* 78: 133-150.
52. Evanson, M. and R.F. Ambrose. 2006. Sources and growth dynamics of fecal indicator bacteria in a coastal wetland system and potential impacts to adjacent waters. *Water Research* 40: 475-486.
53. Smith, J.R., R.F. Ambrose, and P. Fong. 2006. Dramatic declines in mussel bed community diversity: Response to climate change? *Ecology* 87: 1153-1161.
54. Smith, J.R., R.F. Ambrose, and P. Fong. 2006. Long-term change in mussel (*Mytilus californianus* Conrad) populations along the wave-exposed coast of California. *Marine Biology* 149: 537-545.

55. Armitage, A.R., K.E. Boyer, R.R. Vance, and R.F. Ambrose. 2006. Restoring assemblages of salt marsh halophytes in the presence of a rapidly colonizing dominant species. *Wetlands* 26: 667-676.
56. Sagarin, R.D., Richard F. Ambrose, Bonnie J. Becker, John T. Engle, Janine Kido, Steven F. Lee, C. Melissa Miner, Steven N. Murray, Peter T. Raimondi, Daniel V. Richards, Christy Roe. 2007. Ecological impacts on the limpet *Lottia gigantea* populations: human pressure over a broad scale on islands and mainland intertidal zones. *Marine Biology* 150: 399-415.
57. Armitage, A.R., S.M. Jensen, J.E. Yoon, and R.F. Ambrose. 2007. Wintering shorebird assemblages and behavior in restored tidal wetlands in southern California. *Restoration Ecology* 15: 139-148.
58. Harmon, T.C., R.F. Ambrose, R.M. Gilbert, J.C. Fisher, M. Stealey, and W.J. Kaiser. 2007. High Resolution River Hydraulic and Water Quality Characterization Using Rapidly Deployable Networked Infomechanical Systems (NIMS RD). *Environmental Engineering Science* 24: 151-159.
59. Raimondi, P., R. D. Sagarin, R. Ambrose, C. Bell, M. George, S. Lee, D. Lohse, C.M. Miner, and S. Murray. 2007. Consistent frequency of color morphs in the sea star *Pisaster ochraceus* (Echinodermata: Asteroiidae) across open-coast habitats in the northeastern Pacific. *Pacific Science* 61: 197-206.
60. Pankratz, S., T. Young, H. Cuevas-Arellano, R. Kumar, R.F. Ambrose and I.H Suffet. 2007. The ecological value of constructed wetlands for treating urban run-off. *Water Science and Technology* 55: 63-69.
61. Miller, A.W., G.M. Ruiz, M.S. Minton and R.F. Ambrose. 2007. Differentiating successful and failed molluscan invaders in marine ecosystems. *Marine Ecology Progress Series* 332: 41-51.
62. Swenson, D.P. and R.F. Ambrose. 2007. A Spatial Analysis of Cumulative Habitat Loss in Southern California under the Clean Water Act Section 404 Program. *Landscape and Urban Planning* 82: 41-55.
63. Tetreault, I. and R.F. Ambrose. 2007. Temperate marine reserves enhance targeted but not untargeted fishes in multiple no-take MPAs. *Ecological Applications* 17: 2251-2267.
64. Smith, J.R., P. Fong and R.F. Ambrose. 2008. The impacts of human visitation on mussel bed communities along the California coast: Are regulatory marine reserves effective in protecting these communities? *Environmental Management* 41: 599-612.
65. Rothenberg, S.E., R.F. Ambrose and J.A. Jay. 2008. Evaluating the potential efficacy of mercury Total Maximum Daily Loads on aqueous methylmercury levels in four coastal watersheds. *Environmental Science and Technology* 42: 5400-5406.
66. Smith, J.R., P. Fong and R.F. Ambrose. 2009. Spatial patterns in recruitment and growth of the mussel *Mytilus californianus* (Conrad) in southern and northern California, USA, two regions with differing oceanographic conditions. *Journal of Sea Research* 61: 165-173.

Peer-reviewed Papers – In Press

67. Rothenberg, S.E., R.F. Ambrose and J.A. Jay. Mercury cycling in surface water, pore water and sediments of Mugu Lagoon, CA., USA. Environmental Pollution.
68. Myers, M.R. and R.F. Ambrose. Differences in benthic cover inside and outside marine protected areas on the Great Barrier Reef: influence of protection or disturbance history? Aquatic Conservation: Marine and Freshwater Ecosystems.
69. Willette, D.A. and R.F. Ambrose. The distribution and expansion of the invasive seagrass *Halophila stipulacea* in Dominica, West Indies, with a preliminary report from St. Lucia. Aquatic Botany.

**B. BOOKS**

70. Lang, M.A., F.G. Hochberg, with R.F. Ambrose and J.M. Engle, eds. 1997. The fishery and market potential of *Octopus* in California. Smithsonian Institution: Washington. 192 pp.
71. Murray, S.N., R.F. Ambrose and M.N. Dethier. 2006. Monitoring Rocky Shores. University of California Press. 240 pp.

**C. CHAPTERS OR SECTIONS IN BOOKS**

72. Bohnsack, J.A., D.L. Johnson and R.F. Ambrose. 1991. Ecology of artificial reef habitats and fishes. Pages 61-107 in: W. Seaman, Jr., and L.M. Sprague, eds. Artificial Habitats for Marine and Freshwater Fisheries. Academic Press, San Diego. 285 pp.
73. Ambrose, R.F., R.J. Schmitt and C.W. Osenberg. 1996. Predicted and Observed Environmental Impacts: Can We Foretell Ecological Change? Pages 343-367 in: Schmitt, R.J. and C.W. Osenberg, eds. Detecting Ecological Impacts: Concepts and Applications in Coastal Habitats. Academic Press, San Diego. 401 pp.
74. Ambrose, R.F. 1997. Ecological value in restored coastal ecosystems. Pages 67-86 in: L.A. Brooks and S.D. VanDeveer, eds. Saving the Seas: Values, Scientists, and International Governance. Maryland Sea Grant College, College Park, MD. 480 pp.
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## F. ABSTRACTS

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Management of Enclosed Coastal Seas. Summary of an International Conference. Maryland Sea Grant College, College Park, Maryland. pp. 32-33.

## **G. OTHER PUBLICATIONS**

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### Doctoral Dissertation

158. Ambrose, R.F. 1982. Octopus predation and community structure of subtidal rocky reefs at Santa Catalina Island, California. Ph.D. Dissertation, University of California, Los Angeles.

### General Publications

159. Ambrose, R.F. 1998. Wetlands. Southern California Environmental Report Card. Institute of the Environment, University of California, Los Angeles. pp. 26-34.
160. Ambrose, R.F. 2000. What good are wetlands anyway? Pickleweed Press (Published by the Ballona Wetlands Foundation).
161. Ambrose, R.F. 2005. Marine resources. Southern California Environmental Report Card 2005. Institute of the Environment, University of California, Los Angeles. Pp. 21-29.
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## Curriculum Vitae

### **MICHAEL D. COLLINS**

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#### Education:

Children's Hospital Research Foundation, Cincinnati, OH	Postdoctoral Fellowship in Teratology	1984-1987
Harvard University	Interdisciplinary Programs in Health Fellow, School of Public Health	1982-1984
University of Missouri-Columbia	Ph.D. in Civil Engineering	1982
University of Missouri-Columbia	M.S.P.H.	1981
University of Illinois-Urbana	M.S. in Environmental Engineering	1977
University of Illinois-Urbana	Law School (No degree)	1971-1972
University of Illinois-Urbana	B.S. in Aeronautical and Astronomical Engineering	1971

#### Academic Appointments:

Associate Scientist, California Institute of Technology (2008-present)

Professor, Department of Environmental Health Sciences, Interdepartmental Program in Molecular Toxicology, Jonsson Cancer Center and Interdepartmental Program in Environmental Science and Engineering, School of Public Health, University of California at Los Angeles (2002-present).

Faculty, Center for Occupational and Environmental Health, University of California at Los Angeles (1993-present)

Associate Director of Student Affairs, Interdepartmental Program in Molecular Toxicology, University of California at Los Angeles (2000-present).

Associate Professor, Department of Environmental Health Sciences, School of Public Health, University of California at Los Angeles (1995-2002).

Assistant Professor, Department of Environmental Health Sciences, School of Public Health, University of California at Los Angeles (1993-1995).

Faculty, Environmental Science and Engineering Interdepartmental Program, University of California at Los Angeles (1994-present)

Visiting Scientist, Institute for Toxicology and Embryonalpharmacology, Free University of Berlin, Berlin, Germany (1989-1990).

Research Assistant Professor of Pediatrics, Department of Pediatrics, College of Medicine, University of Cincinnati (1988-1993).

Research Instructor of Pediatrics, Department of Pediatrics, College of Medicine, University of Cincinnati (1986-1988).

Research Fellow, Children's Hospital Research Foundation, Cincinnati, Ohio in Teratology (1984-1987).

IPH Fellow, Harvard School of Public Health; laboratory associations with the Embryology-Teratology Unit of Massachusetts General Hospital, the Department of Nutrition and Food Sciences at the Massachusetts Institute of Technology and with the Department of Population Sciences, HSPH (1982-1984).

Research Associate, Department of Civil Engineering, University of Missouri-Columbia (1979-1982).

Research Associate, Cancer Research Center, Ellis Fischel State Cancer Hospital, Columbia, Missouri (1979-1982).

Research Assistant, Environmental Health Surveillance Center, Department of Family and Community Medicine, University of Missouri-Columbia (1979-1982).

#### Doctoral Students Mentored:

Hovland, Jr., David N. (1999); Scientist, Amgen, Thousand Oaks, California

Mao, Gloria E. (1999); Senior Scientist, Nutrilite, Los Angeles, CA

Machado, Antonio (Tony) F. (2002); Assistant Professor, Department of Environmental and Occupational Health, California State University at Northridge, CA.

Lee, Grace Sangeun (2005); Study Director. Schering-Plough, Lafayette, New Jersey.

Martin, Lisa J. (2007); Postdoctoral fellow in the laboratory of Dr. Aldons J. Lulis, Department of Medicine, University of California at Los Angeles, Los Angeles, CA.

Elsaid, Ahmed (2007); Assistant Professor, Zagazig University, Egypt.

Liao, Xiaoyan (2007); Postdoctoral fellow in the laboratory of Dr. Farhad Parmani, Department Of Medicine, University of California at Los Angeles, Los Angeles, CA

#### Postdoctoral Fellows Mentored:

Chen, Haiyan (2002-2005) Ph.D. Nanjing Medical University, Nanjing, China. Instructor, University of Alabama at Birmingham, AL.

Khaled Korieam (2007-2008)

#### Academic Awards:

James G. Wilson Publication Award, Teratology Society (2008)

Best paper in reproductive and developmental toxicology in *Toxicological Sciences*, Society of Toxicology (2008)

Visiting Professor, Nanjing Medical University, Nanjing, China (2004)

Delta Omega Society, Iota chapter (Public Health Honors Society)(2004)

Visiting Scientist, Institute for Toxicology and Embryopharmacology, Free University of Berlin, Berlin, Germany (1989-1990).

NIEHS Traineeship in Teratology through Children's Hospital Research Foundation, Cincinnati, Ohio (1984-1987)

IPH Fellowship Award through Harvard University (1982-1984)

Ninth Annual Area of Microbiology Student Research Award through the University of Missouri (1981)

EPA Traineeship through the University of Illinois (1974)

Professional Organizations:

Teratology Society  
Southern California Chapter of the Society of Toxicology

Service Experience:

Invited lectures/presentations:

- University of Missouri-Columbia, 4th Annual Summer Institute in Hazardous Waste Management, "Overview of testing methodologies for carcinogenesis, mutagenesis and teratogenesis," August, 1985.
- University of Texas School of Public Health, San Antonio, TX, "Teratogenicity of carboxylic acids: Possible relationship to embryonic intracellular pH," 1986.
- National Institute of Occupational Safety and Health, Cincinnati, OH, "Hypothesized role of embryonic intracellular pH in the teratogenic mechanism of action of selected compounds," 1987.
- Retinoids and Teratogenesis: Molecular Mechanisms and Approaches, sponsored by Hoffmann-La Roche, Inc., Rye, NY, "Characterization of the teratogenic response to all-*trans* retinoic acid in SWV and C57BL/6 mice at specific gestational times," April 30-May 3, 1989.
- European Teratology Society Meeting, Budapest, Hungary, "DMO distribution for determination of pH of embryonic and extraembryonic compartments," September 4-7, 1989.
- Department of Toxicology, University of Uppsala, Uppsala, Sweden, "The hypothesized role of intracellular pH in developmental toxicology," and "The differential response of two mouse strains to the teratogenic effects of all-*trans* retinoic acid: Teratology, maternal versus embryonic factors and pharmacokinetics," August, 1990.
- Institute for Toxicology and Embryonalpharmacology, Free University of Berlin, Berlin, Germany, "Phenotypic interaction of the *legless* mutation with all-*trans* retinoic acid administered during organogenesis," March, 1992.
- Department of Environmental Health Sciences, Tulane University School of Public Health, New Orleans, LA, "Aspects of retinoid-induced normal and abnormal development," December, 1992.
- Department of Food Science and Technology, University of Georgia, Athens, GA, "Aspects of retinoid-induced normal and abnormal development," December, 1992.
- University of Minnesota School of Public Health, Minneapolis, MN, "Aspects of retinoid function in normal and abnormal development," July, 1993.
- University of California at Los Angeles School of Public Health, Los Angeles, CA, "Developmental toxicology of retinoids," September 1993.
- Department of Pediatrics, University of Cincinnati School of Medicine, Cincinnati, OH, "Diabetic embryopathy," March 1994.
- Genetic and Environmental Toxicology Association, Fall Meeting, Oakland, CA, "Retinoid teratology," November 1994.

Department of Environmental Health Sciences, School of Public Health, University of California at Los Angeles, CA, "Perturbations of the retinoid pathway as a mechanism of teratogenesis," December 1994.

Allergan Pharmaceutical Corporation, Irvine, CA, "Aspects of retinoid teratology: morphogenesis, pharmacokinetics, and molecular pathways," January 1995.

Department of Community and Environmental Medicine, University of California at Irvine, CA, "Teratogenesis of retinoids," October 1995.

Department of Pathology (Grand Rounds), University of California at Los Angeles, CA, "Perturbations of developmental processes by retinoids," January 1996.

University of Southern California, Los Angeles, CA, "Aspects of retinoid teratology," October 1996.

UCLA-Sociedad Mexicana de Medicina del Trabajo: Collaborative Conference on Occupational Medicine, "Toxicology: Reproductive effects," September 1997.

Toxicology Program, University of California at Riverside, "Aspects of retinoid teratogenesis," May 1998.

Institute for Toxicology and Embryonalpharmacology, Free University of Berlin, Berlin, Germany, "Isolation of genetic loci associated with a murine strain difference in cadmium-induced forelimb ectrodactyly," September 2000.

Department of Obstetrics and Gynecology, Università "G. d'Annunzio, Chieti, Italy "A whole genome scanning approach to identify chromosomal loci responsible for a murine strain difference in cadmium-induced limb defects," September 2000.

Public forum in Glendale, California sponsored by Congressman Adam Schiff, NIEHS and NIH. "Aspects of chromium toxicity", January 2002.

Developmental Biology Program, Department of Pathology, Anatomy and Cell Biology, Thomas Jefferson University, Philadelphia, Pennsylvania. "Probing a murine strain difference in limb teratogenesis", June 2002.

International Congress: Environmental Influences on Reproduction and Development. Università "G. d'Annunzio", Chieti, Italy. "Gene-environment interactions in teratogenesis: Combining various insults with a Pax3 mutation in the splotch mouse model", October 2002.

Environmental Toxicology Program, University of California at Irvine, "Analyses of a murine strain difference in chemically-induced teratogenesis", December 2002.

National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina, "Utilizing a proteomics approach to delineate murine strain differences in teratogenesis" May 2004.

Department of Molecular, Cellular and Craniofacial Biology, School of Dentistry, University of Louisville, Kentucky, "Approaches for explaining murine strain differences in teratogenesis", December 2004.

Department of Environmental and Occupational Health, School of Public Health, University of Washington, Seattle, WA, "" May 2006

FASEB Retinoids Conference, Indian Wells, CA, "Differential mouse strain sensitivity to retinoid-induced limb teratogenesis" June 2006

Teratology Society Annual Meeting Education Course, Tucson, AZ, "Skeletal development (including limb)" June 2006

Reviewer:

Reviewer of manuscripts for *Teratogenesis, Carcinogenesis and Mutagenesis, Molecular Toxicology, Teratology, Environmental Health Perspectives, Toxicology and Applied Pharmacology, Life Sciences, Drug Metabolism and Disposition, Neurotoxicology and Teratology, Journal of Cellular Biochemistry, Pharmacological Research, FASEB Journal, Pharmacogenomics, Toxicological Sciences, Diabetologia, Birth Defects Research, Reproductive Toxicology, Chemical Research in Toxicology, Fertility and Sterility, Physiological Genomics, Biochimica et Biophysica Acta Molecular Cell Research.*

Reviewer of grants for the British Columbia Health Research Foundation.

Reviewer of U.S. EPA Grants for Research Program entitled "Human Health Risk Assessment," (1995).

Reviewer of U.S. EPA STAR Fellowships (1997).

Reviewer of graduate student research proposals for the Center for Environmental Risk Reduction (1997).

Reviewer of proposals for the NIEHS-funded Southern California Environmental Health Science Center directed by Dr. John Peters (2004).

Reviewer of proposals for the Israel Science Foundation (2004)

Reviewer of proposals for the Maryland Sea Grant Proposals (2004)

Reviewer of a textbook for Jones and Bartlett (2005)

Reviewer of the Reproductive and Developmental Toxicology Division/Laboratory of the United States Environmental Protection Agency, Research Triangle Park, NC (2006)

Reviewer on the Superfund Basic Research and Training Program Special Emphasis Panel, NIEHS, Research Triangle Park, North Carolina (2007)

Reviewer (ad hoc) Environmental Health Sciences Review Committee, NIEHS, Research Triangle Park, North Carolina (2007)

Reviewer (ad hoc) of the Developmental and Reproductive Toxicology of Cadmium for the National Toxicology Program, NIEHS, Research Triangle Park, North Carolina (2007)

Reviewer (ad hoc) for Developmental Biology Study Section of NIH, San Francisco, CA (2008)

Reviewer (ad hoc) for R13 Meeting Grants for NIH (2008)

Editorial Activities:

Section editor for the molecular development and genetics section of *Teratology* (2000-2002).

Session Chairperson:

Chaired session entitled "Mechanisms of developmental toxicity" at the 31st Annual Meeting of the Teratology Society in Boca Raton, Florida in 1991.

Co-Chaired session entitled "Retinoids" at the 37th Annual Meeting of the Teratology Society in Palm Beach, Florida in 1997.

Co-Chaired and organized a March of Dimes-Sponsored Symposium entitled "Genetic susceptibility to teratogenesis" in Palm Beach, Florida in 2000.



Co-Chaired session entitled “Mechanisms of abnormal development” at the 42<sup>nd</sup> Annual Meeting of the Teratology Society in Scottsdale, Arizona in 2002.

Co-Chaired and organized Wiley-Liss Symposium entitled “Molecular clocks in embryonic development” at the 47<sup>th</sup> Annual Meeting of the Teratology Society in Pittsburgh, Pennsylvania in 2007.

Co-Chaired and organized March of Dimes-Sponsored Symposium entitled “Embryonic and fetal hypoxia” at the 48<sup>th</sup> Annual Meeting of the Teratology Society in Monterey, California in 2008.

#### Committee Work:

Department of Environmental Health Sciences Admissions Committee (1993-1995, 2000-2004)

Department of Environmental Health Sciences MPH Examination Committee (1995-1997, 1999)

Department of Environmental Health Sciences Space Committee (1995-2000)

Department of Environmental Health Sciences Academic Policy and Procedures Committee (1997-2000).

Department of Environmental Health Sciences Recruitment and Alumni Committee (Chair, 1999- 2004; member, 2004-present)

Secretary of the School of Public Health Faculty Executive Committee (1994).

School of Public Health Faculty Executive Committee, Department of Environmental Health Sciences representative (1998-present).

School of Public Health Equipment and Laboratory Committee (1994-1998; Chair 1995-1996)

UCLA Committee to establish an Interdepartmental Program in Molecular Toxicology (1997-2000).

Teratology Society, Education Committee (1997-2000).

Teratology Society, Student Affairs Committee (2000-2001; 2002-present; Chair in 2005).

Teratology Society, Ad hoc Committee on Bioinformatics in Teratology (2004-present)

Teratology Society, Publications Committee (2005-present; Chair 2006-2007)

State of California: State Board 1764 Advisory Board (1995-1996).

School of Public Health Outreach Committee (1997-1999).

#### Teaching Experience:

Teratology, Nanjing Medical University, Nanjing, China: 2004

Introduction to Environmental Health Sciences (Masters of Public Health for Health Professionals), University of California at Los Angeles: 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007.

Microbiology module of Fundamentals of Environmental Health Sciences, UCLA: 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2008.

Techniques in murine whole embryo culture, National Polytechnic Institute, Mexico City, Mexico: 2000

Toxicology module of Fundamentals of Environmental Health Sciences, UCLA: 1998

Ecotoxicology, UCLA: 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2004.

Teratology, CINVESTAV, Mexico City, Mexico: 1997

Basic Embryology and Birth Defects, Medical School, UCLA: 1997, 1998, 1999  
Embryology and Teratology, School of Public Health, UCLA: 1996, 1998, 2002  
Toxicodynamics, University of California at Los Angeles: 1995, 1997, 2001, 2002, 2003, 2004.  
Fundamentals of Toxicology, UCLA: 1994, 1995, 1996, 1997, 1998, 2000, 2001, 2002, 2003,  
2004, 2005, 2006, 2007.  
Fundamentals of Biology, University of Cincinnati: 1992, 1993  
Lectured in Developmental Biology, University of Cincinnati: 1992  
Lectured in Fundamentals of Environmental Toxicology, University of Cincinnati: 1991  
Lectured in Teratology Course, University of Cincinnati: 1988, 1992, 1994  
Health Aspects of the Environmental, Family and Community Medicine 415, Univ. of Missouri:  
1982  
Environmental Health Engineering, Civil Engineering 301/401, Univ. of Missouri: 1980, 1982

#### Consulting Experience:

Member of the UCLA Independent Belmont Commission to the Los Angeles Unified School District (Principle investigator: Dr. Philip Harber) for the purpose of evaluating issues of toxicology and risk assessment for the Belmont Learning Complex (1999).  
Peer Reviewer for the U.S. Environmental Protection Agency's Draft External Review Document "Perchlorate Environmental Contamination: Toxicological Review and Risk Characterization" (2002).  
Peer Reviewer for Office of Environmental Health Hazard Assessment of the State of California of Document "Draft Public Health Goal for Toxaphene in Drinking Water" (2003).  
Peer Reviewer for the U.S. Environmental Protection Agency's Reproductive Toxicology Division, Research Triangle Park, North Carolina (2006)  
Internal Evaluator, Teratology Society Strategic Planning Session, San Diego, CA (2007)

#### Grants:

NIH R23-ES04402, "Neural tube defects induced by anions via increased intracellular pH"  
Principal Investigator: M.D. Collins  
Percent effort: 95%  
Total Direct Costs: \$342,275  
Project Period: 7/1/87-6/30/93

Institutional Biomedical Research Support Grant (BRSO), "Maternal versus embryonic factors in the teratogenic response of inbred strains to all-trans retinoic acid"  
Principal Investigator: M.D. Collins  
Percent effort: 5%  
Total Direct Costs: \$15,000  
Project Period: 4/1/88-3/31/89

Mitre Corporation Project, "Antioxidant protection from hydroxyurea-induced embryotoxicity in whole embryo culture"  
Principal Investigator: M.D. Collins

Percent effort: 5%  
Total Direct Costs: \$8,000  
Project Period: 7/1/91-6/30/92

Perinatal Research Institute, Program Project Grant IV on Diabetes in Pregnancy Mini-Grant  
Proposals, "Development of a murine model for diabetic embryopathy"  
Principal Investigators: M.D. Collins and E.F. Zimmerman  
Percent effort: 5%  
Total Direct Costs: \$5,000  
Project Period: 10/1/92-10/1/93

Institutional Biomedical Research Support Grant (BRS), "Retinoid nuclear receptors during  
normal and abnormal murine neural tube closure"  
Principal Investigator: M.D. Collins  
Percent effort: 5%  
Total Direct Costs: \$15,000  
Project Period: 1/1/93-9/30/93

NIH T32 ES07051, "Training grant in teratology"  
Principal Investigator: W.J. Scott, Jr.  
Percent effort: 5%  
Total Direct Costs: \$693,324  
Project Period: 7/1/92-6/30/97 (however, Collins departed at the end of 1993)

UCLA Academic Senate, "Development of a murine model for diabetic embryopathy"  
Principle Investigator: M. Collins  
Percent effort: 0%  
Total Direct Costs: \$3591.90  
Project Period: 1/1/94-6/30/94

California EPA, "Non-carcinogenic toxicologic endpoints for seven chemicals: A literature  
review"  
Principal Investigator: J. Froines  
Percent effort: 10%  
Total Direct Costs: \$78,137  
Project Period: 4/30/94-10/30/94

California EPA, "Literature search for hot spot chemicals from the Office of Environmental  
Health Hazard Assessment (OEHA), Air Toxicology and Epidemiology Section"  
Principle Investigator: M. Collins  
Percent effort: 10% for 9 months and 26% for 3 months  
Total Direct Costs: \$136,487  
Project Period: 11/1/94-9/30/95

Nestle Westreco, "Micronutrients and cancer prevention"

Principle Investigator: M. Swendseid  
Percent effort: 5%  
Total Direct Costs: \$14,000  
Project Period: 3/1/94-2/28/95

UCLA Academic Senate, "An animal model for the induction of neural tube defects by folate deficiency"  
Principle Investigator: M. Collins  
Percent effort: 0%  
Total Direct Costs: \$3850  
Project Period: 7/1/95

UCLA Center for Environmental Risk Reduction, "Reducing arsenic-induced embryopathy: A mechanistic approach"  
Principle investigator: M. Collins  
Percent effort: 0%  
Total Direct Costs: \$37,500  
Project Period: 9/1/96-8/31/99

Juvenile Diabetes Foundation International, "Neural tube defects from diabetes in Pax-3 mouse mutant"  
Principle investigator: M. Collins  
Percent effort: 10%  
Total Direct Costs: \$90,910  
Project Period: 9/1/96-2/1/99

Fogarty International Center/NIH, "UCLA-Mexico collaborative training and research program"  
Principle investigator: J. Froines  
Percent effort: 0%  
Total Direct Costs: \$566,800  
Project Period: 9/30/95-9/29/00

Southern California Environmental Health Sciences Center/NIEHS, "Identification of genetic loci associated with murine strain differences in susceptibility to Cd-induced limb malformations"  
Principle Investigator: M. Collins  
Percent effort: 0 %  
Total Direct Costs: \$15,052  
Project Period: 10/1/96-3/31/97

Univ. of California Toxic Substances Research and Teaching Program (TSR&TP), "An Evaluation of the peer-reviewed research literature on human health, including asthma and environmental effects, of MTBE"  
Principle Investigator: J. Froines  
Percent effort: 8.3%

Total Direct Costs: \$114,000  
Project Period: 1/1/98-10/31/98

U.S. Environmental Protection Agency, Science to Achieve Results (STAR) Fellowship, "The role of retinoic acid receptors RAR-beta and RAR-gamma during normal and abnormal neural tube closure"

Principle Investigator: G. Mao  
Percent effort: 0%  
Total Direct Costs: \$53,004  
Project Period: 9/1/98-8/30/00

Southern California Environmental Health Science Center/NIEHS, "Fine mapping the murine *cdm* gene via a C57BL/6 and DBA/2 strain intercross"

Principle Investigator: M. Collins  
Percent effort: 0%  
Total Direct Costs: \$15,703  
Project Period: 5/1/99-4/30/00

UCLA Academic Senate, "Fine mapping of a gene determining susceptibility to cadmium toxicity"

Principle Investigator: M. Collins  
Percent effort: 0%  
Total Direct Costs: \$3000  
Project Period: 7/1/99-6/30/00

Univ. of California Toxic Substances Research & Teaching Program (TSR&TP), "Identification of chromosomal loci associated with murine strain differences in cadmium-induced congenital malformations"

Principle Investigator: M. Collins  
Percent effort: 0%  
Total Direct Costs: \$50,000  
Project Period: 7/1/99-9/30/01

State of California, Office of Environmental Health Hazard Assessment (OEHHA), "Focused literature search for 13 chemicals to include: acrolein, chlorine, acetaldehyde, carbon tetrachloride, methanol, vinyl chloride, methyl chloroform, phosphine, 1,4-dichlorobenzene, methyl ethyl ketone, propylene oxide, n-hexane, and carbon disulfide"

Principle Investigator: M. Collins  
Percent effort: 10%  
Total Direct Costs: \$32,800  
Project Period: 4/1/00-12/31/00

University of California Toxic Substances Research and Teaching Program (TSR&TP), "UCLA/UC Riverside/Los Alamos consortium in research and training in mechanisms of toxicity"

Principle Investigator: O. Hankinson

Percent effort: 0%

Total Direct Costs: \$882,000

Project Period: 7/1/00-6/30/08.

National Institute of Environmental Health Sciences (NIH), "Murine strain sensitivity to cadmium teratogenesis"

Principle Investigator: M. Collins

Percent effort: 30% effort for 9 months, 67% effort for 3 months

Total Direct Costs: \$1,000,000

Project Period: 4/1/01-3/30/07

Center for Inherited Disease Research (CIDR)/NIH, "Identification of genetic loci associated with differential sensitivity of two inbred murine strains to all-trans-retinoic acid-induced congenital malformations"

Principle Investigator: M. Collins

Percent effort: 0%

Total Direct Costs: 0 (Genotyping provided by the agency)

Project Period: 4/1/02-2/1/03

University of California Toxic Substances Research & Teaching Program, "Interactions between cadmium and arsenite in the production of birth defects"

Principle Investigator: J. Fukuto

Percent effort: 0%

Total Direct Costs: \$150,000

Project Period: 7/01/02-6/30/04

National Institute of Environmental Health Sciences (NIH), "Cadmium teratogenesis in murine strains: Proteomics"

Principle Investigator: M. Collins

Percent effort: 10% for 9 months, 33% for 3 months

Total Direct Costs: \$275,000

Project Period: 9/1/02-8/31/04

Southern California Particle Center and Supersite (funded by the US EPA with John Froines as the PI) "Developmental toxicity of components of air contamination"

Principle Investigator: M. Collins

Percent effort: 0%

Total Direct Costs: \$29,263

Project period: 9/01/03-8/31/04

National Institute of Environmental Health Sciences (NIH), "2005 Teratology Society Meeting"

Principal Investigator: M. Collins

Percent effort: 0%

Total Direct Costs: \$5000

Project period: June 2005

Jonsson Comprehensive Cancer Center Ann Fitzpatrick Alper Program (UCLA), "Epithelial to mesenchymal transition as a mechanistic component of cadmium-induced carcinogenesis"

Principle Investigator: M. Collins

Percent effort: 0%

Total Direct Costs: \$20,000

Project period: 04/01/05-3/31/06

National Institute of Environmental Health Sciences (NIH), "2006 Teratology Society Meeting"

Principal Investigator: M. Collins

Percent effort: 0%

Total Direct Costs: \$15,000

Project period: June 2006

UCLA Academic Senate, "Antagonism of all-trans-retinoic acid-induced teratogenesis by up-regulation of the Ha-ras oncogene in a murine model"

Principle Investigator: M. Collins

Percent effort: 0%

Total Direct Costs: \$6000

Project period: 7/01/05-6/30/07

#### Peer Reviewed Articles:

- (1) Collins, M. Algal toxins. *Microbiological Reviews* 42:725-746, 1978.
- (2) Marienfeld, C.J., M. Collins, H. Wright, R. Reddy, G. Shoop, K. Roberts and P. Rust. Cancer mortality and public drinking water in St. Louis City and County. *J. Amer. Water Works Assoc.* 72:649-654, 1980.
- (3) Marienfeld, C.J., M. Collins, H. Wright, R. Reddy, G. Shoop and P. Rust. Cancer mortality and the method of chlorination of public drinking water: St. Louis City and St. Louis County, Missouri. *J. Environ. Pathol. Toxicol. Oncol.* 7:141-158, 1986.
- (4) Naruse, I., M.D. Collins, and W.J. Scott. Strain differences in the teratogenicity induced by sodium valproate in cultured mouse embryos. *Teratology* 38:87-96, 1988.
- (5) Collins, M.D., C.A. Duggan, C.M. Schreiner, and W.J. Scott. Decreasing pH of rat embryos and fluids estimated by transplacental distribution of DMO. *Am. J. Physiol.* 257:R542-R549, 1989.
- (6) Zimmerman, E.F. and M.D. Collins. Chloride transport in embryonic cells: Effect of ethanol and GABA. *Teratology* 40:593-601, 1989.

- (7) Collins, M.D., R. Fradkin, and W.J. Scott. Induction of postaxial forelimb ectrodactyly with anticonvulsant agents in A/J mice. *Teratology* 41:61-70, 1990.
- (8) Zimmerman, E.F., W.J. Scott, and M.D. Collins. Ethanol-induced limb defects in mice: effect of strain and Ro 15-4513. *Teratology* 41:453-462, 1990.
- (9) Scott, W.J., C.A. Duggan, C.M. Schreiner, and M.D. Collins. Reduction of embryonic intracellular pH: a potential mechanism of acetazolamide-induced limb malformations. *Toxicol. Appl. Pharmacol.* 103:238-254, 1990.
- (10) Srivastava, M., M. Collins, W.J. Scott, and H. Nau. Transplacental distribution of weak acids in mice: Accumulation in compartments of high pH. *Teratology* 43:325-329, 1991.
- (11) Eckhoff, Ch., M.D. Collins, and H. Nau. Human plasma all-*trans*, 13-*cis*, and 13-*cis*-4-oxoretinoic acid profiles during subchronic vitamin A supplementation: comparison to retinol and retinyl ester plasma levels. *J. Nutrition* 121:1016-1025, 1991.
- (12) Collins, M.D., Walling, K.M., Resnick, E. and Scott, W.J. The effect of administration time of malformations induced by three anticonvulsant agents in C57BL/6J mice with emphasis on forelimb ectrodactyly. *Teratology* 44:617-627, 1991.
- (13) Eckhoff, C., J.R. Bailey, M.D. Collins, W. Slikker, Jr., and H. Nau. Influence of dose and pharmaceutical preparation of vitamin A on retinol metabolism and systemic generation of retinoic acid compounds in the cynomolgus monkey. *Toxicol. Appl. Pharmacol.* 111:116-127, 1991.
- (14) Collins, M.D., W.J. Scott, S.J. Miller, D.A. Evans, and H. Nau. Murine teratology and pharmacokinetics of the enantiomers of sodium 2-ethylhexanoate. *Toxicol. Appl. Pharmacol.* 112:257-265, 1992.
- (15) Collins, M.D., Ch. Eckhoff, W. Slikker, J.R. Bailey and H. Nau. Quantitative plasma disposition of retinol and retinyl esters after high dose oral vitamin A administration in the cynomolgus monkey. *Fund. Appl. Toxicol.* 19:109-116, 1992.
- (16) Collins, M.D., Ch. Eckhoff, I. Chahoud, G. Bochert and H. Nau. 4-Methylpyrazole partially ameliorated the teratogenicity of retinol and reduced the metabolic formation of all-*trans*- retinoic acid in the mouse. *Arch. Toxicol.* 66:652-659, 1992.
- (17) Klug, S., M. Collins, T. Nagao, H.-J. Merker and D. Neubert. Effect of lithium on rat embryos in culture: growth, development, compartmental distribution and lack of a protective effect of inositol. *Arch. Toxicol.* 66:719-728, 1992.
- (18) Tzimas, G., H. Bürgin, M.D. Collins, H. Hummler and H. Nau. The high sensitivity of the rabbit to the teratogenic effects of 13-*cis*-retinoic acid (isotretinoin) is a consequence of prolonged exposure of the embryo to 13-*cis*-retinoic acid and 13-*cis*-4-oxo-retinoic acid,



- and not of isomerization to all-*trans*-retinoic acid. Arch. Toxicol. 68:119-128, 1994.
- (19) Brown, T.L., W.C. Fischer, M.D. Collins, B.K. De and W.J. Scott, Jr. Identification of a 100-kDa phosphoprotein in developing murine embryos as elongation factor 2. Arch. Biochem. Biophys. 309:105-110, 1994.
- (20) Fisher, J.E., R.B. Potturi, M. Collins, E. Resnick and E.F. Zimmerman. Cocaine-induced embryonic cardiovascular disruption in mice. Teratology 49:182-191, 1994.
- (21) Collins, M.D., G. Tzimas, H. Hummler, H. Burgin and H. Nau. Comparative teratology and transplacental pharmacokinetics of all-trans-retinoic acid, 13-cis-retinoic acid, and retinyl palmitate following daily administrations in rats. Toxicol. Appl. Pharmacol. 127:132-144, 1994.
- (22) Scott, W.J., M.D. Collins, A.N. Ernst, D.M. Supp and S.S. Potter. Enhanced expression of limb malformations in legless mutants by transplacental exposure to retinoic acid. Dev. Biol. 164:277-289, 1994.
- (23) Scott, W.J. Jr., M.D. Collins and H.Nau. Pharmacokinetic determinants of embryotoxicity in rats associated with organic acids. Environ. Health Perspect. 102 (Suppl. 11): 97-101, 1994.
- (24) Scott, W.J., Jr., R. Walter, G. Tzimas, J.O. Sass, H. Nau and M.D. Collins. Endogenous status of retinoids and their cytosolic binding proteins in limb buds of chick versus mouse embryos. Dev. Biol. 165: 397-409, 1994.
- (25) Collins, M. D., G. Tzimas, H. Burgin, H. Hummler and H. Nau. Single versus multiple dose administration of all-*trans*-retinoic acid during organogenesis: Differential metabolism and transplacental kinetics in rat and rabbit. Toxicol. Appl. Pharmacol. 130: 9-18, 1995.
- (26) Tzimas, G., M. Collins, and H. Nau. Developmental stage associated differences in the transplacental distribution of 13-*cis*- and all-*trans*-retinoic acid as well as their glucuronides in rats and mice. Toxicol. Appl. Pharmacol. 133: 91-101, 1995.
- (27)...Schreiner, C. M., M. D. Collins, W. J. Scott, C. Vorhees, J. Colvin, and D. McCandless. Intracellular pH and cellular proliferation in normal mouse forelimb development and following exposure to acetazolamide. Teratology 52: 160-168, 1995.
- (28) Collins, M.D., W.J. Scott Jr., A.G. Hendrickx, P.E. Peterson and H. Nau. Estimating intracellular pH of monkey embryos at various stages of organogenesis by dimethadione distribution. Reprod. Fertil. Dev. 8: 911-920, 1996.
- (29) Tzimas, G., M.D. Collins, and H. Nau. Identification of 14-hydroxy-4,14-*retro*-retinol as an *in vivo* metabolite of vitamin A. Biochim. Biophys. Acta 1301: 1-6, 1996.

- (30) Tzimas, G., M.D. Collins, H. Burgin, H. Hummler, and H. Nau. Embryonic doses of vitamin A to rabbits result in low plasma but high embryonic concentrations of all-*trans*-retinoic acid: Risk of vitamin A exposure in humans. *J. Nutr.* 126: 2159-2171, 1996.
- (31) Collins, M.D. and G.E. Mao. Teratology of retinoids. *Annu. Rev. Pharmacol. Toxicol.* 39: 399-430, 1999.
- (32) Hovland Jr., D.N., A.F. Machado, W.J. Scott Jr., and M.D. Collins. Differential sensitivity of the SWV and C57BL/6 mouse strains to the teratogenic action of single administrations of cadmium given throughout the period of anterior neuropore closure. *Teratology* 60: 13-21, 1999.
- (33) Machado, A.F., D.N. Hovland Jr., S. Pilafas, and M.D. Collins. Teratogenic response to arsenite during neurulation: relative sensitivities of C57BL/6J and SWV/Fnn mice and impact of the *spotch* allele. *Toxicological Sciences* 51: 98-107, 1999.
- (34) Mao, G.E., M.D. Collins, and F. Derguini. Teratogenicity, tissue distribution, and metabolism of the *retro*-retinoids, 14-hydroxy-4,14-*retro*-retinol and anhydroretinol, in the C57BL/6J mouse. *Toxicol. Appl. Pharmacol.* 163: 38-49, 2000.
- (35) Hovland Jr., D.N., R.M. Cantor, G.S. Lee, A.F. Machado, and M.D. Collins. Identification of a murine locus conveying susceptibility to cadmium-induced forelimb malformations. *Genomics* 63: 193-201, 2000.
- (36) Machado, A.F., L.J. Martin and M.D. Collins. *Pax3* and the *Spotch* mutations: Structure, function, and relationship to teratogenesis, including gene-chemical interactions. *Curr. Pharm. Des.* 7: 751-785, 2001.
- (37) Machado, A.F., E.F. Zimmerman, D.N. Hovland, Jr., R. Weiss, and M.D. Collins. Diabetic embryopathy in C57BL/6J mice: altered fetal sex ratio and impact of the *spotch* allele. *Diabetes* 50: 1193-1199, 2001.
- (38) Caudill, M.A., J.C. Wang, I. Pogribny, S. Melnyk, M. Collins, J. Santos, M.E. Swendseid, E.A. Cogger and S.J. James. S-adenosylhomocysteine concentrations predict global DNA hypomethylation in tissues of methyl deficient cystathionine  $\beta$ -synthase heterozygous mice. *J. Nutr.* 131: 2811-2818, 2001.
- (39) Mao, G. E. and M. D. Collins. Quantification and localization of expression of the retinoic acid receptor- $\beta$  and  $-\gamma$  mRNA isoforms during neurulation in mouse embryos with or without spina bifida. *Teratology* 66: 331-343, 2002.
- (40) Martin, L. J., A.F. Machado, M.A. Loza, G.E. Mao, G.S. Lee, D.N. Hovland, Jr., R.M. Cantor, and M.D. Collins. The effect of arsenite, maternal age, and embryonic sex on spina bifida, exencephaly, and resorption rates in the *spotch* mouse. *Birth Defects Research (Part A)*

67(4): 231-239, 2003.

- (41) Santos-Guzmán, J., T. Arnhold, H. Nau, C. Wagner, S.H. Fahr, G.E. Mao, M.A. Caudill, J.C. Wang, S.M. Henning, M.E. Swendseid and M.D. Collins. Antagonism of hypervitaminosis A-Induced anterior neural tube closure defects with a methyl-donor deficiency in murine whole-embryo culture. *J. Nutr.* 133: 3561-3570, 2003.
- (42) Lee, G.S., D.M. Kochhar and M.D. Collins. Retinoid-induced limb malformations. *Current Pharmaceutical Design* 10: 2657-2699, 2004.
- (43) Lee, G.S., R.M. Cantor, A. Abnoosian, E. Park, M.L. Yamamoto, D.N. Hovland Jr., and M.D. Collins. A gene(s) for all-trans-retinoic acid-induced forelimb defects mapped and confirmed to murine chromosome 11. *Genetics*: 170: 345-353, 2005.
- (44) Xia, Y., S. Cheng, Q. Bian, L. Xu, M.D. Collins, H.C. Chang, L. Song, J. Liu, S. Wang and X. Wang. Genotoxic effects on spermatozoa of carbaryl-exposed workers. *Tox. Sci.* 85: 615-623, 2005.
- (45) Lee, G.S., X. Liao, R.M. Cantor, and M.D. Collins. Interactive effects of cadmium and all-*trans*-retinoic acid on the induction of forelimb ectrodactyly in C57BL/6 mice. *Birth Defects Research, Part A: Clin Mol Teratol* 76(1): 19-28, 2006.
- (46) Collins, M.D., Ch. Eckhoff, R. Weiss, E. Resnick, H. Nau, W.J. Scott, Jr. Differential teratogenesis of all-*trans*-retinoic acid in SWV and C57BL/6N mice administered at gestational day 9.5: emphasis on limb dysmorphology. *Birth Defects Research, Part A: Clin Mol Teratol* 76(2): 96-106, 2006.
- (47) Shimizu, H., G.S. Lee, S. R. Beedanagari, M.D. Collins. Altered localization of gene expression in both ectoderm and mesoderm are associated with a murine strain difference in retinoic acid-induced forelimb ectrodactyly. *Birth Defects Research, Part A: Clin Mol Teratol* 79(6): 465-482, 2007.
- (48) Fukuto, J.M. and M.D. Collins. Interactive endogenous small molecule (gaseous) signaling: implications for teratogenesis. *Curr Pharmaceutical Design* 13(29): 2952-2978, 2007.
- (49) Elsaïd, A.F., E.C. Délot, M.D. Collins. Differential perturbation of the Fgf/Erk1/2 and Shh pathways in the C57BL/6N and SWV embryonic limb buds after mid-gestational cadmium chloride administration. *Mol Genet Metab* 92(3): 258-270, 2007.
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Duggan, C., W. Scott, C. Schreiner and M. Collins. Changing intracellular pH of embryos and limb tissue during organogenesis in mice. *Teratology* 33:49C, 1986.

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Machado, A.F., W.J. Scott, and M.D. Collins. Reactive oxygen and nitrogen species in the production of congenital malformations by known teratogenic agents and maternal conditions. In: Signal Transduction by Reactive Oxygen and Nitrogen Species: Pathways and Chemical Principles. (H. J. Forman, J. Fukuto, and M. Torres, eds.) Kluwer Academic Publ., Dordrecht, pp. 379-406, 2003.

## Curriculum Vitae

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### Education

1962-66 B. S., Westminster College  
1969-71 M.S., University of Arizona  
1971-74 Ph.D., Cornell University

### Professional Appointments

1974-75 Postdoctoral Scholar, neurochemistry, Cornell University, Ithaca, NY  
1975-77 NIH Postdoctoral Fellow, inorganic biochemistry and development, University of California, Davis, CA  
1977-79 National Eye Institute Fellow, visual sciences, Stanford University, Stanford, CA  
1979-83 Assistant Professor, Division of Environmental and Nutritional Sciences, School of Public Health, University of California, Los Angeles, CA  
1983-91 Associate Professor, School of Public Health, University of California, Los Angeles, CA  
1991- present Professor, Department of Environmental Health Sciences, University of California, Los Angeles, CA

### Administrative Positions

1987-92 Division Head, Nutritional Sciences, School of Public Health, University of California, Los Angeles, CA  
1989-90 Co-Director of the Nutrition Education Core for the UCLA Clinical Nutrition Research Unit  
1990-92 Director of the Nutrition Education Core for the UCLA Clinical Nutrition Research Unit  
1994-97 Vice-Chair, Department of Environmental Health Sciences, School of Public Health, University of California, Los Angeles, CA  
1998-2007 Chair, Department of Environmental Health Sciences, School of Public Health, University of California, Los Angeles, CA  
2002- 2006 Member, Executive Committee, University of California Toxic Substances and Training Program  
2003-2006 Chair, Executive Committee, University of California Toxic Substances and Training Program  
2004- present Associate Director, Molecular Epidemiology and Division of Cancer Prevention and Control UCLA Jonsson Comprehensive Cancer Center  
2000-present Member Executive Committee UCLA TSR&TP Lead Campus in Molecular Toxicology  
2006-present Associate Director, California NanoSystem's Institute's Nanotoxicology Training Program  
2006-present Member Executive Committee UCLA's UCTSR&TP's Lead Campus in Nanotoxicology

### Honors and Special Recognition

Professor of the Year - Public Health Student's Association 2002  
Professor of the Year - Public Health Student's Association 2001  
Distinguished Teaching Award - The Public Health Students Association 1999  
Visiting Professor, School of Medicine, Ain Shams University, Cairo, Egypt  
Delta Omega  
Phi Lambda Upsilon (chemistry honor society)  
Phi Sigma Tau (international honor society in philosophy)  
Sigma Xi

### Professional Societies (active 2009)

American Chemical Society  
American Society of Nutrition  
American Physiological Society  
American Association for the Advancement of Science

### Service to Scholarly Journals

Editorial Board, Drug-Nutrient Interactions, 1982-1989  
Editorial Board, Journal of Nutrition, 1992-1995

Reviewer of Research Articles for the following journals:

Analytical Biochemistry  
Analytical Chemistry  
Biochemistry  
Biochimica et biophysica acta  
Biochemical and biophysical research communications  
Biotechnology Progress  
Current Eye Research  
Drug-Nutrient Interactions  
Ethology and Sociobiology  
Experimental Eye Research  
Experimental Neurology  
FASEB  
Fertility and Sterility  
Investigative Ophthalmology & Visual Sciences  
Journal of Clinical Nutrition  
Journal of Lipid Research  
Journal of Mass Spectrometry  
Journal of Nutrition  
Life Sciences Journal  
Lipids  
Trace Elements and Metabolism  
Toxicology and Cell Biology

### National and International Public Advisory Activities (up to 1999)

Member 1984, Postdoctoral Fellowship Award Committee, American Institute of Nutrition.

Member 1985 Workshop on Diet and Health, United States Department of Agriculture.

Ad Hoc Reviewer for Swiss Grant Review in Cellular Biology 1987. Schweizrsischer National funds zur Forderung der wissenschaftlichen Forschung, Fonds national suisse de la recherche scientifique.

Study Section Panel Member 1989, Competitive Research Grants Program, Human Nutrition Program, United States Department of Agriculture.

Panel Member 1989, American Institute of Nutrition Rodent Diet Composition Workshop; Chair, Group on Fat Soluble Vitamins.

External Examiner 1989, Doctoral Dissertation, Department of Chemistry and Biochemistry, Rhodes University, South Africa. (1st black to obtain Ph.D. in field of biochemistry in South Africa).

Ad Hoc Panel Member 1990, 1991, Competitive Research Grants Program, Human Nutrition Program, United States Department of Agriculture.

Member 1990 - 1994, Subcommittee on Laboratory Animal Nutrition, National Research Council, National Academy of Sciences.

Member 1999, Advisory Committee on Nutrition of the Fighting Blindness Foundation.

#### State and Local Public Advisory Activities

Expert Witness 1982 Consumer (Nutrition) Fraud, Los Angeles County District Attorney's Office.

Panel Member 1984, 35th Annual Los Angeles County Science Fair. Subcommittee for Biochemistry, Board of Education, Los Angeles County School District.

Panel Member 1986, Unified School District, Inglewood California. External Review Committee to interview candidates for principal appointments at district schools.

Panel Member 1989, Committee for Advanced Science Training, Los Angeles County Museum of Science and Industry.

Panel Member 1989, Committee for the State Science Fair. Subcommittee for Biochemistry, California State Board of Education.

Panel Member 1989, Committee for the 40th Annual Los Angeles County Science Fair. Subcommittee for Biochemistry, Board of Education, Los Angeles County School District.

Panel Member 1990, Committee for Advanced Science Training, Los Angeles County Museum of Science and Industry.

Panel Member 1990, Committee for the State Science Fair. Subcommittee for Biochemistry, California State Board of Education.

Panel Member 1991, Committee for the 42th Annual Los Angeles County Science Fair. Subcommittee for Biochemistry, Board of Education, Los Angeles County School District.

Panel Member 1991, Committee for Advanced Science Training, Los Angeles County Museum of Science and Industry.

Panel Member 1991, Committee for the State Science Fair. Subcommittee for Biochemistry, California State Board of Education.

Panel Member 1992, Committee for Advanced Science Training, Los Angeles County Museum of Science and Industry.

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Panel Member 1993, Committee for Advanced Science Training, Los Angeles County Museum of Science and Industry.

Panel Member 1993, Committee for the State Science Fair. Subcommittee for Biochemistry, California State Board of Education.

Foreman of Jury, Superior Court of Los Angeles County. June - August 1993. Case: A thirteen count charge of murder, kidnapping and robbery against two defendants.

#### Professional Consultant

Nutritional Consultant 1982-88, Marineland of the Pacific, Rancho Palos Verdes, CA (designed and formulated infant formula for killer whales)

Department of Clinical Diabetes, Endocrinology & Metabolism, City of Hope National Medical Center, Duarte, CA

Doheny Eye Foundation, University of Southern California

Cullen Eye Institute, Baylor College of Medicine, Houston, Texas

Advanced Aquatic Systems (technical consultant)

Member of Scientific Advisory Board, Biovet, Inc.

#### Current Research Support

PI(s): Andre Nel (PI), Curtis Eckhert (Co-PI)  
Source: UC Toxic Substances, Research and Training Program (funding)  
California NanoSystems Institute (administrator)  
Amount: 1,250,000  
Period: 07/01/06 – 06/30/13  
Title: UCLA and UCSB Lead Campus in Nanotoxicology  
Objectives: Training program in nanotoxicology: To train doctoral students in engineering, chemistry, molecular toxicology and others in the development of methods to evaluate the safety of nanomaterials and test products currently under development or in commerce.

#### Research Problem

The Safe Drinking Water Act requires the EPA to identify and regulate contaminants. Among the chemicals selected for EPA's first Chemical Contaminant List (CCL1) in 1998 was the element boron (B). Most environmental health research is focused on negative attributes of the environment. However, B has the interesting characteristic of being a mammalian reproductive toxin at high levels, but required by plants for growth, flowering and seed formation at low levels. Dr. Eckhert developed a sensitive model to determine if low as well as high concentrations had adverse consequences for zebrafish and trout. The outcome showed they did with the dose response describing an inverted U shape typical of a fat soluble vitamin. Low concentrations were essential for post-fertilization cleavage and formation of blastula while high concentrations caused growth stunting. Dr. Eckhert then teamed with Dr. Zuo-Feng Zhang, a cancer epidemiologist to use epidemiological methods as a screening tool to uncover B related health effects in the NHANES database. They discovered the risk of prostate cancer diminished as exposure to B increased. Four population studies by Dr. Eckhert and others have now reported that B lowers the risk of cervical dysplasia, lung and prostate cancer. The biological plausibility of these observations has been supported by work in his other laboratories using animal and human prostate cell models.

Identical twin studies in Scandinavia quantified the environmental component of risk of most major forms of cancer to be greater than 60%. In the words of the National Cancer Institute: "There is a profound difference in the incidence and outcomes of cancer in various populations. Efforts are needed to better understand the genetic and environmental mechanisms behind these differences so that they can be prevented and more effectively treated." Examination of cancer risk and the geological distribution of B suggest it may explain part of this great cancer disparity puzzle. The Eckhert laboratory is currently working to elucidate molecular mechanisms that underpin the chemopreventative effect of physiological levels of B. Their approach involves: (1) characterization of complexes formed between B and endogenous biomolecules; (2) localization of the site of B in human cells and tissues; and (3) determination of how B inhibits tumor growth and cell proliferation without causing cell death. This work involves the use mass spectrometry to characterize B complexes and collaboration with colleagues at Lawrence Livermore National Laboratory's NanoSIMS Laboratory to localize the subcellular site of B. The molecular mechanism of B's anti-proliferative effect is studied by isolation of molecular targets and evaluation of their structure and binding affinities. The functional activity of isolated molecular targets of B is evaluated using antiproliferation assays and confocal imaging measurements in live cells. The goal is to develop strategies based on B to prevent and control the progression of cancer.

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2. Eckhert, C. D., Levitsky, D. A. and Barnes, R. H. Postnatal stimulation: The effects on cholinergic enzyme activity in undernourished rats. *Proc. Soc. Exp. Biol. & Med.* 149:860-863, 1975.
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## CURRICULUM VITAE

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### **II. ACADEMIC INTERESTS**

Toxicology and exposure assessment. Research interests are in the qualitative and quantitative characterization of risk factors from environmental and occupational exposures. Special emphasis on exposure assessment and hazard surveillance research. Biomarkers/genetic toxicology in the study of chemical carcinogenesis and non-cancer toxicity. Studies on the carcinogenicity of arsenic, beryllium, and chromium. Health effects and toxicity of airborne particulate matter.

### **III. EDUCATION**

Ph.D.	Physical-Organic Chemistry	Yale University	1967
M.S.	Physical-Organic Chemistry	Yale University	1964
B.S.	Chemistry	University of California (Berkeley)	1963

#### **IV. PROFESSIONAL AND ACADEMIC EXPERIENCE**

1966 – 1968	NIH Postdoctoral Research Fellow, Royal Institute of Great Britain (London).
1968 – 1970	Assistant Professor – Physical Chemistry, University of Oregon
1970 – 1972	Self-employed – Lecturer
1972 – 1974	Professor of Chemistry, Goddard College, Plainfield, Vermont
1974 – 1977	Director, Division of Occupational and Radiological Health, Vermont Health Department, Barre, Vermont.

*Concurrently served in the following:*

	Adjunct Associate Professor of Community Medicine, Dartmouth Medical School
	Assistant Professor of Epidemiological and Environmental Health, University of Vermont Medical School
	Consultant in Occupational Health to the Harvard School of Public Health
	Director, Occupational Lung Disease Program of the Vermont Lung Center
1977 – 1979	Director, Office of Toxic Substances Standards, Occupational Safety and Health Administration, Washington, D.C
1979 – 1981	Deputy Director of National Institute for Occupational Safety and Health, Rockville, Maryland
1981 – 1986	Acting Associate Professor, Division of Environmental and Occupational Health Sciences, UCLA School of Public Health
1986 – Present	Professor, Department of Environmental Health Sciences, UCLA School of Public Health
1989 – Present	Director, UCLA Center for Occupational and Environmental Health Sciences, UCLA School of Public Health
1994 – 1998	Chair, Department of Environmental Health Sciences, UCLA School of Public Health
1995 – 2000	Director, UCLA Pollution Prevention Education and Research Center (PPEREC)

1999 – Present	Director, Southern California Particle Center and Supersite
2003 –2007	Director, Centers for Environmental Quality and Health, UCLA School of Public Health
2003 to Present	Director, Asthma and Outdoor Air Quality Consortium Advisory Board, SCAQMD
2008 to Present	Director, Sustainable Technology Policy Program

**V. PROFESSIONAL APPOINTMENTS AND COMMITTEE SERVICE**

1975 – 1976	Chairman, New England Radiological Committee, Vermont Health Department
1976 – 1978	APHA Energy Policy Task Force, Vermont Health Department
1980	American Lung Association Committee, Occupational Lung Disease
1980 – 1981	Advisory Committee on Occupational Health, International Association of Firefighters
1982 – 1985	Advisory Committee, Hazardous Materials Task Force, City of Los Angeles
	Director of Branch Development, American Cancer Society
	Board of Directors, American Industrial Hygiene Association, Los Angeles Section
	Advisory Committee, UCLA Preventive Medicine Residency Program
	UCLA Legislative Senate
	Committee on International Health, American Public Health Association
	Committee on Biological Monitoring in the Workplace, American Industrial Hygiene Association
	Vice President of American Cancer Society, Los Angeles Coastal Cities Unit
1983 – Present	Chairman, Scientific Review Panel, California Air Resources Board

- 1985 – 1987      Advisory Committee on Hazardous Waste Reduction, Office of the Mayor, City of Los Angeles
- Advisory Committee on Hazardous Waste Materials Data Management, Agency for Environmental Affairs, State of California
- 1985 – 1987      Invited Expert, Workshop on Needs and Resources for Occupational Mortality Data, National Center for Health Statistics, Washington, D.C.
- Expert Panelist, “Neurotoxicity”, National Symposium on the Prevention of Leading Work-Related Diseases and Injuries, Association of Schools of Public Health and the Association of University Programs in Occupational Health and Safety
- 1986 – 1988      Faculty Executive Committee (FEC), UCLA School of Public Health
- Advisory Board for Toxic & Hazardous Materials Program, UC Extension
- UCLA Project on US – Mexico Socioeconomic, Environmental and Technological Relations
- 1988 – 1989      Advisory Committee on Risk Assessment, South Coast Air Quality Management District
- Blue Ribbon Commission on Casmalia Hazardous Waste Site, Santa Barbara County
- NIOSH Surveillance Task Force
- UCLA Project on US – Mexico Socioeconomic, Environmental and Technological Relations
- Board of Directors (Acting), National Science Foundation Engineering Research Center on Hazardous Waste
- 1989 – 1991      Search Committee, Occupational Toxicology Faculty, Environmental Health Sciences, UCLA School of Public Health
- 1990                Planning Committee, Public Health in the 1990’s, Statewide Conference – Western Consortium for Public Health and Department of Health Services
- 1990 – 1992      MPH Comprehensive Exam Committee, Environmental Health Sciences, UCLA School of Public Health
- Sub Committee of EPCC on Degree Requirements and Curriculum, UCLA School of Public Health

Seminar Committee, Environmental Health Sciences, UCLA School of Public Health

Search Committee for Occupational Epidemiology Faculty, UCLA School of Public Health

1990 – 1992

Search Committee for Occupational Medicine Faculty, UCLA School of Public Health

Taskforce on Toxic Use Reduction, UCLA School of Public Health and School of Architecture and Urban Planning

Source Reduction Working Group, Toxic Substances Research & Teaching Program, UC Davis

Advisory Committee, USC-UCLA Joint Residency in Occupational Medicine

1991 – 1992

Proposition 65 Review Committee, California EPA

Advisory Committee, California Department of Health Services Lead Project

Committee to Implant AB 1430 – Toxic Use Reduction

Committee to establish collaborative relationship on occupational and environmental health with Indonesia

Coordination of the Collaborative Agreement between the government of Mexico and UCLA COEH to provide training and conduct research on occupational and environmental health problems of border industries

Academic Policies and Procedures Committee, Environmental Health Sciences, UCLA School of Public Health

Ad Hoc Task Force to consider issues facing professional education at UCLA, Office of the Chancellor

Air Toxics Workshop Steering Committee, UCLA Center for Clean Technology

Key Leaders Committee, American Lung Association

Ad Hoc Expert Committee of the World Wildlife Fund, the Conservation Foundation; reviewed the EPA/OECD strategies on lead

1991 – 1994	Environmental Science Task Force of the state of California Department of Health Services
1991 – 1996	National Academy of Sciences Committee on Environmental Epidemiology
1992 – 1993	Computer Committee, School of Public Health, UCLA COEH
1992 – 1994	Objective Refining Team, Health Los Angeles 2000, Department of Health Services
	Human Health Sub Committee, California Comparative Risk Project, California EPA
	County of Los Angeles Department of Health Services Advisory Committee to the Toxic Epidemiology Program's Occupational Lead Education and Awareness Demonstration Project (OccLEAD Project)
	Faculty Advisory Committee for the Program on Mexico, UCLA Latin America Center
1992 – 1995	Advisory Panel, OSHA's Selection of Control Technologies and Assessment of Their Impacts and Costs, Office of Technology Assessment, Congress of the United States
1992 – 1996	B.K.K. Reproductive Outcome Study Scientific Advisory Committee, California Department of Health Services
	Search for Division Director Committee, NIOSH, Hazard Effects Laboratory Division
1993 – 1994	External Review Committee, Department of Environmental and Biomedical Science, UC Berkeley School of Public Health
	Computer Committee, School of Public Health, UCLA COEH
1993 – 1995	Environmental Studies Task Force, UCLA; Appointment by Vice Chancellor Andrea Rich
1993 – 1998	Environment, Safety and Health Panel of the UC President's Council on National Laboratories
1994 – 1996	Steering Committee, Consortium for Global Change and its Regional Impacts, Institute of Geophysics and Planetary Physics, UCLA
1994 – 1998	Faculty Council, UCLA School of Public Health

	Statewide Advisory Committee, Occupational Health Centers, President's Office, UC, Ex Officio
1994 – 1998	Advisory Committee, USC-UCLA Joint Residency in Occupational Medicine
1994 – 2000	Advisory Committee Member, UCLA Center for Health Policy Research
1994 – Present	Scientific Advisory Board, California EPA; Carcinogen Identification Committee for Proposition 65
1995 – 1999	Advising Committee, UC Berkeley Toxic Substances Research Training Program
1995 – 2001	Scientific Advisory Board Carcinogen Identification Committee, Office of Environmental Health Hazard Assessment, California EPA
1995 – Present	Principal Investigator, NIH Fogarty International Center, Training Program in Environmental Health
1995 - Present	Associate Director, NIEHS funded Southern California Environmental Health Sciences Center
1996 – 1998	Executive Committee, Institute of the Environment, UCLA COEH
1997 – 1998	UC Presidents' Task Force on Flood Research and Outreach
	Ad Hoc Committee on Redesign of the Core Department Environmental Health Course, UCLA Environmental Health Sciences
1997 – 1999	Federal Advisory Committee on Beryllium, Department of Energy
1998 – 1999	Space Committee, UCLA School of Public Health
1998 – Present	Committee Member, Childhood Lead Poisoning Prevention Program
	MATES II and MATES III Technical Advisory Committee, South Coast Air Quality management District
1999 – 2000	Academic Policy and Procedures Committee, UCLA Environmental Health Sciences
	Faculty Advisory Committee, UCLA Labor Center and the LOSH Program
1999 – 2002	Laboratory and Equipment Committee, UCLA School of Public Health



1999 – 2003	Board of Scientific Counselors, National Toxicology Program
1999 – Present	Clean Fuels Advisory Group, South Coast Air Quality Management District  Scientific Advisory Board, Center for Vulnerable Populations Research
2000 – 2001	Expert Panel on Diesel Exhaust Exposure Assessment, Navistar International Transportation Corp/Air Resources Board
2001 – 2002	Search Committee for Environmental Health Sciences faculty, UCLA School of Public Health
2001 – Present	California Work and Health Study Group Committee Member, Collaboration between UCLA and UCI
2002 – Present	Advanced Air Pollution Research Plan Steering Committee, South Coast Air Quality Management District
2002 - 2007	Institute of Medicine, Roundtable on Environmental Health Sciences, Research, and Medicine
2003 – Present	Chair, Asthma and Outdoor Air Quality Consortium Advisory Board, Southern California Air Quality Management District  Search Committee for Occupational and Environmental Medicine faculty, UCLA School of Public Health
2003	Environmental Policy Advisory Task Force, Office of Governor-Elect Arnold Schwarzenegger
2003 – 2006	Search Committee for Environmental Health Sciences Department Chair, UCLA School of Public Health
2004 – Present	SPH International Health Committee
2004 – Present	Chair, Internal Advisory Board for NIEHS Center for Gene Environment Studies in Parkinson Disease
2004 – Present	Member, External Scientific Advisory Committee, NIEHS Center for Environmental Health, Columbia University
2005 – 2006	SPH Seismic Safety Committee
2007 – Present	IOM/NRC Committee to review NIOSH HHE Program

2008 – Present      Member, LAUSD Advisory Committee on Siting of Schools in Proximity to Freeways

## **VI. CONSULTANCY**

1981 – 1982      Consultant, Occupational Health and Safety Project of the Institute of Society, Ethics and Life Sciences, the Hastings Center

1982              Consultant to law firm on toxics litigation (Mobil Oil Company)

1982 – 1983      Consultant, Carcinogenicity of Formaldehyde, Department of Industrial Relations, State of California

1984              Consultant to California Assembly on pesticide use in Los Angeles

                      Consultant to California Assembly on lead poisoning at Duraspan, Inc.

                      Consultant to City of Santa Fe Springs, California on identification of toxic substances

                      Consultant to City of Santa Monica, California on asbestos in the City Library

1985              Consultant to law firm on the BKK landfill

                      Consultant to Rand Corporation

1986              Consultant to Moldex Metric, Inc.

                      Consultant to Garb Oil Corporation

1987 – 1988      Consultant to Gibraltar Savings

                      Consultant to law firm on Proposition 65

1990 – 1991      Consultant to the City of Los Angeles, California on malathion spray

                      Consultant to Heller, Erham, White and McAuliffe on groundwater contamination by perchloroethylene

                      Consultant to the California Attorney General on ethylene oxide

1991 – 1994      Consultant to Heller, Erham, White and McAuliffe on BKK landfill

                      Consultant to California OSHA on the implementation of SB 198

Consultant to the U.S. General Accounting Office on “U.S.-Mexico Trade: The Work Environment of Eight U.S. – Owned Maquiladora Auto Parts Plan,” for the Chairman, Committee on Commerce, Science and Transportation, U.S. Senate

1993 – 1994      Consultant to the law firm of Cadwalader, Wickersham, and Taft on the use of bismuth as a replacement of lead in brass for plumbing fixtures

Expert and consultant to the Environmental Defense Fund on methylene chloride risk assessment

1994 - 2000      Chair, Editorial Board, Proposition 65 News

1996              Consultant to the law firm of Kazan, McClain, Edises, Simon & Abrams involving the case of *Trotter vs. Trojan*, the Solano County Department of Public Health, California OSHA, and the Reliance Insurance Company

1997              Expert to the Natural Resources Defense Council on lead and calcium.; Consultant to the Lockheed-Martin Corporation on chromium

Consultant to the City of Santa Monica on MTBE (methyl tertiary butyl ether)

1994 - 1997      Expert to Manville Corporation on the carcinogenicity of man-made mineral fibers

1994 - 1997      Consultant to Heller, Ehrman, White and McAuliffe on the hazards associated with the BKK hazardous waste landfill

Consultant to the Eljer Corporation on lead and bismuth toxicology

1997 – Present    Consultant to the Aluminum Company of America (ALCOA). Member of Alcoa’s Occupational Health Advisory Committee

2000              Expert to the California Attorney General on toxicity/carcinogenicity and risk assessment of the pesticide “captan”

2003 – 2006      Consultant to Weston, Benshoof, Rochefort, Rubalcava, McCuish, LLP regarding landfill risk assessment

## **VII. HONORS, AWARDS, FELLOWSHIPS**

1963              *Predoctoral* – DuPont Teaching Fellowship

1964              *Predoctoral* – National Science Foundation Summer Fellowship

- 1964 – 1966      *Predoctoral* – National Institutes of Health Predoctoral Fellowship
- 1966 – 1968      *Postdoctoral* – National Institutes of Health Postdoctoral Fellowships
- Postdoctoral* – The Royal Institution of Great Britain. Research in biophysical chemistry under the direction of Nobel Laureate Professor George Porter
- 1968              University of Oregon Biomedical Research Grant
- Research Corporation Grant, Research on Photosynthesis, University of Oregon
- American Chemical Society, Petroleum Research Foundation Starter Grant, type G, University of Oregon
- 1973              Goddard College Faculty Renewal Grant, Goddard College
- National Science Foundation Teaching Equipment Grant, Goddard College
- 1980              Cash Award (\$1,000) for “Sustained Superior Performance”, “Performance with Distinction and Integrity in Promoting the Principles of Occupational Safety and Health”, Public Health Service, Center for Disease Control
- 1999              American Industrial Hygiene Association – Southern California Section, *1999 Technical Achievement Award*
- 1999              Coalition for Clean Air, *1999 Carl Moyer Award*
- 2000              The 26<sup>th</sup> Annual Lester Breslow Distinguished Lecture
- 2001              Commendation from Governor Gray Davis on commitment to improving public health and the environment
- 2001              Recognition of Service from Winston H. Hickox Agency Secretary, California Environmental Protection Agency
- 2002              The Center for Community Action and Environmental Justice, *Dr. Zweig Community Health Advocate Award, 2002*
- 2009              Commendation from the Public Health Research Center and Medical Health Research Network of the University of Hong Kong in recognition of valuable contributions to the research findings of airborne particulate matter

## **VIII. EDITORIAL SERVICE**

### Current:

Associate Editor, Environmental Health Perspectives  
Editorial Board Member, Environmental Health Perspectives  
Associate Editor, American Journal of Industrial Medicine  
Reviewer, American Journal of Public Health  
Reviewer, Cancer Epidemiology, Biomarkers and Prevention  
Reviewer, Environmental Science and Technology  
Reviewer, Journal of the National Cancer Institute  
Reviewer, Public Health Reports  
Reviewer, Environmental Research

### Past:

Editorial Board Member, Occupational Hygiene  
Contributing Editor, International Journal of Occupational Medicine and Environmental Health  
Reviewer of Research Grants, March of Dimes, UCLA Jonsson Comprehensive Institute Cancer Center and California Policy Seminar  
Reviewer, Child Development  
Reviewer, Drug Metabolism Reviews  
Reviewer, Environmental Research  
Reviewer, Milbank Quarterly  
Reviewer, Resources for the Future  
Reviewer, Risk Analysis  
Reviewer, Science  
Ad Hoc Reviewer, NIH Study Section

## **IX. PRESENTATIONS**

1980	<i>Seminars:</i> Harvard School of Public Health Harvard University, Kennedy School of Government University of Pittsburgh, School of Public Health University of Michigan George Washington University Medical School University of California, School of Public Health, Medical School (Berkeley and San Francisco)
1980	Antioch School of Law
1980 – 1981	APHA Special Session Title: Impact of Energy on Health  American Public Health Association (APHA) Annual Meeting Title: The Regulation Crisis: Government Responsibility in Occupational Health

APHA Annual Meeting  
Title: Reproductive Hazards in the Workplace

NIOSH International Respirator Research Workshop  
Title: Innovation in Respirator Research

CIIT Conference on Formaldehyde Toxicity  
Chair of Epidemiology Panel

ACGIH Symposium  
Title: Dosimetry for Chemical and Physical Agents, Opening Address

Occupational Safety and Health Review Commission Judicial Conference  
Banquet Speaker

President's Forum, American Paper Institute  
Title: NIOSH Research in the Paper Industry

Internal Molders and Allied Workers Annual Convention

US Commission of the European Communities, Seminar on Ambient and  
Biological Monitoring  
Title: Advances in Occupational Health

American Chemical Society Annual Meeting  
Title: Access and Disclosure of Medical Records

1981 UCLA – Swedish Conference on Occupational Safety and Health  
Title: Directions in Occupational Health

1982 American Conference on Governmental Industrial Hygienists Meeting  
Title: Industrial Hygiene at UCLA

APHA Western Regional Conference on Occupational Safety and Health  
Title: Directions in Occupational Health

1982 International Chemical Workers Union, Western Regional Conference  
Title: Occupational Cancer

1983 UCLA Institute of Industrial Relations Conference  
Title: Stress

Federal Employees Occupational Safety and Health Meeting, Washington  
D.C

- 1984 American Occupational Medical Association  
Title: Toxicologic Data and Regulation
- The Environmental Improvement Division of the New Mexico Health and Environment Department  
Title: Toxics in the Workplace, "Right-to-Know" and "Public Policy"
- Federated Firefighters of California Occupational Health and Safety Section  
Title: Firefighting and Occupational Cancer
- 1985 British Columbia Professional Firefighters Association Meeting  
Title: Firefighter Exposure to Diesel Exhaust
- Illness and Disease Symposium, Bureau of Labor Statistics  
Title: Toward Improved Measurement and Reporting of Occupational Illness and Disease
- Department of Preventive Medicine, University of Southern California  
Title: Administrative Aspects of OSHA and NIOSH
- John P. Redmond Foundation Symposium on the Occupational Health Hazards of the Fire Service  
Title: Redmond Diesel Exhaust Study
- Dahlem Conference, Berlin  
Title: Mechanisms of Cell Injury: Implications for Human Health
- American Public Health Association Annual Meeting  
Title: Setting Priorities for Occupational Health
- Biomedical Research Association Presentation to the LA County Federation of labor  
Title: Experimental Research in Occupational Health
- 1986 Olympian Medical Corp Right to Know Workshop  
Title: Occupational Cancer
- 1986 NCI Conference  
Title: Obtaining and Using Information on Sampling in Occupational Epidemiologic Studies  
Location: Washington, D.C.

Labor Occupational Health Program, Institute of Industrial Relations,  
University of California, Berkeley, Statewide Conference for Workers  
throughout the Transit System

Title: Diesel Fumes

1989

State of California Senate Health and Welfare Committee  
Testimonial on lead exposure in California

NIOSH

Title: Hazard Surveillance

Location: Cincinnati, OH

International Association of Fire

Title: Firefighters Exposure to Diesel Exhaust

Location: Washington, D.C.

Polaroid Corporation

Title: Risk Assessment and Toxic Chemicals

Location: Waltham, MA

1990

Los Angeles Printmaking Society, Cal Print '90 Symposium

Title: The Toxic Environment of Printmakers

UC San Francisco School of Medicine, Occupational & Environmental  
Medicine Grand Rounds: Occupational Lead Exposure Monitoring

UCLA Extension

Workshop: Covering the Environment: A Workshop for Journalists,  
Epidemiology/Toxicology/Risk Assessment: Basic Information for  
Journalists

UCLA Center for Labor research and Education, Conference for Swedish  
Parliament Delegation

Title: Current Issues on Occupational Health in the U.S

UCLA Environmental Health Science and Environmental Science &  
Engineering Title: Policy Implications of Lead Toxicity

1990

UCLA Health Careers Opportunity Program, UCLA Statewide Public  
Health Conference, "The Influence of Environmental factors on the  
Incidence of Cancer in Minority Communities"

California Occupational Health Program, Department of Health Services,  
WOMA and UCLA COEH's Western Occupational Health Conference

Title: Preventing Occupational Lead Toxicity



- UC Irvine Extension  
 Title: Legal, Scientific and Regulatory Implications of California's Risk Assessment Program for Control of Toxic Air Contaminants
- USC Occupational Medicine Residency Program  
 Title: The Mechanism of Dinitrotoluene and Toluenediamine Carcinogenicity as Determined by DNA Adduct Studies
- 1991 State of California Little Hoover Commission.  
 Testifying on the need for a California Environmental Protection Agency
- 1992 Jonsson Comprehensive Cancer Center, Division of Cancer Control  
 Title: Overview of Cancer Control Research: Environmental and Occupational Prevention of Carcinogen Exposure
- Cancer Education Seminar, UCLA School of Public Health  
 Implementation of Proposition 65: Process and outcome of public knowledge about industrial carcinogens
- Los Angeles County Medical Association  
 Title: Studies of Arsenic carcinogenicity
- Hispanas Organized for Political Equality (HOPE)  
 Symposium: Economic Development – Economic Equality
- UCLA Center for Labor Research and Education  
 Opening address: How to Prevent Cumulative Trauma Disorders on the Job  
 Air Toxics Workshop, Center for Clean Technology, UCLA.  
 Chaired session and gave opening speech
- 1993 UCLA Geography Colloquium Series  
 Lecture to faculty: Current Issues in Environmental Risk Assessment, Arsenic and Public Health Issues  
 Location: UCLA, Los Angeles, CA
- American Industrial Hygiene Conference and Exposition.  
 Chaired roundtable meeting: Low Levels Effects of Lead, Epidemiologic Evidence and Solutions
- 1993 Institute for Occupational Safety and Health, Republic of China (Taiwan's equivalent organization to U.S. OSHA/NIOSH).  
 Lecture to government scientists and professionals
- 1996 Preventive Medicine Students  
 Title: Toxicology  
 Location: UCLA, Los Angeles, CA

Senate Hearing  
Presented testimony on air pollution in Southern California

1997 American Industrial Hygiene Association Dinner Meeting.  
Opening lecture: The Center for Occupational and Environmental Health,  
& research on chromium

City of Telluride, CO  
Speaker and lecturer “Out-Loud Program”  
Location: Telluride, CO

3/3/97 Senate Committee Oversight Hearing on Environmental Quality  
Presented testimony on the activities of the Office of Environmental Health  
Hazard Assessment (OEHHA)

3/7/97 Proposition 65 Conference  
Title: Prop 65 Science: Legacy and Challenge for the Second Decade

7/12-15/98 Arsenic Conference  
Title: Arsenic Induced Carcinogenesis  
Location: San Diego, CA

11/13/98 Southern California American Industrial Hygiene Association  
Title: Diesel Exhaust  
Location: Downey, CA

12/10/98 MTBE Meeting  
Title: Presentation of Governor's Report  
Location: Sacramento, CA

03/11/99 Angeles County Public Health Commission  
Location: Los Angeles, CA

03/25/99 U.S. EPA and Public Health Institute, MTBE Blue Ribbon Panel  
Workgroup Meeting  
Title: Health Effects of MTBE  
Location: Sacramento, CA

04/29/99 Public Health Institute Prop 65 Research Symposium  
Title: Occupational and Consumer Exposure to Hexavalent Chromium in  
Spray Paints/Primers  
Location: UC Berkeley, Berkeley CA

05/06/99 AIHA - Northern California Section  
Title: Toxicological Effects of Diesel Exhaust

Location: San Francisco, CA

- 05/27/99 Southern California Society for Risk Analysis  
Title: Risk Assessment and Toxicology Issues for California in the New Millennium  
Location: UCLA, Los Angeles, CA
- 06/05-08/99 Third Colloquium on Particulate Matter and Human Health  
Association for Aerosol Research, Florida Light and Power, UC Irvine  
COEH, NYU School of Medicine Institute of Environmental Medicine  
Title: UCLA's Particulate Matter Center  
Location: Durham, NC
- 07/29-30/99 California Air Resources Board Air Pollution Health Impacts Workshop  
Title: Research Needs on Diesel Exhaust  
Location: Sacramento, CA
- 09/27-29/99 Corning's Diesel Workshop  
Title: Health Effects of Diesel Exhaust  
Location: Corning, NY
- 10/22-24/99 American Lung Association/NIEHS/CDC Urban Air Pollution and Health Inequities Workshop  
Title: Monitoring Air Pollution Concentrations and Exposures  
Location: Washington, D.C.
- 11/17/99 Claremont McKenna College Lecture Series  
Sponsor: Claremont McKenna College  
Title: Current Environmental Issues in Public Health  
Location: Claremont, CA
- 01/13/00 Southern California Section AIHA  
Title: Southern California Center for Airborne Particulate Matter  
Location: UCLA, Los Angeles, CA
- 02/02/00 SCAQMD Diesel Emissions as a Toxic Air Contaminant-Special Information Session  
Title: Moderator, Health Impact Perspectives  
Location: Diamond Bar, CA
- 04/07/00 COEH Spring Symposium  
Title: Particulate Pollution: Research at the Southern COEH  
Location: Berkeley, CA
- 06/12/00 ITREOH Networking Meeting

Title: Recent Achievements and Perspectives of the ITREOH Program:  
Focus on the Americas  
Location: Bethesda, MA

08/03/00      Air Pollution and Health Conference: Christchurch School of Medicine  
Title: Air Pollution in Southern California: Seeking Answers to Critical  
Public Health Questions  
Location: Christchurch, New Zealand

10/24/00      10<sup>th</sup> Annual Conference of the International Society of Exposure Analysis  
Title: Particulate Matter: Exposure Research  
Location: Monterey Bay Peninsula, CA

05/09/01      The Association of California Water Agencies Spring Conference  
Title: Chromium VI: Good Science? Or Just Good Politics?  
Location: Lake Tahoe, CA

08/04/01      American Bar Association Annual Meeting  
Title: Chicago Conspiracy Trial  
Location: Chicago, IL

11/05/01      California Air Tech 2001: International Conference on Urban Air Pollution  
Technologies and Solutions  
Title: The Price of Air Pollution  
Location: Anaheim, CA

12/07/01      NIEHS/UCLA LOSH/SCEHSC Town Hall Meeting  
Title: Health Effects of Particles in Air Pollution; the Toxicity of Metals  
(Arsenic and Chromium)  
Location: Inglewood, CA

01/14/02      NIEHS/NIH  
Title: Carcinogenicity of Chromium VI: An Overview  
Location: Glendale, CA

01/16/02      South Coast Air Quality Management District  
Title: Implementing the Clean Air Act at the State and Regional Levels  
Location: Diamond Bar, CA

07/14/02      International Conference on Arsenic Exposure and Health Effects  
Title: Arsenic Induced Carcinogenesis: Perturbations in Global and HA  
RAS Methylation Patterns in Methyl-Deficient C57BL/6 Mice: Results of a  
Chronic Animal Bioassay  
Location: San Diego, CA

12/09/02      California Industrial Hygiene Council 12<sup>th</sup> Annual Conference

- Title: Defining the Problem of Ultrafine Particles  
Location: San Francisco, CA
- 01/08/03 Oregon Environmental Council's Healthy Environment Forum  
Title: Keynote Speaker: Toxics in the Air: How Concerned Should We Be?  
Location: Portland, OR
- 05/06/03 Haagen-Smit Symposium  
Title: Are There Particle Components or Sources That Are More or Less Toxic Where Control Efforts Should Be Emphasized: Particle Size  
Location: UCLA Lake Arrowhead Conference Center, CA
- 05/17/03 Environmental Challenges Facing the Inland Empire  
Title: Air Quality  
Location: Riverside, CA
- 06/08/03 ARB Chairman's Air Pollution Seminar Series  
Title: Research Findings on Particulate Matter Related Toxicity from the Southern California Particle Center and Supersite  
Location: Sacramento, CA
- 10/08/03 EPA Region 9 Star Grants Seminar  
Title: Recent Progress in Particle Research at the Southern California Particle Center and Supersite: The Role of Ultrafine Particles and Traffic.  
Location: San Francisco, CA
- 10/17/03 American Chemical Society, Western Region Meeting  
Title: Science in the Cinema; the Science Behind Erin Brokovich  
Location: Long Beach, CA
- 10/23/03 UCLA-Labor and Occupational Safety and Health Anniversary Forum  
Title: Opening Introduction and Welcome  
Location: UCLA, Los Angeles
- 10/29/03 ITREOH Network Meeting  
Title: Occupational and Environmental Health Training in Mexico  
Location: Washington, D.C.
- 5/7/04 Presentation, California Office of Environmental Health Hazard Assessment meeting, *Research on Ultrafine Particles in the Southern California Particle Center and Supersite*, Sacramento, CA
- 9/24/04 Presentation, UCLA School of Law Environmental Health panel, *Risks Associated with LNG Use*, Los Angeles, CA

- 9/27/04 Presentation at the Particulate Matter Research Centers Program: *Ambient Particles, Their Toxic Components, Sources and How They Impact Health*, Washington, D.C
- 2/4/05 *Mobile Source Emissions and Ultrafine Particles*. Presentation at “Growing Pains: A Town Meeting on Health and Community Impacts of Ports and Goods Movement.” Conference sponsored by Southern California Environmental Health Sciences Center.
- 5/5/05 Presentation at the Goods Movement Task Force Meeting, *Health Effects of Ultrafine Particles*, Los Angeles, CA
- 8/25/05 Presentation at the Fogarty Meeting in Mexico, *Ambient Particles, their Toxic Components, Sources and how They Impact Health*, Mexico City, Mexico
- 9/19/05 Presentation at the Ramazzini Conference, *The Role of Oxidative Stress in the Mechanism of Particulate Matter Toxicity*, Bologna, Italy
- 9/29/05 Interview with Dateline (Susan Liebowitz), *California Declares Secondhand Smoke a Pollutant*, Los Angeles, CA
- 10/12/05 Testimony/Presentation to the Assembly Transportation Committee, *The Human Side of Goods Movement: Responding to the Health Effects; Focusing in on Health Studies*, Los Angeles, CA.
- 10/28/05 Presentation at the COEH Statewide Symposium, *Occupational and Environmental Health in the Developing World: Making a Difference*, Berkeley, CA
- 11/30/05 Presentation at the EPA Particulate Centers Kick-off Meeting, *The Southern California Particle Center*, Washington D.C.
- 4/20/06 Testimony at the Santa Monica Airport Panel meeting, Los Angeles, CA.
- 4/30/06 Presentation at the AQMD Ultrafine Particles conference, *Ultrafine Particle Health Effects*, Los Angeles, CA
- 5/12/06 Interview with Randy Paige, CBS, *Ultrafine Particles*, Los Angeles, CA
- 5/17/06 *Southern California Particle Center Studies on Ultrafine Particles*. Presentation to the Southern California Association of Governments’ Goods Movement Task Force.
- 5/17/06 Testimony at the Goods Movement Task Force meeting, *Health Effects of Ultrafine Particles*, Los Angeles, CA.

- 5/19/06 Interview with NPR: Living on Earth (Ingrid Lobet), *Health Effects of Perchloroethylene*, Los Angeles, CA.
- 8/3/06 *Ultrafine Particles: Exposure, Toxicity and Health Studies*. Presentation to the Board of Harbor Commissioners (at their invitation), Port of Los Angeles.
- 6/11/07 *Research Progress of the Southern California Particle Center: Health and Mechanisms Studies*. Presentation to the Columbia NIEHS External Advisory Committee. New York, NY.
- 7/2/07 Interview with *Fresno Bee*, Health Effects of Ultrafine Particles
- 10/7/07 Interview with NPR:
- 11/6/07 *Nanotechnology-how to define risks and control them*. Presentation at the CNS-UCSB Nanotechnology Conference, Santa Barbara, CA.
- 11/30/07 *Health Effects of Particulate Matter*. Presentation at the Impact Project Moving Forward Conference. Carson, CA.
- 4/25/08 *Nanotechnology-how to define risks and control them*. Presentation at the CNSI , The Future of Nanotechnology: A Legislative Summit, Los Angeles, CA.
- 5/8/08 *Occupational and Environmental Health Training Progress*. Presentation at the Fogarty ITREOH Conference, Bethesda, MD.
- 7/10/08 *The State of Biological Exposure Assessment*. Presentation at the COEH/SCEHSC Workshop on New Directions and Advances in Biological and Chemical Exposure Assessment for Epidemiologic and Risk Characterization, Los Angeles, CA.
- 1/12/09 *Source Characterization and Health Effects of PM2.5*. Presentation to the Hong Kong Environmental Protection Dept, University of Hong Kong and the Hong Kong University Dept of Science & Technology (3 separate presentations). Hong Kong.
- 1/14/09 *Nanotechnology-how to define risks and control them*. Presentation to Assemblyman Feuer's Nano-Legislation Working Group Meeting, Sacramento, CA

4/17/09

*Nanotechnology-how to define risks and control them.* Presentation at the UCLA Working Conference on Nanotech Regulatory Policy. Los Angeles, CA.

## **X. PROFESSIONAL AFFILIATIONS**

Member, Collegium Ramazzini

Member, Association for the Advancement of Science

Member, American Chemical Society

Member, American Conference of Governmental Industrial Hygienists

Member, International Society of Exposure Analysis

Member, American Industrial Hygiene Association

## **IX. TESTIMONY AT CONGRESSIONAL AND STATE HEARINGS**

<u>Date</u>	<u>Committee</u>	<u>Subject</u>
1979	Subcommittee on Investigations/House Committee on Post Office and Civil Service	Possible Occupational Health Problems at Hill Air Force Base
	Subcommittee on Labor Standards/House Committee on Education and Labor	Exposure of Workers to Neurotoxic Chemicals
1980	Senate Committee on Veterans' Affairs	Phenoxy Herbicides (Agent Orange) and Dioxins
	Subcommittee on Energy Nuclear Proliferation, Federal Services; Senate Committee on Governmental Affairs	NIOSH Investigations at a Nuclear Enrichment Plant
	Subcommittee on Health and Safety	NIOSH Health Hazard Alerts
1981	Subcommittee on Labor Standards; House Committee on Education and Labor	Department of Labor Testimony on Cotton Dust
1983	State of California, Senate Finance Committee	California OSHA Budget
1985	Platform Committee of the State of California Democratic Party	Toxic Substance Control in California
1989	State of California Senate Health and Welfare Committee	Lead Exposure in California



1991	State of California Little Hoover Commission	Need for Cal-EPA
1996	State of California Senate Committee on Environmental Quality	Activities of OEHHA
	State of California State Senate	Air Pollution in Southern California
2000	Joint Hearing of the Senate Committee on Health and Human Services, Senate Committee on Natural Resources and Wildlife, and Assembly Committee on Environmental Safety and Toxic Materials	Chromium VI

## X. BIBLIOGRAPHY

### Published Articles

1. Shuster CY, Froines JR, Olcott HS. Phospholipids of tuna white muscle. J. Am. Oil. Chem. Soc., 42:36-41, 1964
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75. Okoji RS, Leininger J, Froines JR. Subchronic Toxicity Study on Sodium Arsenite in Methyl-Deficient Male C57BL/6 Mice. Arsenic Exposure and Health Effects, Proceedings of the 3<sup>rd</sup> International Conference on Arsenic Exposure and Health Effects, Chappell W, Abernathy CO, Calderon RL, eds., Elsevier Science, 225-232, 1999
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**XV. RESEARCH AND TRAINING GRANTS/CONTRACTS RECEIVED**

<u>Agency &amp; Number</u> <u>Title PI or co-PI</u>	<u>Duration of Grant</u>	<u>Direct costs</u>
UC Office of the President, Health Affairs Center for Occupational and Environmental Health (Director)	Ongoing (Permanent funding)	\$1,300,000
NIEHS Exposure Assessment and Analytical Chemistry Core of Southern California Environmental Health Sciences Center H21993 (Co-PI)	04/04/01 – 3/31/10	\$1,269,693

California Air Resources Board Physicochemical and toxicological assessment of the semi-volatile and non-volatile fractions of PM from heavy and light-duty vehicles operating with and without emissions control technology. Investigator (Sioutas – PI)	01/01/06-12/31/09	\$254,545
US EPA Southern California Particle Center RD-83241301-0 (PI)	10/1/99-9/30/11	\$18,365,579
NIH/Fogarty International Center UCLA-Mexico/Latin American Training & Teaching Program D43 TW00623 (PI) – refunded	09/30/95 – 04/30/10	\$1,939,095
California Air Resources Board Monitoring and Modeling of Ultrafine Particles and Black Carbon at the Los Angeles International Airport 04-325 (PI)	06/01/05-11/14/06	\$113,986
California Air Resources Board Determination of the Reactive Oxygen Species Activity in PM and Enhanced Exposure Assessment for the NIH/NIEHS study. Investigator (Delfino-PI)	06/28/04-5/31/08	\$119,779
UC Office of the President Pacific Rim Research Program 03T-PRRP-4-13 (PI)	7/01/03-06/30/07	\$18,000
NIOSH UCLA Education and Research Center T42CCT924019 Investigator (Hinds – PI)(renewed)	07/1/03-06/30/07	\$67,629
Centers for Disease Control Center of Excellence for Environmental Public Health Tracking U50/CCU922409-01 (Subcontract PI)	09/30/02 – 09/29/05	\$373,323
NIH/NIEHS Molecular Epidemiology and Gene-Environment Interaction R21-ES011667 (Zhang-PI)	04/01/02 – 03/31/05	\$450,000
UC Los Alamos National Laboratory An Automated System for Task-Based Evaluation of Size Distribution of Beryllium Aerosol at the Los Alamos Beryllium Technology Facility STB-UC: 9950 (PI)	02/19/99 – 06/30/07	\$678,000

State of California Air Resources Board Development of an Exposure Facility to Conduct Inhalation Studies to Ambient Aerosols 98-316 (PI)	05/30/99 – 12/31/04	\$2,087,816
UC Mexus Evaluation of In Vitro Biological Effects Induced by Particulate Matter from Mexico City and Los Angeles HM CN 03-51 (PI)	07/01/03 – 12/31/04	\$25,000
US Environmental Protection Agency Southern California Particulate Matter and Supersite CR-82805901 (PI)	01/15/00 – 12/31/04	\$2,628,386
Pacific Rim Research Program, UC Office of the President Environmental Pollution, Genetic Susceptibility Genes, and Risk of Lung Cancer Among Chinese Female Non-Smokers in Taiyuan, China 03TPRRP-4-13(PI)	07/01/95 – 06/30/02	\$18,000
UC Toxic Substances Research Training Quantification of Exposure to Organophosphate Pesticides in a Mexican Agricultural Community (PI)	07/01/99 – 06/30/01	\$40,000
State of California Air Resources Board Development of an Exposure Facility to Conduct Inhalation Studies to Ambient Aerosols 98-316 (PI)	05/30/99 – 12/31/04	\$2,087,816
UC Toxic Substance Research & Teaching Pollution Prevention Education Research Center (PPEREC) (PI)	07/01/95 – 06/30/00	\$45,000
NIEHS Training Cooperative Agreement, Worker Health & Safety (Marianne Brown/John Froines-Co-PIs)	09/30/95 – 08/31/00	\$4,500,000
NIH/Fogarty International Center Collaborative Training and Research Project 3 D43 TW00623 (PI)	09/30/95 – 09/29/00	\$590,660
NIOSH/Education Resource Center UCLA Industrial Hygiene Training Program H15885 (William Hinds – PI)	07/01/96 – 06/30/00	\$121,985
NIOSH/Education Resource Center UCLA Hazardous Substance Academic Training	07/01/96 – 06/30/00	\$55,950

H15885 (William Hinds – PI)

NIOSH Worker Exposure Assessment and Hazard Medical Surveillance CCR912034 (PI)	09/30/95 – 09/29/99	\$1,137,335
Public Health Trust Occupational & Consumer Exposure to Hexavalent Chromium in Spray Paints/Primers 543A-8802-G1298 (PI)	03/01/97 – 11/30/99	\$131,895
CERR/UC Toxic Substances Research & Teaching Program Arsenic Project (PI)	07/01/97 – 06/30/99	\$36,000
UC Mexus-Conacyt/UC Riverside Characterization of Pesticide Use & Exposure in a Mexican Agricultural Community Using a Geographic Information System (PI)	07/01/98 – 06/30/99	\$9,039
UC Toxic Substances Research & Teaching Program An Evaluation of the Peer-Reviewed Literature on Human health, Including Asthma and Environmental Effects of MTBE (PI)	01/01/98 – 10/31/98	\$99,000
Southern California Environmental Health Center Arsenic Induced Carcinogenesis: A Murine model for Induction of Cancer in Methyl-deficient C57B/6 mice (PI)	08/01/97 – 03/31/98	\$5,000
NIEHS – Citizens for a Better Environment To establish community-based strategy for reducing worker and community exposures to environmental pollutants (PI)	10/01/94 – 09/30/96	\$50,795
STCA/OEHHA California Environmental Protection Agency Literature search for Hot Spot Chemicals from the Office of Environmental Health Hazard Assessment (Co-PI)	11/1/94 – 9/30/96	\$50,795
UC Toxic Substance Research & Training Design a model for risk evaluation and pollution prevention decision-making in the workplace. Study	07/01/94 – 06/30/96	\$30,000



group: toxic cleaning products for janitorial service work. (Co-PI)		
TSRTP To develop courses and research on pollution prevention (Co-PI)	07/01/92 – 06/30/96	\$260,000
Center for Disease Control/NIOSH To study aerosol size distribution of chromium in spray painting	10/01/92 – 03/31/96	\$90,918
U.S.-Mexico Foundation To develop an ergonomic hazard evaluation tool to be used by the maquiladora industry for the identification of operations that carry high risk for workers to develop cumulative trauma disorders (CTDs). (Co-PI)	03/01/94 – 02/28/96	\$50,000
Western Consortium for the Health Professionals To assess the risks for chemicals in reclaimed water from the San Diego advanced treatment plant and the current source of potable water (PI)	04/01/86 – 08/15/95	\$1,480,000
STCA/Office of Environmental Health Hazard Assessment A literature review of non-carcinogenic toxicologic endpoints for 7 chemicals (Co-PI)	04/01/94 – 01/31/95	\$100,450
California Public Health Foundation Epidemiologic study to determine possible adverse health effects on Rockwell/Rocketdyne Workers from Exposure to Radioactive and Hazardous Substances (Co-PI)	10/01/92 – 09/30/95	\$500,000
PHS/NIEHS To provide health and safety training for hazardous waste workers. The program involves three other UC campuses and Arizona State University (Co-PI)	09/01/92 – 08/31/95	\$2,612,556
CAL/EPA To perform a library review of the non-carcinogenic toxicological endpoints for seven chemicals	02/01/93 – 01/31/94	\$100,418
UC Mexus		

Develop collaboration in training and research in industrial hygiene between UCLA School of Public Health and the National Institute of Public health in Mexico (PI)	07/01/92 – 06/30/93	\$7,869
American Oceans Campaign A pilot study of the toxic chemical release into the Santa Monica Bay (PI)	11/01/91 – 03/12/93	\$50,000
TSRTP To develop a courses and research on pollution prevention (Co-PI)	07/01/92 – 06/30/93	\$120,000
State Compensation Insurance Fund To update the OSHA Integrated Management Information System (IMIS) and to develop a list of high risk industries using IMIS and other data. (PI)	12/01/91 – 08/31/92	\$26,000
Toxic Substances Research and Training To develop a course on toxics reduction: science, engineering and policy issues (Co-PI)	07/01/91 – 06/30/92	\$28,000
General Accounting Office To study worker health and safety conditions in US-owned auto parts maquiladoras (PI)	07/01/92 – 12/31/92	\$20,000
National Institute of Environmental Health Sciences Superfund hazardous waste workers training grant (Co-PI)	09/87 – 09/92; 09/90 – 09/92	\$5,000,000
Western Consortium for Public Health San Diego Wastewater Reclamation Health Effects Study in San Pasqual (PI)	11/1/91 – 10/31/92	\$85,951
Western Consortium for Public Health To develop research collaboration in Indonesia (Co-PI)	01/04/91 – 03/31/91	\$5,000
Thermal Insulation Manufacturers Association To evaluate the feasibility of studying health effects of fibrous glass in the aircraft manufacturing and filter paper manufacturing industries (PI)	10/11/89 – 06/30/91	\$79,827

National Science Foundation Use of biological markers in risk assessment (PI)	05/01/87 – 04/30/90	\$80,672
Toxic Substances Research & Teaching Program To investigate the identity, analytical chemistry, fate and transport, and toxicology of non-conventional pollutants found in raw and treated groundwater (PI)	07/01/98 – 06/30/89	\$80,000
National Institute for Occupational Safety and Health, Educational Resource Center Training program to train professionals and research industrial hygienists at the MS and PhD levels (Co-PI)	07/01/84 – 06/30/89	\$572,309
California Department of Health Services To examine the etiologic factors associated with occupational mortality in California (PI)	11/86 – 06/30/88	\$25,000
California Department of Health Services To assess the nature of occupational exposures to toxic substances and to develop priorities for hazard surveillance research (PI)	07/01/86 – 06/30/88	\$50,000
National Institutes for Health To identify etiologic agents in the carcinogenicity of methapyrilene and other antihistamines	12/01/84 – 11/30/87	\$20,596
Biomedical Research Support Grant To study the mechanism of the neurotoxicity of dimethylaminoproprionitrile and other aminonitriles (PI)	03/01/86 – 02/28/87	\$2,500
Environmental Protection Agency To develop acceptable ambient air quality levels for a number of potentially toxic air contaminants	06/01/86 – 12/01/86	\$78,000
Environmental Protection Agency To provide a context for environmental risk finding which the Integrated Environmental Management Project is developing in Santa Clara county (PI)	07/01/85 – 02/28/86	\$19,238
Biomedical Research Support Grant To identify the neurotoxic agent responsible for the neurologic disease in workers occupational exposed to the chemical BHMH (PI)	02/01/85 – 01/31/86	\$1,000

National Institute for Occupational Safety & Health To study the impact of a variety of size distributions of lead aerosol in predicted distributions of lead levels in workers exposed to airborne lead (PI)	11/01/84 – 10/31/86	\$29,144
National Cancer Institute To examine the effectiveness of the International Chemical Worker's Union Cancer Control Education and Evaluation Program (PI)	01/01/83 – 09/30/86	\$297,077
Academic Senate Research Grant To gather data on size distribution of airborne lead particulates in industrial settings (PI)	07/01/83 – 06/30-84	\$2,000
Biomedical Support Research Grant To evaluate exposure to carcinogens encountered by firefighters during performance of duties (PI)	04/01/83 – 03/31/84	\$3,000
California Dept. of Health Services To develop recommendations for targeting occupational health programs in Southern California and to conduct model training (PI)	12/01/82 – 06/30/84	\$45,000
American Cancer Society California Institute for Cancer Research To evaluate exposure of cosmetologists to workplace carcinogens (PI)	12/01/82 – 11/30/83	\$17,675
Academic Senate Research Committee To evaluate particle size distribution of lead in industry (PI)	12/14/81 – 06/30/82	\$703
NIEHS Collaborative training program in environmental sciences, epidemiology and statistics (Training Grant)	07/01/78 – 06/30/85	\$92,000

## **XVI. COURSES TAUGHT**

<u>Term</u>	<u>Course No.</u>	<u>Title of Course</u>
W86	PH 156B	Introduction to Occupational Safety and Health
S86	PH 157F	ID & MSR – Gases and Vapors

	PH 253A	Environmental Toxicology
F86	PH 156A	Introduction to Occupational Safety and Health
W87	PH 157G	Health Hazards in Industrial Processes
S87	PH 253A PH 257F	Environmental Toxicology ID & MSr – Gases and Vapors
F87	PH 156	Introduction to Occupational Safety and Health
W88	PH 253A PH 256	Environmental Toxicology Introduction to Occupational Health and Safety
S88	PH 157G	Health Hazards of Industrial Processes
F88	PH 156	Introduction to Occupational Safety and Health
W89	PH 157G PH 256	Health Hazards of Industrial Hazards Introduction to Occupational Health and Safety
S89	PH 253A PH 257F	Environmental Toxicology ID & MSR – Gases and Vapors
F89	PH 156	Introduction to Occupational Safety and Health
W90	PH 157G PH 256	Health Hazards of Industrial Processes Introduction to Occupational Safety and Health
S90	PH 253A	Environmental Toxicology
F90	EHS 156	Introduction to Occupational Safety and Health
W91	EHS 157G EHS 256	Health Hazards and Industrial Processes Occupational Disease
S91	EHS 253A	Environmental Toxicology
F91	EHS 250	Introduction to Occupational Safety and Health
W92	EHS M249 EHS 251 EHS 254	Toxics Reduction: Science, Engineering and Policy Occupational Disease Health Hazards of Industrial Processes
S92	EHS 240	Environmental Toxicology

F92	EHS 250	Introduction to Occupational Safety and Health
W93	EHS 240 EHS M249 EHS 251	Environmental Toxicology Toxics Reduction: Science, Engineering and Policy Environmental Disease
F93	EHS 250 EHS M411	Introduction to Occupational Safety and Health ESE Seminar
W94	EHS M249	Toxics Reduction: Science, Engineering and Policy
F94	EHS 250	Introduction to Occupational Safety and Health
S95	EHS 257	Critical Review of Scientific Basis of Occupational Standards
F95	EHS 250	Introduction to Occupational Safety and Health
W96	EHS M249	Toxics Reduction: Science, Engineering and Policy
F96	EHS 250	Introduction to Occupational Safety and Health
W96	EHS M249	Toxics Reduction: Science, Engineering and Policy
W97	EHS M249	Toxics Reduction: Science, Engineering and Policy
S97	EHS M239	Pollution Prevention Seminar
F97	EHS 250	Introduction to Occupational Safety and Health
S98	EHS M239 EHS 254	Pollution Prevention Seminar Health Hazards of Industrial Processes
F98	EHS 200A	Foundations of Environmental Health Sciences
W99	EHS 200B EHS 200H EHS 200I EHS 200N EHS M239	Foundations of Environmental Health Sciences Exposure Assessment Occupational Health Risk Assessment Pollution Prevention Seminar
F99	EHS 200A	Foundations of Environmental Health Sciences
W00	EHS 200B	Foundations of Environmental Health Sciences
F00	EHS 200A	Foundations of Environmental Health Sciences

F01	EHS 200A	Foundations of Environmental Health Sciences
W02	PHARM 100A	Drugs, Mechanisms, Uses and Misuses
F02	EHS 200A EHS 257	Foundations of Environmental Health Sciences Risk Assessment and Standards
W03	PHARM 110A	Drugs, Mechanisms, Uses and Misuses
F03 S03	EHS 200A EHS 257	Foundations of Environmental Health Sciences Risk Assessment and Standards
F04 S04	EHS 200A EHS 257	Foundations of Environmental Health Sciences Risk Assessment and Standards
F05 S05	EHS 200A EHS 257	Foundations of Environmental Health Sciences Risk Assessment and Standards
F06	EHS 200A	Foundations of Environmental Health Sciences
F07	EHS 200A	Foundations of Environmental Health Sciences
F08	EHS 200A	Foundations of Environmental Health Sciences
S09	EHS 257	Risk Assessment and Standards

## **HILARY ARNOLD GODWIN**

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### **EDUCATION**

NIH Postdoctoral Fellow, Johns Hopkins University School of Medicine, 1994-1996  
Ph.D. in Physical Chemistry, Stanford University, 1994.  
B.S. in Chemistry with Honors, University of Chicago, 1989.

### **PROFESSIONAL EXPERIENCE**

2008-present      **Associate Dean for Academic Programs for the School of Public Health**, University of California at Los Angeles  
2007-2008      **Chair, Environmental Health Sciences Department, University of California at Los Angeles**  
2006-present      **Professor, University of California at Los Angeles**  
Environmental Health Sciences Department, School of Public Health  
2002-present      **Howard Hughes Medical Institute (HHMI) Professor**  
2004-2006      **Chair, Department of Chemistry, Northwestern University**  
2003-2004      **Associate Chair, Department of Chemistry, Northwestern University**  
2002-2004      **Dow Chemical Company Research Professor in Chemistry, Northwestern University**  
2001-2006      **Associate Professor, Northwestern University**  
Department of Chemistry and Department of Biochemistry, Molecular Biology, and Cell Biology (Joint Appointment)  
1996-2001      **Assistant Professor, Northwestern University**  
Department of Chemistry and Department of Biochemistry, Molecular Biology, and Cell Biology (Joint Appointment since 1998)

### **HONORS & AWARDS**

Howard Hughes Medical Institute (HHMI) Professor (2002-present)  
Paul Saltman Award (2001)  
Camille Dreyfus Teacher-Scholar Award (2000)  
Alfred P. Sloan Research Fellowship (2000)  
National Science Foundation CAREER Award (1999)  
Burroughs Wellcome Fund Toxicology New Investigator Award (1998)  
Camille and Henry Dreyfus New Faculty Award (1996)  
National Institutes of Health Postdoctoral Research Fellowship (1994-1996)



Stanford Centennial Teaching Assistant Award (1992)  
National Science Foundation Graduate Research Fellowship (1989-1992)  
Phi Beta Kappa (1989)

## RESEARCH INTERESTS

Molecular toxicology of lead; mechanism of uptake of nanoparticles into cells and nanotoxicology; toxicogenomics and proteomics; public health impacts of climate change.

## PUBLICATIONS

1. "(E)-1-Benzyl-3-(1-iodoethylidene)piperidine: Nucleophile Promoted Alkyne-Iminium Ion Cyclizations" Arnold, H.; Overman, L.E.; Sharp, M. J.; Witschel, M. C. *Organic Syntheses* **1992**, *70*, 111-119.
2. "Heterometallic and Homometallic Ruthenium and Osmium Double Bonds in Metalloporphyrin and Metallotetraazaporphyrin Dimers" Collman, J. P.; Arnold, H. J.; Fitzgerald, J. P.; Weissman, K. J. *J. Am. Chem. Soc.* **1993**, *115*, 9309-9310.
3. "Multiple Metal-Metal Bonds in 4d and 5d Metal-Porphyrin Dimers" Collman, J. P.; Arnold, H. J. *Acc. Chem. Res.* **1993**, *26*, 586-592.
4. "Delta Bonds and Rotational Barriers in 4d and 5d Metal-Porphyrin Dimers" Collman, J. P.; Arnold, H. J. *J. Cluster Science* **1994**, *5*, 37-66.
5. "Heterometallic Mixed Triad Multiple Bonds in Metal-Porphyrin Dimers" Collman, J. P.; Arnold, H. J.; Weissman, K. J.; Burton, J. M. *J. Am. Chem. Soc.* **1994**, *116*, 9761-9762.
6. "A Fluorescent Zinc Sensor Based on Metal Induced Peptide Folding" Godwin, H. A. and Berg, J. M. *J. Am. Chem. Soc.* **1996**, *118*, 6514.
7. "Lessons from Zinc-Binding Peptides" Berg, J. M. and Godwin, H. A. *Ann. Rev. Biophys. Biomol. Struct.* **1997**, *26*, 357-71.
8. "Magnetic Properties of Group 8 Metal-Metal Bonded Porphyrin and Tetraazaporphyrin Dimers" Godwin, H. A.; Collman, J. P.; Marchon, J.-C.; Maldivi, P.; Yee, G. T.; Conklin, B. J. *Inorg. Chem.* **1997**, *36*, 3499-3502.
9. "Lead-Fingers: Pb(II)-Binding to Structural Zinc-Binding Domains Determined Directly By Monitoring Lead-Thiolate Charge Transfer Bands" Payne, J. C.; ter Horst, M. A.; Godwin, H. A. *J. Am. Chem. Soc.* **1999**, *121*, 6850-6855.
10. "A Selective, Ratiometric, Fluorescent Sensor for Pb<sup>2+</sup>" Deo, S.; Godwin, H. A. *J. Am. Chem. Soc.* **2000**, *122*, 174-175.
11. "<sup>207</sup>Pb-<sup>1</sup>H Two-Dimensional NMR Spectroscopy: A Useful New Tool for Probing Lead(II) Coordination Chemistry" Claudio, E. S.; ter Horst, M. A.; Forde, C. E.; Stern, C.; Zart, M. K.; Godwin, H. A. *Inorg. Chem.* **2000**, *39*, 1391-1397.
12. "Calcium Triggers An Intramolecular Association Between The C2 Domains of Synaptotagmin" Garcia, R. A.; Forde, C. A.; Godwin, H. A. *Proc. Natl. Acad. Sci. U.S.A.* **2000**, *97*, 5883-5888.
13. "High-Yield Expression and Purification of Recombinant Proteins In Bacteria: A Versatile Vector For Overexpression Of Glutathione S-Transferase Fusion Proteins Containing Two Protease Cleavage Sites" Sehgal, B.; Dunn, R.; Hicke, L.; Godwin, H. A. *Anal. Biochem.* **2000**, *281*, 232-234.
14. "The Biological Chemistry of Lead" Godwin, H. A. *Curr. Opin. Chem. Biol.* **2001**, *5*, 223-227.
15. "Synaptotagmin I is a Molecular Target for Lead" Bouton, C. M. L. S.; Frelin, L. P.;

- Forde, C. E.; Godwin, H. A.; Pevsner, J. *J. Neurochem.* **2001**, *76*, 1724-1735.
16. "Fundamental Coordination Chemistry, Environmental Chemistry, and Biochemistry of Lead(II)" Claudio, E. S.; Magyar, J. S.; Godwin, H. A. *Prog. Inorg. Chem* **2003**, *51*, 1-144.
  17. "Spectropotentiometric Analysis of Metal Binding to Structural Zinc-Binding Sites: Accounting Quantitatively for pH and Metal Ion Buffering Effects" Magyar, J. S.; Godwin, H. A. *Anal. Biochem.* **2003**, *320*, 39-54.
  18. "Spectroscopic Determination of the Binding Affinity of Zinc to the DNA-Binding Domains of Nuclear Hormone Receptors" Payne, J. C.; Rous, B. W.; Tenderholt A. L.; Godwin, H. A. *Biochemistry*, **2003**, *42*, 14214-14224.
  19. "High Metal Concentrations Are Required for Self-association of Synaptotagmin II" García, R. A. and Godwin, H. A. *Biophys. J.*, **2004**, *86*, 2455-2466,
  20. "Color My Nanoworld" McFarland, A. D.; Haynes, C. L.; Van Duyne, R.; Godwin, H. A. *J. Chem. Ed.* **2004**, *81*, 544A-544B.
  21. "Spectroscopic Determination of the Thermodynamics of Cobalt and Zinc Binding to GATA Proteins" Ghering, A. B.; Shokes, J. E.; Scott, R. A.; Omichinski, J. G.; Godwin, H. A. *Biochemistry*, **2004**, *43*, 8346-8355.
  22. "Nanopatterning with Lithography" McFarland, A. D.; Haynes, C. L.; Van Duyne, R.; Godwin, H. A. *J. Chem. Ed.* **2005**, *82*, 768A-768B
  23. "Spectroscopic and Functional Determination of the Interaction of Pb<sup>2+</sup> with GATA Proteins" Ghering, A. B.; Jenkins, L. M. M.; Schenck, B. L.; Deo, S.; Mayer, R. A.; Pikaart, M. J.; Omichinski, J. G.; Godwin, H. A. *J. Am. Chem. Soc.* **2005**, *127*, 3751-3759.
  24. "Reexamination of Lead(II) Coordination Preferences in Sulfur-Rich Sites: Implications for a Critical Mechanism of Lead Poisoning" Magyar, J. S. ; Weng, T.-C.; Stern, C. M.; Dye, D. F.; Rous, B. W.; Payne, J. C.; Bridgewater, B. M.; Mijovilovich, A.; Parkin, G.; Zaleski, J. M.; Penner-Hahn, J. E.; Godwin, H. A. *J. Am. Chem. Soc.* **2005**, *127*, 9495-9505.
  25. "Teaching Undergraduates at the Interface of Chemistry and Biology: Challenges and Opportunities" Godwin, H. A.; Davis, B. L. *Nature Chem. Biol.* **2005**, *1*, 176-180.
  26. "Preparation of Media and Buffers with Soluble Lead (Pb<sup>2+</sup>)" Mayer, R. A.; Godwin, H. A. *Anal. Biochem.* **2006**, *356*, 142-144.
  27. "Characterization of the first N<sub>2</sub>S(alkylthiolate)lead compound: A model for 3-coordinate lead in biological systems" Andersen, R. J.; diTargani, R. C.; Hancock, R. D.; Stern, C. L.; Goldberg, D. P.; Godwin, H. A. *Inorg. Chem.* **2006**, *45*, 16574-6576.
  28. "A recombinant courtship pheromone affects sexual receptivity in a plethodontid salamander" Houck, L.; Watts, R.; Arnold, S.; Bowen, K.; Kiemnec, K.; Godwin, H.; Feldhoff, P.; Feldhoff, R. *Chem. Senses*, **2008**, *33*, 623 - 631.
  29. Haynes, C.; McFarland, A.; Van Duyne, R.; Godwin, H. *Nanoscience and Nanotechnology Module*, Materials World Modules; Northwestern University: Evanston, Illinois, **2008**.
  30. "The University of California Center for the Environmental Implications of Nanotechnology" Godwin, H. A.; Chopra, K.; Bradley, K. A.; Cohen, Y.; Harthorn, B. H.; Hoek, E. M. V.; Holden, P.; Keller, A. A.; Lenihan, H.; Nesbit, R. ; Nel, A. E. *Environ. Sci. & Tech.*, in press.

## PROFILES & RESEARCH HIGHLIGHTS

- “Hilary Godwin: Alone in Good Company” Austin, J. *Science Next Wave* (<http://nextwave.sciencemag.org/cgi/content/full/2001/07/11/6?>).
- “Leading The Fight Against Lead Poisoning” Fellman, M. *CrossCurrents (Northwestern University Weinberg College of Arts and Sciences)*, Fall 2001, 6-9.
- “Million-Dollar Plums For Teaching Biology” Stokstad, E. *Science*, **2002**, 297, 2190-2191.
- “2 College Teachers to Receive \$1 Million” Becker, R. *Chicago Tribune*, September 18, 2002.
- “Godwin Receives \$1M from Howard Hughes Medical Institute” *Northwestern University Observer*, Oct. 10, 2002.
- “WOW Factor Goes Predoctoral” Wilkinson, S. L. *Chem. & Eng.* September 30, 2002, 32-33.
- “Research on Lead Poisoning Will Send Students Into Communities” Guy, S. *Chicago Sun-Times*, February 5, 2003.
- “Chemistry and Community” Strawn, S. *The Daily Northwestern*, July 17, 2003.
- “‘The Frontiers of Inorganic Chemistry’ – A Workshop” Eisenberg, R. *Inorg. Chem.* **2003**, 42, 2479.
- “Women Scientists in 2003” Deneen, N. *CrossCurrents (Northwestern University Weinberg College of Arts and Sciences)*, Fall 2003, 10-15.
- “Summer Scientists Get Head Start on Freshman Year” Fellman, M. *Northwestern University Observer*, November 6, 2003.
- “College Freshman Get Ahead with Lead” Donovan, J. L. *Howard Hughes Medical Institute Bulletin*, Spring 2004, 32-33.
- “Getting the Lead Out” Jegalian, K. *Findings (National Institute of General Medical Sciences)*, March 2005, 8-13.
- “Lead Binding Reexamined” Barry, D. *Chem. & Eng. News* **2005**, 83, 13.
- “Faculty Profile: Hilary Godwin – Preventing Children from Being Lead Astray” *UCLA Public Health Magazine*, June 2007, 12-13.
- “Gathering Storm: The Health Effects of Global Climate Change” *UCLA Public Health Magazine*, November 2007, 4-9.

## PRESENTATIONS AT NATIONAL AND INTERNATIONAL MEETINGS

- Presentation, NATO ASI on Energetics of Organometallic Species, “Synthesis of Heterometallic Metal-Metal Bonded Porphyrin Dimers,” H. J. Arnold, J. P. Collman, and J. P. Fitzgerald, Portugal, September 1991.
- Lecture, American Chemical Society Meeting, “Heterometallic Metal-Metal Bonded Porphyrin Dimers,” H. J. Arnold, J. P. Collman, and J. P. Fitzgerald, San Francisco, California, April 1992.
- Invited Speaker, 75th Canadian Chemical Conference, “Chemistry 32: The Frontiers of Chemical Science,” H. J. Arnold, J. P. Collman, and R. N. Zare, Edmonton, Alberta, May 1992.
- Lecture, 75th Canadian Chemical Conference, “Heterometallic Metal-Metal Bonded Porphyrin Dimers,” H. J. Arnold, J. P. Collman, and J. P. Fitzgerald, Edmonton, Alberta, May 1992.
- Poster presented at Inorganic Biochemistry Summer Workshop, “Fluorescent Peptides for Monitoring Zn(II) Levels *In Vivo*,” H. J. Arnold and J. M. Berg, Athens, Georgia, July 1996.

- Poster presented at American Chemical Society, "Fluorescent Peptides for Monitoring Zn(II) Levels *In Vivo*," H. J. Arnold and J. M. Berg, Chicago, Illinois, August 1996.
- Poster presented at Metals in Biology Gordon Conference, "Fluorescent Peptides for Monitoring Zn(II) Levels *In Vivo*," H. J. Arnold and J. M. Berg, Ventura, California, January 1996.
- Poster presented at Metals in Biology Gordon Conference, "Lead Fingers: Spectroscopic Studies of Lead-Protein Interactions," J. C. Payne, M. A. ter Horst, and H. A. Godwin, Ventura, California, January 1997.
- Poster presented at the Burroughs Wellcome Fund New Investigators Meeting, "Biophysical Approaches to Lead Toxicology: Biochemistry, Detection, and Chelation of Pb(II)," Blaine, Washington, July 1998.
- Lecture, American Chemical Society Meeting, "Spectroscopic Studies of Lead Binding to Zinc Proteins," H. A. Godwin, J. C. Payne, M. A. ter Horst, S. Padia, Boston, Massachusetts, August 1998.
- Poster presented at XXXIII International Conference on Coordination Chemistry, "Spectroscopic Studies of the Interactions Between Pb(II) and Zinc-Binding Sites in Proteins," H. A. Godwin, J. C. Payne, M. A. ter Horst, S. Padia, Forence, Italy, September 1998.
- Poster presented at Metals in Biology Gordon Conference, "Myths, Misconceptions, and the Molecular Mechanism(s) of Lead Poisoning," H. A. Godwin, J. C. Payne, C. A. Forde, M. A. ter Horst, M. K. Zart, E. S. Claudio, B. Sehgal, S. Deo, and A. Reynolds, Ventura, California, January 1999.
- Lecture, American Chemical Society Meeting, "<sup>207</sup>Pb NMR Spectroscopy of Amido Derivatives of Ethylenediaminetetraacetic Acid: Novel Water-Soluble Chelators for Pb(II)," H. A. Godwin, M. A. ter Horst, C. E. Forde, E. S. Claudio, M. K. Zart, Anaheim, California, March 1999.
- Invited Speaker, Ninth International Conference on Biological Inorganic Chemistry (ICBIC), "Why is lead toxic? Unraveling the molecular mechanism(s) of lead poisoning" Minneapolis, Minnesota, July 12, 1999.
- Poster presented at Inorganic Chemistry Gordon Conference, "Lead Poisoning: How A Chemical Approach Can Shed New Light On An Ancient Problem," H. A. Godwin, J. C. Payne, M. A. ter Horst, Providence, Rhode Island, July 1999.
- Poster presented at Metals in Biology Gordon Conference, "How Calcium Mediates Neurotransmission: Calcium Triggers an Intramolecular Association Between the C2 Domains of Synaptotagmin," R. A. Garcia, C. E. Forde, and H. A. Godwin, Ventura, California, January 2000
- Lecture, American Chemical Society Meeting, "Lead Poisoning: Using Chemistry to Shed New Light on an Ancient Problem," H. A. Godwin, San Francisco, California, March 2000.
- Poster presented at Chicago Signal Transduction Symposium, "How Calcium Mediates Neurotransmission: Calcium Triggers an Intramolecular Association Between the C2 Domains of Synaptotagmin," R. A. Garcia, C. E. Forde, and H. A. Godwin, Chicago, Illinois, May 2000
- Invited Speaker, Bioanalytical Sensors Gordon Research Conference, "Lead Poisoning and Detection" Andover, NH, July, 2000.
- Invited Speaker (Paul Saltman Award Lecture), Metals in Biology Gordon Conference, "Why is lead toxic? Unraveling the molecular mechanism(s) of lead poisoning" Ventura, California, January, 2001.
- Invited Speaker, Environmental Bioinorganic Chemistry Gordon Conference, "Molecular

- Toxicity and Toxicogenomics of Lead" Bates College, Maine, June 2004.
- Invited Speaker, 11<sup>th</sup> International Conference on the Coordination Chemistry and Organometallic Chemistry of Germanium, Tin, and Lead, "Why is lead toxic? Unraveling the molecular mechanism(s) of lead poisoning" Santa Fe, New Mexico, June-July 2004.
- Invited Speaker, Inorganic Reaction Mechanisms Gordon Conference, "Kinetics of metal binding and substitution in zinc-finger peptides" Ventura, California, February, 2005.
- Invited Speaker, AAAS National Meeting, "Novel approaches for the retention of science students from diverse backgrounds" Washington, D. C., February, 2005.
- Poster presented at Metals in Biology Gordon Conference, "Molecular Link Between Lead Stress and Iron Homeostasis in *S. cerevisiae*," D. Ivanov, E. Suarez, B. Davis, H. Jiang, and H. A. Godwin, Ventura, California, January 2007
- Invited Speaker, Western Regional American Chemical Society Meeting, "Molecular Mechanism(s) of Lead Poisoning." D. Ivanov, E. Suarez, and H. A. Godwin, San Diego, California, October 2007.
- Invited Speaker, National American Chemical Society Meeting, "Molecular Mechanism(s) of Lead Poisoning." H. A. Godwin, New Orleans, Louisiana, April 2008.
- Invited Speaker, Centers for Disease Control and Prevention Western States Regional Meeting, "Molecular Mechanism(s) of Lead Poisoning " Las Vegas, Nevada, June 2008.
- Invited Speaker, Metals in Medicine Gordon Conference, "High Throughput Screening for Surveillance of Infectious Diseases: Opportunities for Synergism with Metals in Medicine" Andover, New Hampshire, June 2008.
- Keynote Speaker, Greener Nano Conference 2009, "Environmental Implications of Nanotechnology", Eugene, Oregon, March 2009.
- Lecture, American Chemical Society Meeting, "Why go green? Incentives and challenges for the design of environmentally friendly nanomaterials," H. A. Godwin, Salt Lake City, Utah, March 2009.
- Lecture, American Chemical Society Meeting, "Safe handling and disposal of nanomaterials: Lessons from and challenges for exposure research," H. A. Godwin, Salt Lake City, Utah, March 2009.

## SEMINARS

- 1993 Centre d'Etudes Nucleares de Grenoble, Grenoble, France
- 1994 Department of Chemistry, Northwestern University
- 1996 Department of Biochemistry, Molecular Biology, and Cell Biology, Northwestern University; Kalamazoo College, Kalamazoo, Michigan; Hope College, Holland, Michigan
- 1997 Department of Chemistry, Northwestern University, Evanston, Illinois; Department of Chemistry, Loyola University, Chicago, Illinois; Department of Chemistry, Illinois State University, Normal, Illinois; Department of Chemistry, Illinois Institute of Technology, Chicago, Illinois
- 1998 Department of Civil Engineering, Northwestern University, Evanston, Illinois; Department of Chemistry, Johns Hopkins University, Baltimore, Maryland; Kennedy Krieger Institute/ Johns Hopkins University School of Medicine, Baltimore, Maryland; Department of Chemistry, Grand Valley State University, Grand Rapids, Michigan; Department of Chemistry, University of North Carolina, Chapel Hill, North Carolina; Department of Microbiology and Immunology, University of Illinois, Chicago, Illinois

- 1999 Department of Geology, Northwestern University, Evanston, Illinois; Symposium: Materials Research & Education at the Dawn of the New Milenium, Northwestern University, Evanston, Illinois
- 2000 Department of Chemistry, Bowling Green State University, Bowling Green, Ohio; Department of Chemistry, University of Missouri, Saint Louis, Missouri; Faculty of Toxicology, College of Veterinary Medicine, Texas A & M University, College Station, Texas; Department of Chemistry, Dartmouth College, Hanover, New Hampshire; Department of Chemistry, the Ohio State University, Columbus, Ohio; Center for Environmental BioInorganic Chemistry (CEBIC) Summer Conference, Princeton University, Princeton, New Jersey;. Department of Chemistry, Georgia State University, Atlanta, Georgia; Center for Metalloenzyme Studies, University of Georgia, Athens, Georgia; Department of Chemistry, Emory University, Atlanta, Georgia; Department of Chemistry, Purdue University, West Lafayette, Indiana; Department of Chemistry, Massachusetts Institute of Technology, Boston, Massachusetts; Department of Chemistry, Calvin College, Grand Rapids, Michigan; Department of Chemistry, Hope College, Holland, Michigan; Meeting of the Chicago Chapter of Iota Sigma Pi, Glenview, Illinois
- 2001 Mathfest, Fremd High School, Palatine, Illinois; Department of Chemistry, University of California, Los Angeles, California; Department of Chemistry, California Institute of Technology, Pasadena, California; Department of Chemistry, Boston College, Boston, Massachusetts; Department of Chemistry, University of Wisconsin, Madison, Wisconsin; Department of Chemistry, University of California, Berkeley, California; Department of Chemistry, Stanford University, Stanford, California; Department of Chemistry, Indiana University, Bloomington, Indiana; Department of Chemistry, University of Illinois at Urbana-Champaign, Urbana, Illinois; Biophysics Program, University of Texas Southwestern Medical Center at Dallas, Dallas, Texas; Department of Chemistry, Texas A & M University, College Station, Texas; Department of Chemistry, University of Texas, Austin, Texas
- 2002 Department of Chemistry, Michigan State University, East Lansing, Michigan; Department of Chemistry, University of Utah, Salt Lake City, Utah; Department of Chemistry and Biochemistry, Utah State University, Logan, Utah.
- 2003 Department of Chemistry, University of California Irvine, Irvine, California; Lead America Educational Leadership Conference, Lake Forest, Illinois; Department of Chemistry and Biochemistry, University of Maryland Baltimore County, Baltimore, Maryland; Department of Chemistry and Biochemistry, University of Delaware, Newark, Delaware; Wayne State University, Detroit, Michigan.
- 2004 Department of Chemistry. University of Missouri, Kansas City, Missouri; Department of Chemistry, Louisana State University, Baton Rouge, Louisiana; University of Oklahoma, Normal, Oklahoma; Howard Hughes Medical Institute (keynote speaker), Chevy Chase, Maryland; Department of Molecular Pharmacology, Johns Hopkins University School of Medicine, Baltimore, Maryland; Department of Chemistry, University of Illinois Urbana-Champaign, Urbana, Illinois.
- 2005 Molecular Probes, Eugene, Oregon; Reed College, Portland, Oregon; Department of Chemistry, University of Oregon, Eugene, Oregon; Department of Chemistry, University of Minnesota, Minneapolis, Minnesota; Department of Chemistry, Ball State University;

- Department of Chemistry, University of Texas at El Paso, El Paso, Texas; Department of Chemistry, Grinnell College.
- 2006 Department of Chemistry, University of Southern California, Los Angeles, California; Department of Chemistry & Biochemistry, UCLA, Los Angeles, California; Department of Chemistry, University of Michigan, Ann Arbor, Michigan; Department of Chemistry, University of Pennsylvania, Philadelphia, Pennsylvania; Nanotechnology Workshop, Life Sciences Week, University of Missouri, Columbia, Missouri; Symposium on the Nature of Science, Fermilab, Batavia, Illinois.
- 2007 Lubrizol Corporation, Wickliffe, Ohio; Department of Chemistry, Case Western Reserve University, Cleveland, Ohio; *CEA-CREST* Program at California State University Los Angeles, Los Angeles, California; Department of Chemistry, University of California at San Diego, San Diego, California.
- 2008 Metals in Medicine Gordon Conference, Andover, New Hampshire; Department of Chemistry; Clemson University, Clemson, South Carolina; Department of Chemistry, California Institute of Technology, Pasadena, California.
- 2009 The World in 2050, Bixby Center for Population, Health and Sustainability, University of California, Berkeley, California; Center for Humane and Ethical Medical Care, Santa Monica, California; Department of Chemistry; Western Michigan University, Kalamazoo, Michigan; Department of Chemistry and Biochemistry, University of Oregon, Eugene, Oregon.

## GRANTS AND AWARDS

1. National Science Foundation, Graduate Research Fellowship (1989-1992)
2. National Institutes of Health Postdoctoral Fellowship (1994-1996)
3. Camille and Henry Dreyfus New Faculty Award "The Chemistry of Metal Ions in Bioluminescence and Bioremediation" (9/1/96-8/31/01) \$25,000
4. Burroughs Wellcome Fund Toxicology New Investigator Award, "Biophysical Approaches to Lead Toxicology: Biochemistry, Detection and Chelation of Pb(II)" (7/1/98-6/31/2001) \$195,000
5. National Science Foundation, "Acquisition of a 500 MHz NMR Spectrometer for Chemical Research" P.I. Joseph Lambert (9/1/98-8/31/99) \$487,732
6. National Science Foundation CHE-9875341; "CAREER: New Super Ligands for Lead: Tight and Selective Pb(II)-Binding Agents" (3/1/99-2/28/04) \$495,000
7. National Institutes of Health R01 GM58183 "Spectroscopic Probes of Lead-Protein Interactions" (8/1/99-7/31/04) \$754,827
8. National Science Foundation, CHE-9810378, "Institute for Environmental Catalysis" P.I. Peter Stair (9/15/98-8/31/02) \$193,153
9. Sloan Research Fellowship, 2000, \$40,000
10. Camille Dreyfus Teacher-Scholar Award, 2000, \$60,000
11. National Science Foundation/MRSEC DMR-0076097, "Materials Research Center" P.I. Robert Chang (9/1/00-8/31/02) \$114,169
12. National Science Foundation, "Workshop: Frontiers of Inorganic Chemistry" (3/1/01-2/28/02) \$59,400
13. National Science Foundation/NSEC, EEC-0118025, "NSEC: Integrated Nanopatterning and Detection Technologies" (Research) P.I. Chad Mirkin 9/1/01-8/31/04 \$87,940
14. National Science Foundation/NSEC, EEC-0118025, "NSEC: Integrated Nanopatterning

- and Detection Technologies” (Education) P.I. Chad Mirkin 9/1/01-8/31/05 \$106,747
15. Howard Hughes Medical Institute (HHMI) Professor (9/1/02-8/31/06) \$1,000,000
  16. Dreyfus Special Grants Program, “Integrating Discovery-Based Learning Modules into the General Chemistry Curriculum “ \$15,000.
  17. Department of Education, GAANN Program, “National Needs Fellowship In Chemistry At Northwestern University: 2004-2007” \$498,132.
  18. Clare Boothe Luce Foundation “Clare Boothe Luce Professorship at Northwestern University” (Grant to hire a new faculty member in the Department of Chemistry at Northwestern University) \$600,000.
  19. Department of Education, GAANN Program, “National Needs Fellowship In Chemistry At Northwestern University: 2006-2009” \$633,630.
  20. U.S. Department of Housing and Urban Development, Lead Technical Studies Program “Fluorogenic Methods for Detection of Lead on Surfaces” P.I. Roger Lewis (Saint Louis University) 11/1/06-10/31/07, \$89,101.
  21. National Science Foundation, Center for Environmental Implications of Nanotechnology (CEIN) program “UC Center for the Environmental Impact of Nanotechnology” (my role: Co PI and Director of Education and Outreach Activities) P.I. Andre Nel (10/1/08-9/30/13), \$24 million total
  22. UCLA Injury Prevention Committee “Development of an Online Training Module for Safe Handling of Nanomaterials” (10/1/08-2/28/09), \$17,000.

## **PROFESSIONAL ORGANIZATIONS & AFFILIATIONS**

Council for Chemical Research (2005-2006)

American Chemical Society: Inorganic Division, Physical Division

Society for Neuroscience

Biophysical Society

American Association for the Advancement of Science

American Association for Women in Science

Iota Sigma Pi

## **INSITUTE AND CENTER MEMBERSHIP**

- |              |   |
|--------------|---|
| 2008-present | Member and coPI, NSF/EPA-UC Center for Environmental Implications of Nanotechnology (UC CEIN), UCLA |
| 2007-present | Member, Institute for the Environment, UCLA   |
| 2007-present | Member, California Nanosystems Institute, UCLA  |
| 2000-2006    | Member, NSF-Nanoscale Science and Engineering Center (NSEC), Northwestern University                |
| 2000-2002    | NSF – Materials Research Science and Engineering Center (MRSEC), Northwestern University            |
| 1998-2002    | NSF-Institute for Environmental Catalysis   |
| 1997-2006    | Member, Lurie Cancer Center, Northwestern University  |

## **SERVICE**

Co-organizer, “2009 Working Conference on Nanotech Regulatory Policy” (2009)

Facilitator, Workshop on “Creating an Academic Environment Conducive to Diversity”  
Western Michigan University (2009)



Director, Education and Outreach Activities, UC Center for Environmental Implications of Nanotechnology, UCLA (2008-present).

Facilitator, COACH Workshop on “Leadership Skills for New Chairs” Council for Chemical Research Meeting (2008)

Reviewer, National Institutes of Health Director’s Pioneer Award and NIH Director's New Innovator Awards (2007-2008)

Organizer, “Changing Climate, Changing Lives” Summit (2007)

Facilitator, COACH Workshop for Department Chairs on “How to Be An Effective Leader for Change” Council for Chemical Research Meeting (2007)

Advisory Board for Committee on the Advancement of Women Chemists (COACH) (2006-present)

Review Panel, HHMI Professors Program (2006)

Advisory Board for “Science Storms”, Museum of Science and Industry, Chicago, Illinois (2005-present)

Panelist, Interviews for Finalists for 2005 National Institutes of Health Director’s Pioneer Award (2005)

Nominating Committee for Council for Chemical Research Governing Board (2005)

Rotating Member, Special Emphasis Panel – Conflicts in Biological Chemistry and Macromolecular Biophysics, National Institutes of Health (2005)

Faculty Advisor, Chicago Area Undergraduate Research Symposium (2005)

Rotating Member, BMT Study Section, National Institutes of Health (2003)

Essential Science Taskforce, Museum of Science and Industry, Chicago, Illinois (2003-2004)

Organizing Committee, Japanese-American Frontiers of Science Meeting, National Academy of Sciences (2003-2004)

Freshman Advisor, Northwestern University (2003-2005)

Director, Undergraduate Success in Science Program, Northwestern University (2003-present)

Director, Education and Outreach Activities, Institute for Nanotechnology/ NSF-Nanoscale Science and Engineering Center (NSEC), Northwestern University (2000-2006).

Organizing Committee, Frontiers of Chemistry Meeting sponsored by the American Chemical Society, Durham, New Hampshire, August 24-27, 2002

Co-chair, Symposium on Coordination Chemistry of Metal Metabolism, 224<sup>th</sup> American Chemical Society National Meeting, Boston, Massachusetts, August 18-22, 2002

Organizing Chair, Symposium on Bioinorganic Chemistry, 34<sup>th</sup> Great Lakes Regional American Chemical Society Meeting, Minneapolis, Minnesota, June 2-4, 2002

P.I., Frontiers of Inorganic Chemistry Workshop sponsored by the National Science Foundation, Copper Mountain, Colorado, September 8-10, 2001

Faculty Advisor, Northwestern Chapter of Phi Lamda Upsilon (2000-2004)

Faculty Associate, Shepard Residential College (1997-2002)

Nominations and Symposium Planning Committee for the Division of Inorganic Chemistry of the American Chemical Society (1996)

#### **COMMITTEES – UCLA**

Ad Hoc Member, UCLA School of Public Health Faculty Executive Committee, Education Policy and Curriculum Committee, and Evaluation Committee

Chair, Building Use Committee for the California Nanosystems Institute (2008-2009)

Co-Chair, Faculty Search Committee for Director for Center to Combat Emerging Infectious

Diseases (2007-present)  
Executive Committee of the Institute for the Environment (2007-present)  
Faculty Advisory Committee, Molecular Toxicology Interdepartmental Degree Program (2007-present)  
Campus Advisory Board for Proposal to Public Utilities Commission on Global Climate Change Institute (2007-present)  
Chair, Search Committee for High Throughput BSL3 Laboratory Director, School of Public Health (2006-present)  
Planning Committee for High Throughput BSL3 Laboratory, School of Public Health (2006-present)

### **COMMITTEES – NORTHWESTERN UNIVERSITY**

Executive Committee, Institute for Nanotechnology/ NSF-Nanoscale Science and Engineering Center (NSEC), Northwestern University (2003-2006).  
Search Committee for Chief Financial Officer, Weinberg College of Arts and Sciences (2005)  
Chair, Chemistry Graduate Advising Committee (2003-2004)  
Planning Committee for Proteomics and Nanobiotechnology Building (2003-2006)  
Chemistry Faculty Mentoring Committee (2003-2006)  
Chemistry Faculty Recruiting Committee (2003-2004)  
Chair, Chemistry Graduate Admissions Committee (2001-2002)  
Chair, Search Committee for Freshman Chemistry Laboratory Coordinator (2001)  
Chemical & Biological Safety Committee (1998-2000; 2002-2005)  
Chemistry Vision Committee (2000-2002)  
Chemistry Faculty Recruiting Committee (2000-2001)  
Chemistry Transition Committee (ad hoc) (2000)  
Chemistry Research Facilities Committee (1999-2001)  
Chemistry Space Committee (ad hoc) (1998)  
Search Committee for Freshman Chemistry Laboratory Coordinator (1998)  
Graduate School Faculty (1998-present)  
600 MHz NMR User Committee (1998-2006)  
College Scholars Program Board (1998-2001)  
Trustees Professor Search Committee Chemistry/NBP/BMBCB (1998-2001)  
Goldwater Scholarship Selection Committee (1998-2000)  
Member, Chemistry Graduate Admissions Committee (1997-2001)

### **TEACHING -UCLA**

**Environmental Health 100, Introduction to Environmental Health Sciences** (Spring 2007 and Spring 2008) This course is a required course for all MPH students who are not Environmental Health majors. Texts in 2007: *Essentials of Environmental Health* by Robert Fris and *GIS Tutorial for Health* by Kristen Kurland and Wilpen Gorr. Text in 2008: *Essentials of Environmental Health* by Robert Fris. The goal of this course is to provide students with an overview of the field of Environmental Health Sciences. In 2007 there was the additional goal for students to learn how to use Geographic Information Systems (GIS) to map and analyze Public Health Data. Topics covered in the course include the following: environmental epidemiology, environmental toxicology, environmental policy and regulation, agents of environmental disease and applications of environmental health to water quality, air quality, food

safety, solid and liquid waste, and occupational health. Approximate enrollment: 90.

### **TEACHING -Northwestern University**

**Chemistry 101, General Chemistry** (Fall 1999 and Fall 2000) The first course in a three quarter series of general chemistry for science majors. Text in 1999: *Chemistry* (2<sup>nd</sup> Edition) by John McMurry and Robert Fay. Text in 2000: *Chemistry: The Central Science* (8<sup>th</sup> Edition) by Theodore L. Brown, H. Eugene LeMay, Jr., and Bruce E. Bursten. Topics covered in the course include the following: basic chemical calculation, solution stoichiometry problems, atomic and electronic structure, descriptive chemistry, aqueous chemistry, periodic properties of the elements. Approximate enrollment: 150.

**Chemistry 103, General Physical Chemistry** (Spring 1997, two sections, each co-taught with Tobin Marks; Spring 1998, two sections; Spring 1999, two sections) The third and final course in general chemistry for science majors. Text: *Chemistry* (4th Edition) by Steve Zumdahl. Topics covered in the course include the following: chemical equilibrium; equilibria in aqueous solution; chemical kinetics; electrochemistry and oxidation-reduction reactions; coordination chemistry and special topics. Emphasis was placed on examples from environmental chemistry and biochemistry. Approximate enrollment: 350 per quarter.

**Chemistry 105, Freshman Seminar: Science and Society** (Fall 2003 and Fall 2004) Discussion course for freshmen in the Weinberg College of Arts and Sciences. Text: *A Writer's Reference*, 5th edition, by Diana Hacker; assorted essays and book chapters on issues related to the topic of Science and Society. Topics covered in the course include the following: what it means to be a scientist, the future of science in our society, nature versus nurture, genetically modified crops, cloning, public policy on infectious diseases. The assignments in this class focus on academic and professional writing. Approximate enrollment: 16.

**Chemistry 435, Advanced Inorganic Chemistry** (Winter 1997, Winter 2000, and Winter 2001) Special topics graduate level course in bioinorganic chemistry. Text: *Bioinorganic Chemistry* by Stephen Lippard and Jeremy Berg; original articles from the literature on the role of metal ions in biological systems were assigned as readings and discussed in class. The course had two primary focuses: the structure and function of metalloproteins and the use of spectroscopic techniques in bioinorganic chemistry. The assignments for this class were focused on scientific writing. Approximate enrollment: 20.

**Chemistry 436, Readings in Inorganic Chemistry** (Fall 2003) Required graduate level course in inorganic chemistry. Text: *The ACS Style Guide*, 2<sup>nd</sup> edition, edited by Janet S. Dodd and original articles from the literature. The course has two primary focuses: seminal contributions to the field of inorganic chemistry and research at the frontiers of inorganic chemistry. The assignments for this class focus on critical evaluation of the scientific literature and scientific writing. Approximate enrollment: 30.

### **RESEARCH SUPERVISION**

2006-present      Preceptor, Molecular Toxicology Training Program, University of California at Los Angeles

2006-present      Preceptor, Chemistry-Biology Interface Training Program, University of

1996-2006 California at Los Angeles  
Preceptor, Interdepartmental Biological Sciences Program, Northwestern  
University

**Postdoctoral Fellows:**

2006-present Elizabeth Suarez  
2004-2006 Benjamin Davis  
2002-2004 Simona Dragan  
1997-1999 Cameron Forde  
1997-1998 Marc ter Horst

**Graduate Students:**

2009-present Sharona Sokolov, Environmental Health Sciences (M.P.H. student)  
2008-present Kabir Chopra, Environmental Health Sciences (M.P.H. student)  
2008-present Savanna Carson, Environmental Health Sciences (M.S. student)  
2007-present Mariam Behbehani, Environmental Health Sciences (M.P.H student)  
2007 Herguin Cuevas, Environmental Health Sciences  
2004-present Ethan Trana, Chemistry  
2004-present Dimitar Ivanov, IBiS  
2001-2002 Kylie Barker, Chemistry  
2000-present R. Aeryn Mayer, Chemistry, M.S.  
2000-2004 Ryan Andersen, IBiS, Ph.D.  
1999-2004 Brian Rous, Chemistry, Ph.D.  
1998-2006 Elizabeth Suarez (formerly Claudio), Chemistry  
1998-2002 John Magyar, Chemistry, Ph.D.  
1998-2001 Ricardo Garcia, IBiS, Ph.D.  
1998-2003 Amy Ghering, Chemistry, Ph.D.  
1997-1998 Matthew Zart, Chemistry M.S.  
1997-2002 Sandhya Deo, Chemistry, Ph.D.  
1996-2002 John Payne, Chemistry, Ph.D.  
1996-2002 Bernd Sehgal, Chemistry, Ph.D.  
1996-1997 Russell Scarola, Chemistry M.S.

**Undergraduate Researchers:**

2008-present Timia Crisp (UCLA PREP program)  
2008-present Bryan Moy  
2008-present Jordan Baldonado  
Summer 2008 Ngoc Hoang  
Summer 2005 USS workshop: 17 incoming freshmen and 6 student mentors  
2005-2006 Marco Russo  
2004-2005 Kimberley Zamor  
2004-2005 Mahesh Polavarapu  
Summer 2004 USS workshop: 14 incoming freshmen and 6 student mentors  
2003-2006 Joseph Hoover  
2003-2004 Sharon Calderwood  
2003-2004 Audrey Thompson

2003-2004	Desma Mitchell
Summer 2003	USS workshop: 12 incoming freshmen and 2 student mentors
2001-2002	Laura Meints
2001-2003	Jennifer VanOverbeke
2001	Khadijah Breathett
2000-2001	Maggie Overbey
2000-2002	Jovana Grbic, B. S. with honors
2000-2003	Adam Tenderholt
2000	Kari Riggs, B.A.
1999-2001	Doug Fowler, B.S. with honors
1999	David Gamboa, B.S.
1999-2000	Jaime Royal
1999-2001	Nathan Shepherd, B.S. with honors
1999	Ben Staehlin, B.S.
1998-1999	Anne Reynolds, B,S. with honors
1998-1999	Eric Roeland, B.A.
1998-1999	Jeffrey Wang , B.S. with honors
1997	Ghenet Simpson, B.S.
1996-1998	Arlene Molino, B.S. with honors
1996-1998	Sidharth Padia, B.S. with honors

#### PH.D. THESES SUPERVISED

1. Ricardo Alarcon Garcia "Calcium Activation Mechanisms of Synaptotagmins I and II" Ph.D. Northwestern University, 2001.
2. John Carroll Payne, "Spectroscopic Analysis of the Interactions Between Lead and Structural Zinc-Binding Domains" Ph.D. Northwestern University, 2002.
3. Bernd U. Sehgal "Interactions of EF-hand and C2 Proteins With Calcium and Lead" Ph.D. Northwestern University, 2002.
4. Sandhya Deo "Investigations Into the Molecular Mechanisms of Lead Toxicity: Pb<sup>2+</sup> Sensors and the Effects of Pb<sup>2+</sup> on Gene Expression" Ph.D. Northwestern University, 2002.
5. John Stedman Magyar "Study of Coordination Chemistry, Thermodynamics, and Kinetics of Metal Binding to Zinc-Binding Peptides" Ph.D. Northwestern University, 2002.
6. Amy Ghering "Spectroscopic Determination of the Thermodynamics of Lead, Zinc, and Cobalt Interactions with GATA Proteins" Ph.D. Northwestern University, 2003.
7. Brian Rous "Spectroscopic Determination of the Thermodynamics of Lead, Zinc, and Cobalt Interactions with Glucocorticoid Receptor" Ph.D. Northwestern University, 2003.
8. Ryan Andersen "Inorganic Biochemistry of C2-Containing Calcium-Binding Proteins and Small-Molecule Lead Compounds with Mixed Nitrogen-Sulfur Coordination" Ph.D. Northwestern University, 2004.
9. Elizabeth Suarez "Spectroscopic and Thermodynamic Investigations of Pb<sup>2+</sup> EDTA Amide Analogs in an Aqueous Environment and Studies of Pb<sup>2+</sup> Localization in *S. cerevisiae* by Confocal Fluorescence Microscopy", Ph.D. Northwestern University, 2006.
10. Dimitar Ivanov "The Molecular Mechanism of Lead (Pb(II)) Toxicity in *S. cerevisiae*", Ph.D. Northwestern University, 2008.

**GRADUATE COMMITTEES (NOT RESEARCH ADVISOR) AT UCLA:**

2009-present Mary Jane Knight, ACCESS  
2008-present Marisa Monreal, Chemistry  
2008-present David Fung, Environmental Health Sciences  
2007-present Nancy Jennerjohn, Environmental Health Sciences  
2007-present Demian Willette, Environmental Health Sciences  
2007-present Steven Karpowicz, Chemistry  
2007-present Kevin Sea, Chemistry  
2007-present Lindsay Kane, Chemistry  
2007 David Kimbrough, Environmental Health Sciences

**GRADUATE COMMITTEES (NOT RESEARCH ADVISOR) AT NORTHWESTERN UNIVERSITY:**

2006 Rebecca Copeland, Chemistry  
2005-2006 Yoriel Marcano, Chemistry  
2005-2006 Monica Canalizo, Chemistry  
2005-2006 Meera Raja, Chemistry  
2004 Chris Singer, Ph.D. Chemistry  
2004-2006 Ian Saratovsky, Chemistry  
2004 Laura Lemmers, Chemistry  
2004-2006 Hamsell Alvarez, Chemistry  
2003-2006 Jody Major, Chemistry  
2003-2006 Korin Wheeler, Chemistry  
2003-2006 Chandra Ranjit Yonzon, Chemistry  
2002-2006 Yi Xue, Chemistry  
2002-2006 Carnie Abajan, Chemistry  
2002-2005 Jodi O'Donnell, Ph.D. Chemistry  
2002-2005 Rebecca Landry, Ph.D. Chemistry  
2002-2006 Eric Kawamoto, Chemistry  
2002-2005 Hogbo Li, Ph.D. Chemistry  
2002-2006 Jiang Yao, Chemistry  
2001-2002 Eileen Bayer, IBiS  
2001-2005 Kristi Calvert, Chemistry  
2001-2005 Martin Masar, Chemistry  
2000-2005 Lydia Finney, Ph.D. Chemistry  
2000-2004 Amy Wernimont, IBiS  
1999-2002 Joanna Miller, IBiS  
1999-2002 Adam Eisenberg, Chemistry  
1999-2001 Matthew Metz, Chemistry  
1998-2001 Michael Douglass, Ph.D., Chemistry  
1998-2000 Craig McLaughlan, Ph.D., Chemistry  
1998-2000 Michael Schwartz, Ph.D., IBiS  
1997-2001 Paul Gene, Ph.D., Chemistry  
1997-2001 Caryn Outten, Ph.D., Chemistry  
1997 Bo Yang, M.S. Chemistry

May 11, 2009

Hilary Arnold Godwin

1997-2000  
1996-2000

James Storhoff, Ph.D., Chemistry  
Wade K. Jarrell, Ph.D., Chemistry

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.

Follow this format for each person. **DO NOT EXCEED FOUR PAGES**

NAME Oliver Hankinson	POSITION TITLE Professor of Pathology and Lab. Medicine		
eRA COMMONS USER NAME Hankinson2			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Edinburgh University, Scotland, UK	B.Sc.	1967	Genetics
Cambridge University, England, UK	Ph.D.	1972	Genetics
Harvard University, Cambridge, MA	Postdoc	1972-74	Som. Cell Genetics
University of Colorado, Denver	Postdoc	1974-75	Som. Cell Genetics
University of California, Berkeley	Postdoc	1975-78	Som. Cell Genetics

### Positions and Honors

#### Positions and Employment

1978-1979 Assistant Research Biologist, University of California, Berkeley  
1979-present Assistant Professor, Associate Professor and Professor, Department of Pathology and Laboratory Medicine, School of Medicine, UCLA  
1993-present Member of the Molecular Biology Institute, UCLA  
1994-2003 Director of the Viral and Chemical Carcinogenesis Program Area of the UCLA Jonsson Comprehensive Cancer Center  
1996-2003 Vice Chair for Research, Department of Pathology and Lab. Medicine, UCLA  
2000-present Director, UCLA Molecular Toxicology Interdepartmental Doctoral Program

#### Honors

1967 Graduated summa cum laude with an Honors B.Sc. Degree in Genetics, University of Edinburgh, Scotland  
1972-1974 Fellowship, Leukemia Society of America, Inc.  
1990-1991 Associated Western Universities/DOE Distinguished Lecturer

#### **National Advisory Committee Membership during the last three years:**

Reviewer, NIH Site Visit to Wayne State University, May, 2003  
Ad hoc member, NIH Alcohol and Toxicology 1 Study Section, June and October, 2003  
Ad hoc member, NIH Xenobiotics and Nutrient Disposition and Action Study Section, February, 2004, March, 2005.

#### **A. Peer-reviewed publications since 2001 (in chronological order)**

Roth, MD, Marques-Magallanes, JA, Yuan, M, Sun, W, Tashkin, DP, and **Hankinson, O**, Induction and regulation of the carcinogen-metabolizing enzyme CYP1A1 by marijuana smoke and delta (9)-tetrahydrocannabinol. *Am J Respir Cell Mol Biol.* **24**: 339-44 (2001).

Lei, XD, Chapman, B, and **Hankinson, O**, Loss of CYP1A1 messenger RNA expression due to nonsense-mediated decay. *Mol Pharmacol.* **60**: 388-93 (2001).



Heo, Y., Saxon, A., **Hankinson, O.** Effect of Diesel Exhaust Particles and their Components on Allergen-Specific IgE and IgG1 response in mice. *Toxicol.* 159: 143-158 (2001).

Anttila, S, Tuominen, P, Hirvonen, A, Nurminen, M, Karjalainen, A, **Hankinson, O**, and Elovaara, E, CYP1A1 levels in lung tissue of tobacco smokers and polymorphisms of CYP1A1 and aromatic hydrocarbon receptor. *Pharmacogenetics.* 11: 501-9 (2001).

Yoon, DY, Buchler, P, Saarikoski, ST, Hines, OJ, Reber, HA, and **Hankinson, O**, Identification of genes differentially induced by hypoxia in pancreatic cancer cells. *Biochem Biophys Res Commun.* 288: 882-6 (2001).

Rivera, SP, Saarikoski, ST, and **Hankinson, O**, Identification of a novel dioxin-inducible cytochrome P450. *Mol Pharmacol.* 61: 255-9 (2002).

Wang, S and **Hankinson, O**, Functional involvement of the Brahma/SWI2-related gene 1 protein in cytochrome P4501A1 transcription mediated by the aryl hydrocarbon receptor complex. *J Biol Chem.* 277: 11821-7 (2002).

Beischlag, TV, Wang, S, Rose, DW, Torchia, J, Reisz-Porszasz, S, Muhammad, K, Nelson, WE, Probst, MR, Rosenfeld, MG, and **Hankinson, O**, Recruitment of the NCoA/SRC-1/p160 family of transcriptional coactivators by the aryl hydrocarbon receptor/aryl hydrocarbon receptor nuclear translocator complex. *Mol Cell Biol.* 22: 4319-33 (2002).

Saarikoski, ST, Rivera, SP, and **Hankinson, O**, Mitogen-inducible gene 6 (MIG-6), adipophilin and tuftelin are inducible by hypoxia. *FEBS Lett.* 530: 186-190 (2002).

Anilkumar, G, Rajasekaran, SA, Wang, S, **Hankinson, O**, Bander, NH, and Rajasekaran, AK, Prostate-specific membrane antigen association with filamin A modulates its internalization and NAALADase activity. *Cancer Res.* 63: 2645-8 (2003).

Wang, S, Ge, K, Roeder, RG, and **Hankinson, O**, Role of mediator in transcriptional activation by the aryl hydrocarbon receptor. *J. Biol. Chem.* 279: 13593-600 (2004).

Fretland, A.J., Safe, S., **Hankinson, O.** Lack of Antagonism of 2,3,7,8-tetrachlorodibenzo-p-dioxin's (TCDD's) Induction of Cytochrome P4501A1 (CYP1A1) by the Putative Selective Aryl Hydrocarbon Receptor Modulator 6-alkyl-1,3,8-trichlorodibenzofuran (6-MCDF) in the Mouse Hepatoma Cell Line Hepa1c1c7. *Chemico-Bio. Interact.* 279: 161-170 (2004).

Beischlag, TV, Taylor, RT, Rose, DW, Yoon, D, Chen, Y, Lee, WH, Rosenfeld, MG, **Hankinson, O**, (2004). Recruitment of Thyroid Hormone Receptor/Retinoblastoma Interacting Protein 230 (TRIP230) by the Aryl Hydrocarbon Receptor Nuclear Translocator (ARNT) is Essential for the Transcriptional Response to both Dioxin and Hypoxia. *J. Biol. Chem* 279: 54620-54628 (2004).

Wang, F, Zhang R, Muchardt, C, Yaniv, MN and **Hankinson, O**, Roles of Brahma and Brahma/SWI-2-Related Gene 1 in Hypoxic Induction of the Erythropoietin Gene. *J. Biol. Chem.* 279 46733-46741 (2004).

**Hankinson O.** ARNT. Atlas Genet Cytogenet Oncol Haematol.

URL: <http://www.infobiogen.fr/services/chromcancer/Genes/ARNTID223ch1q21.html> (2004)

Rivera, S.P., Choi, H.H., Chapman, B., Whitekus, M., Terao, M., Garattini, E., **Hankinson, O.** Identification of Aldehyde Oxidase 1 and Aldehyde Oxidase H1 as Dioxin-inducible Genes. *Toxicology* 207: 401-409 (2005).

**Hankinson O.**, Role of coactivators in transcriptional activation by the Aryl Hydrocarbon Receptor. *Archives of Biochem. Biophys.* 433:376-386 (2005).

Saarikoski, S.T., Rivera, S., **Hankinson O.**, and Husgafvel-Pursiainen, K., CYP2S1: a short review. *Toxicology and Applied Pharmacology.* 207: 62-69 (2005).

Wang, F., Zhang, R., Shi, S., and **Hankinson, O.** Identifying Target Genes of the Aryl Hydrocarbon Receptor Nuclear Translocator (Arnt) Using DNA Microarray Analysis, *Biol. Chem.* 387: 1215-1218 (2006).

Rivera, S.P., Saarikoski, S.T., Sun, W., and **Hankinson, O.**, Identification of novel dioxin responsive genes by representational difference analysis. *Xenobiotica* 37: 271-279 (2007).

Rivera, S.P., Wang, F., Saarikoski, S.T., Taylor, R.T., Chapman, B., Zhang, R., and **Hankinson, O.** A Novel Promoter Element Containing Multiple Overlapping Xenobiotic and Hypoxia Response Elements Mediates Induction of Cytochrome P4502S1 by both Dioxin and Hypoxia. *J. Biol. Chem.* 282: 10881-93. (2007).

Hsu E.L., Yoon, D.Y. Choi, H.H., Wang, F., Taylor, R.T., Chen, N., Zhang, R., and **Hankinson, O.** A novel mechanism for the protective effect of dioxin against breast cancer. *Toxicol. Sci.* 98: 436-44 (2007).

Wang F., Shi S, Zhang R., and **Hankinson, O.** Comparative microarray analysis of gene expression in mouse Hepa-1c1c7 and B mutant cell lines - the effect of the aromatic hydrocarbon receptor on the phenotype of the cells in the absence of exogenous ligands. *Gene Regulation and Systems Biology* 1: 49-56 (2007)

Wang, F., Zhang, R., Xia, T., Hsu, E., Cai, Y, Gu, Z., **Hankinson, O.** Inhibitory effects of nitric oxide on invasion of human cancer cells. *Cancer Lett.* 257: 274-282 (2007).

Hsu E.L., Chen, N., Westbrook, A., Wang, F., Zhang, R., Taylor, R.T., **Hankinson, O.**, CXCR4 and CXCL12 down-regulation: a novel mechanism for the chemoprotection of 3,3'-diindolylmethane for breast and ovarian cancers. *Cancer Lett.* 265:113-23 (2008).

**Hankinson, O.** Why does ARNT2 behave differently from ARNT? *Toxicol Sci.* 103: 1-3. (2008)

Bui, P.H., Quesada, A., Handforth, A., and **Hankinson, O.** The mibefradil derivative NNC55-0396, a specific T-type calcium channel antagonist, exhibits less CYP3A4 inhibition than mibefradil *Drug Metab Dispos.* 36:1291-9. (2008)

Taylor RT., Wang, F., Hsu, EL., and **Hankinson, O.** Role of coactivator proteins in dioxin induction of CYP1A1 and CYP1B1 in human breast cancer cells. *Tox Sci.* 107: 1-8 (2009) PMID: PMC2638648

Büchler, P., Reber, H.A., Tomlinson, J.S., **Hankinson, O.**, Kallifatidis, G., Friess, H., Herr, I., Hines, O.J. Transcriptional regulation of urokinase-type plasminogen activator receptor by hypoxia-inducible factor 1 is crucial for invasion of pancreatic and liver cancer. *Neoplasia.*11:196-206. (2009) PMID: PMC2631144

Hsu EL, Chen N, Westbrook A, Wang F, Zhang R, Taylor RT, **Hankinson O.**, "Modulation of CXCR4, CXCL12, and Tumor Cell Invasion Potential In Vitro by Phytochemicals," *Journal of Oncology*, vol. 2009, Article ID 491985, 9 pages, Doi:10.1155/2009/491985.(2009). PMID: PMC2659867

Beedanagari, S.R., Bebenek, I., Bui, P. and **Hankinson, O.** Resveratrol inhibits dioxin-induced expression of human CYP1A1 and CYP1B1 by inhibiting recruitment of the Aryl Hydrocarbon Receptor complex and RNA Polymerase II to the regulatory regions of the corresponding genes. In press in *Tox. Sci.* (2009)

Quesada, A., Bui, P.H., **Hankinson, O.** and Handforth, A.. NNC55-0396, a mibefradil derivative, exerts less behavioral and pharmacokinetic interaction with harmaline than mibefradil in mice. Submitted to *Drug Metab. Disp.* (2009)

## Research Support

### ACTIVE

1R01ES015384-01 (Hankinson)

9/28/06 - 7/31/11

NIH/NIEHS

Function and Regulation of Human Cytochrome P4502S1

We will identify substrates of the newly identified human CYP2S1 and delineate the mechanisms of induction of the gene by xenobiotics and hypoxia.

5R01CA28868-25 (Hankinson)

12/01/05 – 11/30/10

NIH/NCI

Carcinogen Activation and Screening in Variant Cells

The roles of coactivators, corepressors and chromatin modification will be evaluated during dioxin induction of the human CYP1A1 and CYP1B1 genes.

T32ES015457-01A1 (Hankinson)

7/1/08 – 6/30/13

NIH/NIEHS

Training in Molecular Toxicology

This is a training grant for pre-doctoral students and postdoctoral scholars at UCLA.

U19 AI-67769 (W. McBride)

8/3/2005 – 7/30/10

NIH/NIAID

seed grant to O. Hankinson (7/1/08-6/30/09)

Contract/Grant Title: UCLA Center for Biological Radioprotectors.

O. Hankinson's project: Radioprotection by Dibenzoylmethane as a potential radioprotector

CN-08-178 (O. Hankinson and S. Huerte-Yepe)z)

7/1/08 – 6/30/09

The University of California Institute for Mexico and the United States

Evaluation of the Role of HIF-1 in allergic Airway Inflammation

Using a knockout mouse for ARNT, we will determine if HIF-1 is required for the asthmatic response.

### COMPLETED DURING LAST THREE YEARS

CN-08-178 (Hankinson) Years 4 through 8.

7/1/03 - 6/30/08

UC Toxic Substances Research and Teaching Program

UCLA/UC Riverside/Los Alamos Consortium in Research and Training in Mechanisms of Toxicity.

This is a training grant which supports graduate student research in molecular toxicology at UCLA and UCR, and fosters collaborations between the three campuses.

U19AI-66769 (W. McBride)

8/3/2005 - 7/30/10

NIH/NAID

UCLA Center for Biological Radioprotectors

O. Hankinson was PI of a seed grant for the period 4/1/07 – 3/31/08 to ascertain whether small molecules that up-regulate Hypoxia Inducible Factor confer radioprotection.

05A092 (Hankinson)

01/02/06 - 12/31/07

American Institute of Cancer Research

Mechanism of Cancer Chemoprevention by Constituents of Cruciferous Vegetables

We will study the role of down-regulation of CXCR4 and CXCL12 in 3,3'-indolylmethane's protective effect against breast cancer.

5 R01 CA93471-01-05 (Hankinson)

12/01/01 – 11/30/06

NIH/NCI

ARNT: Roles in Tumor Induction and Growth, and Toxicity

This study will utilize mice in which the aryl hydrocarbon receptor nuclear translocator (ARNT) gene has been knocked out in specific adult tissues to investigate the role of the ARNT protein (i) in mediating toxic and carcinogenic effects of dioxin and other ligands for the aryl hydrocarbon receptor, and (ii) in determining the degree of angiogenesis and growth rate of tumors

5 P01 AI050495-05 (Saxon)

09/01/01 – 06/30/06

NIH/NIAID

Xenobiotics and Allergic Inflammation

Use of different model compounds and mutant mouse strains to investigate the mechanisms whereby diesel exhaust particles act as an adjuvant for allergic airway disease. O.H. was co-PI of project 4.

CURRICULUM VITAE  
**William Carson Hinds**

Date of Birth: May 3, 1939  
Place of Birth: Waterville, Maine, USA  
Academic Title: Professor of Environmental Health Sciences  
Business Address: UCLA School of Public Health  
University of California, Los Angeles  
650 Charles E. Young Drive South  
Los Angeles, California 90095-1772  
Phone: (310) 825-7152  
Fax: (310) 794-9317  
e-mail: whinds@ucla.edu  
Home Address: Pacific Palisades, California 90272

**EDUCATION**

B.M.E.	Mechanical Engineering	Cornell University	1962
M.S. in Hyg.	Air Pollution	Harvard University	1969
Sc.D.	Environmental Health	Harvard University	1972
Certificate of Advanced Engineering Study (for work completed in 1962 equivalent to a Master of Engineering degree)			Cornell University 1988

**HONORS**

U.S. Public Health Service Traineeship, 1968-72  
Sigma Xi, 1972-Present  
3M Foundation Honorary Research Grant, 1985  
UCLA Health Careers Opportunity Program Special Recognition Award, 1985  
Delta Omega (Public Health Honorary Society) 1988-Present  
Ralph Sachs Visiting Scholar at UC Berkeley, 1989  
Outstanding Faculty Member, UCLA School of Public Health, Spring 1990  
Fellow, American Industrial Hygiene Association, 1994-Present  
American Industrial Hygiene Association, Southern California Section, Technical  
Achievement Award, 1996  
Distinguished Teaching Award, Public Health Student Association, 1997  
Exceptional Teaching Award, Public Health Student Association, 1998  
American Industrial Hygiene Association, Donald E. Cummings Memorial Award  
(to be awarded June 1, 2009)

## **BOARD CERTIFICATION**

Full Diplomate of the American Board of Industrial Hygiene (Certified Industrial Hygienist (CIH) in Comprehensive Practice) Certification Number 996 (1975-Present)

Registered Environmental Assessor (REA) State of California, Number 03865 (1992-1996)

## **PROFESSIONAL EXPERIENCE**

- 2000-Present Director NIOSH Southern California Education and Research Center
- 1993-2000 Deputy Director, NIOSH Educational Resource Center (Southern California)
- 1993-93 Acting Director, UCLA Center for Occupational and Environmental Health
- 1989-91 Chair, Department of Environmental Health Sciences, UCLA School of Public Health
- 1989-Present Professor of Environmental Health Sciences
- 1988-90 Vice Chair, Department of Public Health, UCLA School of Public Health
- 1987-89 Division Head, Division of Environmental and Occupational Health Sciences, UCLA School of Public Health
- 1986-89 Professor of Public Health, Division of Environmental and Occupational Health Sciences, UCLA School of Public Health
- 1984-88 Affiliated Faculty Member of UCLA School of Engineering and Applied Science
- 1984-84 Acting Associate Director of the University of California Southern Occupational Health Center, UCLA School of Public Health
- 1982-Present Director of the UCLA Industrial Hygiene Program
- 1982-86 Associate Professor of Public Health, Division of Environmental and Occupational Health Sciences, UCLA School of Public Health
- 1980-82 Associate Professor of Environmental Health Engineering, Department of Environmental Health Sciences, Harvard University School of Public Health
- 1973-80 Assistant Professor of Environmental Health Engineering, Department of Environmental Health Sciences, Harvard University School of Public Health
- 1972-73 Research Associate in Industrial Hygiene Engineering, Department of Environmental Health Sciences, Harvard University School of Public Health
- 1970-71 Teaching Fellow in Environmental Health Sciences, Department of Environmental Health Sciences, Harvard University School of Public Health

1963-68      Research Engineer, Department of Industrial Hygiene, Harvard University  
School of Public Health

## **RESEARCH**

### Major Research Interests

Fundamental and applied research related to aerosols (airborne particles) including, physical and chemical properties, characterization of aerosols for human health hazard evaluation, respiratory deposition of aerosols, aerosol formation, aerosol measurement instrumentation; performance and evaluation of respiratory protective devices; modeling and evaluation of near-field contaminant dispersion; and control methods for airborne contaminants.

### Research Grants, Principal Investigator

"Aerosols Produced by Bursting Bubbles at Liquid Surfaces", University of California Academic Senate Research Grant, 2/18/83 - 6/30/83, \$2388.

"Respirator Performance Model for Particulates", National Institute for Occupational Safety and Health, Research Grant, September 19, 1983 to February 28, 1987, \$188,475.

"Droplet Formation in Compressed Air Nebulizers", Biological Research Support Grant, 3/85 - 12/85, \$2980.

"Respirator Performance Model for Particulates", National Institute of Occupational Safety and Health, Research Grant, April 1, 1988 to September 30, 1992, \$273,954.

"Filter Performance Study," Los Alamos National Laboratory, 1/1/90 to 12/31/90, \$15,000.

"Interaction of Occupational Aerosols and Tobacco Smoke," University of California Tobacco-related Diseases Program, July 1, 1990 to June 30, 1994, \$194,078.

(Co-PI) "Aerosol Size Distribution of Chromium in Spray Painting," E.R.C., Inc. 10/93-9/95, \$35,140.

"Inhalation and Sampling of Large Particles, 10-150  $\mu$ m," NIOSH 9/30/94-9/29/98, \$208,873.

"Effect of Temperature and Humidity on Particle Size of Cigarette Smoke," UCLA Academic Senate, 7/1/95-6/30/96 \$3,365.

"Exposure Assessment Analytical Core, Center for Environmental Exposure, Host Factors and Human Disease," NIEHS 4/1/96-3/31/01 \$485,421, 4/1/01-3/31/06 \$600,000 (\$120,000/year).

"Evaluation and Validation of Environmental Tobacco Smoke Tracers," NIEHS SCEHS, Pilot Project, 1997-98, \$7600.

"Evaluation of a new type of fit-check test for disposable respirators," Moldex-Metric, Inc. 10/98 - 10/99, \$9,887.

DOE/LANL, "An Automated System for Task-based Beryllium Exposure Assessment," \$735,000, 2/19/99-2/18/03 (Co-PI).

California Air Resources Board "Development of an Exposure Facility to Conduct Inhalation Studies of Ambient Aerosols," 10/1/00 - 9/30/01, \$536,339 (Co-PI).

"Southern California Particulate Matter Supersite," EPA 01/01/00 - 12/31/04, \$3,499,908 (total) (Co-PI).

California Air Resources Board "Cardiovascular Health Effects of Fine and Ultrafine Particles during Freeway Travel," 2005-2010, \$640,674 (PI).

NIEHS "Exposure Assessment and Analytical Chemistry Facility Core" 04/01/01-3/31/06 \$638,000

NIEHS "Exposure Assessment and GIS Facility Core" 04/01/06 – 03/31/11, \$279,055.

California Wellness Foundation, "Illness and Injury Prevention for Low Wage Service Workers," 7/1/06-6/30/09, \$160,000.

Susan Harwood Training Grant from OSHA , "Injury and illness prevention training for groundskeepers," 10/2/06 - 9/30/07, \$188,287

Susan Harwood Training Grant from OSHA, "Pandemic Flu – planning for small businesses," 10/1/07 - 9/30/08, \$259,796

#### Research Grants - Co-investigator

NIOSH/DOE R01/CCR912034 "Worker Exposure Assessment and Hazard and Medical Surveillance Program", \$267,360, 9/30/95-9/29/99.

CARB "Development of an exposure facility to conduct inhalation studies of ambient aerosols," 5/30/99-8/30/04, \$2,500,000; \$428,069 (first year).

EPA "Southern California Center for Airborne Particulate Matter (SCCAPM)," 06/01/99-05/31/04, \$8,715,583 (total).

NIEHS/USC subcontract, H12938/PO1 ESO9581, "Modulation of Allergic Response by Environmental Tobacco Smoke," 11/01/98-10/31/03, \$84,056.

NIEHS/USC subcontract, H12946/PO1 ESO9581, "Modulation of Allergic Response by Environmental Tobacco Smoke," 8/1/98-7/31/03, \$109,778.

Health Effect Institute, "Effects of Diesel Exhaust and Other Particles on Exacerbation of Asthma and Other Allergic Diseases," 7/1/01-12/31/02, \$107,700.

South Coast Air Quality Management District – Asthma Consortium, "The Roles of Pollutant Components in the Development of Asthma," 04/01/08 03/30/09, \$47,485.

#### Training Grants, Principal Investigator

Industrial Hygiene Program", National Institute for Occupational Safety and Health Educational Resource Center, July 1, 1984 to June 30, 1989, \$572,309.

"Industrial Hygiene Research Initiative Training Grant", National Institute for Occupational Safety and Health, Education Resource Center, July 1, 1987 to June 30, 1989, \$44,074.

"Industrial Hygiene Program", National Institute for Occupational Safety and Health Educational Resource Center, July 1, 1989 to June 30, 1994, \$897,008.

"Industrial Hygiene Research Initiative Training Grant", National Institute for Occupational Safety and Health, Education Resource Center, July 1, 1989 to June 30, 1994, \$536,623.

"UCLA Industrial Hygiene Training Program," NIOSH/USC 7/94-6/99, \$2,299,114 (requested). Awarded: 7/94-6/95 \$125,002, 7/95-6/96 \$125,002, 7/96-6/97 \$126,300; 1997-98 \$120,260; 1998-99 \$121,000

"UCLA Hazardous Substances Academic Training Center," NIOSH/USC, 7/94-6/99, \$450,110 (requested). Awarded: 7/94-6/95 \$55,560, 7/1/95-6/30/96 \$55,560; 7/1/96-6/30/97 \$56,764; 1997-98 \$57,241; 1998-99 \$55,066

"Industrial Hygiene Training Program," NIOSH/USC, 7/1/99-6/30/04 \$2,272,583 (requested). Awarded: 7/02-6/03, \$174,135.

"Hazardous Substances Academic Training," NIOSH/USC, 7/1/97-6/30/02 \$455,637 (requested). Awarded: 7/02-6/03, \$37,000.

"Southern California NIOSH Education and Research Center," NIOSH 7/1/00 - 6/30/04, \$2,724,000; 7/1/00-6/30/01 \$738,229; 7/1/01-6/30/02 \$843,247; 7/1/02-6/30/03 \$976,632.

PI for entire Center and for the following programs:

Industrial Hygiene Program	2002-03	\$174,135
Hazardous Substance Academic Training Program	2002-03	\$37,000
Pilot Project Research Training Program	2002-03	\$73,599
Center Administration NIOSH ERC	2002-03	\$31,863

"Southern California NIOSH Education and Research Center," NIOSH 7/1/04 - 6/30/09, \$1,358,248/year. PI for entire Center and for the following programs:

Industrial Hygiene Program	2002-03	\$169,289
Hazardous Substance Academic Training Program	2002-03	\$59,000
Pilot Project Research Training Program	2002-03	\$106,974
Center Administration NIOSH ERC	2002-03	\$82,269

## TEACHING

### Courses Taught

#### Academic

Aerosol Technology, EHS 253a,b and Engineering 286 (Harvard University)  
Air and Gas Cleaning (ESP section) EHS 265c,d and Engineering 289 (Harvard University)  
Departmental Seminar EHS 202c (Harvard University)  
EHS 200A Physical Agents Module (UCLA)  
EHS 200A Environmental Agents Segment (UCLA)  
EHS 200B Foundations of Environmental Health, Industrial Hygiene Segment (UCLA)



EHS 252D Properties and Measurement of Airborne Particles [PH 257E] (UCLA)  
 EHS 252F Industrial Hygiene Measurement Laboratory [PH 257G] (UCLA)  
 EHS 252G Industrial and Environmental Hygiene Assessment (UCLA)  
 EHS 253 Physical Agents in the Work Environment [PH 257H] (UCLA)  
 EHS 254 Health Hazards of Manufacturing Processes [PH 157G] (UCLA)  
 EHS 255 Control of Airborne Contaminants in Industry [PH 257H] (UCLA)  
 EHS 296G Advances in Aerosol Science (UCLA)  
 EHS 298B Industrial Hygiene Management Seminar (UCLA)  
 EHS 400 Field Studies in Public Health [PH 400] (UCLA)  
 EHS 454 Health Hazards of Manufacturing Processes [EHS 254] (UCLA)  
 EHS 596 Directed Individual Study [PH 596] (UCLA)  
 EHS 597 Preparation for Doctoral Exam [PH 597] (UCLA)  
 EHS 598 Masters Thesis Research [PH 598] (UCLA)  
 EHS 599 Doctoral Dissertation Research [PH 599] (UCLA)

#### Executive MPH Program

Lecturer in Community Health Sciences Executive MPH Program  
 Lecturer in Health Services Executive MPH Program

#### Tutorials at Professional Meetings (national and international level)

American Industrial Hygiene Association (6 times)  
 American Association for Aerosol Research (26 times)  
 International Aerosol Conference (Los Angeles; Edinburgh, Scotland, UK)  
 American Conference of Governmental Industrial Hygienists  
 European Aerosol Conference (Dublin, Ireland)  
 4th Asian Aerosol Conference 2005 (Mumbai, India) (2005)  
 Nanotechnology and Occupational Health, Minneapolis, MN (2005).  
 7th International Aerosol Conference, St. Paul, MN (2006)

#### Continuing Education (Harvard)

Director, Harvard-Dupont Industrial Hygiene Review Course (3); Co-Director, Harvard Industrial Hygiene Workshop (20). Lecturer in over 50 continuing education courses including Harvard-G.E., Fundamentals of Industrial Hygiene, Harvard-Dupont Industrial Hygiene Review Course, Industrial Hygiene Workshop, Occupational and Environmental Radiation Protection, Filter Testing Workshop, Current Topics in Industrial Hygiene, and Environmental Impact of Energy Development.

#### Doctoral Committees

##### Doctoral Committees, Chair

Eugene Mallove	1973-75	(HU)
John Leonovich	1979-80	(HU)
Peter Bellin	1985-89	(UCLA)
Ti-Lin Kuo	1989-93	(UCLA)
Ronald Scripsick	1990-94	(UCLA)
Nani Kadrichu	1995-98	(UCLA)
Nola Kennedy	1997-2000	(UCLA)
Bart Ashley	1998-2001	(UCLA)
Yifang Zhu	1999-2003	(UCLA)
Craig Conlon	2001-2008	(UCLA)
Peng-Cheng Sung	2001-2007	(UCLA)

James Hollingshead	2002-2007	(UCLA)
Dane Westerdahl	2003-Present	(UCLA ESE)
Jeffrey Birkner	2003-2007	(UCLA) (Co-chair)
Nancy Jennerjohn	2004-Present	(UCLA) (Co-chair)
David Fung	2006-Present	(UCLA)

#### Doctoral Committees, Member

Douglas Dockery	1976-79	(HU)
Nelson Leidel	1976-79	(HU)
Thomas Kolonowski	1979-81	(HU)
Robert Clifford	1981-82	(HU)
Edward Maher	1981-82	(HU)
Victor Liu	1983-87	(UCLA EOHS)
Dennis Robinson	1983-85	(UCLA ESE)
Brenda Seidman	1983-85	(UCLA Med)
Kent Volkmer	1984-85	(UCLA ESE)
Soteris Pratsinis	1984-85	(UCLA SEAS)
Mark Saperstein	1985-86	(UCLA ESE)
Tiovo Kodas	1985-86	(UCLA SEAS)
Pieter van der Torn	1986-91	(UCLA ESE)
Jong-Song Lee	1987-89	(UCLA EOHS)
Joon-Wun Kang	1987-89	(UCLA ESE)
Jeffery Cheek	1988-88	(UCLA EHS)
Tam Smalstig	1989-92	(UCLA EHS)
Marisa Mazari	1989-92	(UCLA ESE)
Judy Libra	1989-91	(UCLA SEAS)
Kyoung-Sin Ro	1989-89	(UCLA SEAS)
Kenneth Wilmarth	1990-91	(UCLA EHS)
Devon Cancilla	1990-91	(UCLA EHS)
Shiaw-Fen Ferng	1990-91	(UCLA EHS)
Michael St. Denis	1991-93	(UCLA ESE)
Sumeet Chhibber	1991-92	(UCLA SEAS)
Eric Fujita	1991-92	(UCLA ESE)
Pablo Cicero-Fernandez	1992-95	(UCLA ESE)
Lianfa Song	1992-93	(UCLA SEAS)
Yu-Wen Lin	1993-97	(UCLA EHS)
Hsiao-Ting Chen	1993-97	(UCLA EHS)
Day-Lin Liu	1993-93	(UCLA SEAS)
Seung-Kwan Hong	1994-96	(UCLA SEAS)
Robert Windeler	1994-96	(UCLA SEAS)
Xiaohua Zhu	1994-96	(UCLA SEAS)
Jerry Ho	1994-96	(UCLA ESE)
Namita Verma	1995-95	(UCLA ESE)
Ning Sun	1996-98	(UCLA SEAS)
Shih-Wei Tsai	1996-98	(UCLA EHS)
Paul Beswick	1996-98	(UCLA ESE)
Lynn Creelman	1996-97	(UCLA ESE)
Rania Sabty	1996-2001	(UCLA EHS)
Raymond Chavira	1997-1998	(UCLA ESE)
Michael Benjamin	1997-1998	(UCLA ESE)
Jingyang Zhang	1998-2002	(UCLA EHS)
Jae Chung Young	1998-2000	(UCLA ESE)
Yang Shen	1998-2000	(UCLA EHS)

Anne-Christine Aycaguer	1999	(UCLA ESE)
Michael Stowers	1999	(UCLA SEAS)
Mary Ann Black	1999-2001	(UCLA EHS)
Ray Chavira	1999-2002	(UCLA ESE)
Naomichi Yamamoto	2000	(UCLA EHS)
Weiguang Zhang	2001-2003	(UCLA EHS)
Jennifer Jones	2001-2004	(UCLA ESE)
Jun Wu	2001-2004	(UCLA EHS)
Todd Sax	2001-2004	(UCLA ESE)
Chandran Misra	2002-2004	(USC Env. Eng.)
Eduardo Behrentz	2002-2005	(UCLA ESE)
Lisa Sabin	2002-2005	(UCLA ESE)
Crystal Reul	2002-2004	(UCLA ESE)
Derek Shendell	2002-2003	(UCLA ESE)
Jesus Santos	2002-2004	(UCLA EHS)
Manisha Singh	2003-2005	(USC Env. Eng.)
Scott Fruin	2003	(UCLA ESE)
Robert Phalen	2003	(UCLA EHS)
Namita Verma	2003-2007	(UCLA ESE)
Wenhai Xu	2003-2007	(UCLA EHS)
Anshuman Lall	2004-2006	(UCLA Chem Eng)
Teresa Barone	2004-2006	(UCLA Chem Eng)
Jason Wang	2004-2005	(UCLA EPI)
Jeong Lee Seong	2005	(UCLA ESE)
Kathleen Kozawa	2005-2007	(UCLA ESE)
Margret Krudysz	2005-Present	(UCLA EHS)
Cody Livingston	2006-2007	(UCLA ESE)
Patrick Sislian	2007-Present	(UCLA Chem Eng)
Catherine Kaddis	2008-2008	(UCLA Chem & Biochem)

#### Masters Committees, Chair

Linda Weil	1980-81	(HU)
Susan Baron	1980-81	(HU)
Nola Engle	1985-93	(UCLA EHS)
Ti-Lin Kuo	1987-89	(UCLA EHS)
David Risi	1990-91	(UCLA EHS)
Justine Smitherman	1990-91	(UCLA EHS)
Anathalie Priestley	1990-91	(UCLA EHS)
Rocky Dendo	1991-92	(UCLA EHS)
Cora Gherga	1992-93	(UCLA EHS)
Eunice Kwon	1992-93	(UCLA EHS)
John Salzer	1992-94	(UCLA EHS)
Christopher Marquez	1993-96	(UCLA EHS)
Michael Cappas	1993-94	(UCLA EHS)
Aaron Davenport	1994-95	(UCLA EHS)
Timothy Eng	1994-95	(UCLA EHS)
Melissa Thomas	1994-95	(UCLA EHS)
Daniel Chan	1994-96	(UCLA EHS)
Anthony Lee	1995-97	(UCLA EHS)
Lori Maeda	1995-97	(UCLA EHS)
Karina Tatyán	1995-97	(UCLA EHS)
Kristine Bell	1996-98	(UCLA EHS)
Sara Richards	1996-98	(UCLA EHS)

Ted Benchoff	1998-99	(UCLA EHS)
Marlene Chuek	1998-99	(UCLA EHS)
Gerald Pineda	1998-99	(UCLA EHS)
William Peck	1998-99	(UCLA EHS)
Rose Siengsubcharti	2000-01	(UCLA EHS)
Karen Ko	2000-01	(UCLA EHS)
Jimmy Shaw	2000-01	(UCLA EHS)
Ross Veal	2000-01	(UCLA EHS)
Patricia Menjivar	2002-03	(UCLA EHS)
Alec Revchuck	2005-06	(UCLA EHS)
David Fung	2005-06	(UCLA EHS)

Masters Committee, Member

Hillary Main	1988-88	(UCLA SEAS)
Douglas Chapin	1988-90	(UCLA EHS)
Anne Adamson	1989-89	(UCLA EHS)
Andrew Sheldon	1990-90	(UCLA EHS)
Eugene Paik	1991-91	(UCLA EHS)
Yu-Wen Lin	1992-92	(UCLA EHS)
Ana Samimi	1993-93	(UCLA EHS)
David Kimbrough	1993-94	(UCLA EHS)
Arslan Khan	1993-94	(UCLA EHS)
Ray Chavira	1994-95	(UCLA EHS)
Songdu Chang	1995-96	(UCLA EHS)
Xuesong Lu	1994-95	(UCLA EHS)
Jinghui Wang	1995-96	(UCLA EHS)
Soo Young Kim	1997	(UCLA EHS)
Philip Simpson	1997	(UCLA SEAS)
Kyle Lim	1998-99	(UCLA EHS)
Keummi Park	1998-99	(UCLA EHS)
Gerald Pineda	1998-99	(UCLA EHS)
Patricia Harris	1998-00	(UCLA EHS)
Linda Arias	1999-00	(UCLA EHS)
Kim Preston	2000	(UCLA EHS)
Pin-Chieh Wang	2000-01	(UCLA EHS)
Mayra Tinoco	2000-01	(UCLA EHS)
Kenneth Wong	2001-02	(UCLA EHS)

Masters Student Mentor

Hyun Tai Kim	2001	(UCLA visiting student, KJIST, Seoul Korea)
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Project Consultant

Students: Suzanne Bonner, Sandra Lee, David Young, and Stacy Schlegal 2002  
(UCLA AGSM)

Consultant on aerosol instrumentation for Anderson Graduate School of Management, Global Access Program (GAP) project

**SERVICE**

Professional and Scholarly Service

- 1973-80 Member of Committee D-22, Methods of Sampling and Analysis of Atmospheres, of American Society for Testing and Materials (national level)
- 1974-88 Professional Development Course Instructor for American Industrial Hygiene Conference (national meeting)
- 1974-88 Member of TT-1 (Particulate) Technical Committee of the Air Pollution Control Association (national level) [continues as AB-1 Particulates Committee]
- 1974-75 Member of Program Committee of Harvard/Radcliff Chapter of Sigma Xi
- 1975-80 Proctor for American Board of Industrial Hygiene Certification Examinations
- 1976-90 Member of Aerosol Technology Committee of American Industrial Hygiene Association (national level)
- 1976-79 Secretary for Aerosol Technology Committee of American Industrial Hygiene Association (national level)
- 1976-80 Member of Aerosol Transport Committee of the Reactor Safety Data Coordinating Group for the Department of Energy
- 1982-2001 Member of Air Sampling Procedures Committee of American Conference of Governmental Industrial Hygienists (national level)
- 1984-93 Reviewer of grant proposals for National Science Foundation
- 1984-91 Editorial Board Member, Journal of Aerosol Science
- 1984-1997 Member of the Executive Committee of the Southern California NIOSH Educational Resource Center
- 1985 Reviewer of grant proposals for University-wide Energy Research Group
- 1986-92 Member of Education Committee of American Association of Aerosol Research (national level)
- 1987 Proposal reviewer for Occupational Health Advisory Board of General Motors and United Auto Workers
- 1987-91 Guest lecturer on industrial hygiene ventilation control at University of Southern California
- 1988 Ad Hoc member of NIOSH Board of Scientific Counselors for site visit of Division of Safety Research, National Institute for Occupational Safety and Health, Morgantown, WV
- 1988-91 Member of Working Group on Respiratory Protection of American Association of Aerosol Research (national level)
- 1989 Proposal reviewer for Occupational Health Advisory Board of Chrysler/United Auto Workers

1989-2000	Member of AB-1 Particulates Committee of the Air and Waste Management Association (national level)
1990-91	Consultant to National Institute for Occupational Safety and Health for NIOSH Assessment of Performance Levels for Industrial Respirators: Prerulemaking Technical Conference
1990-93	Member of Editorial Board of the Journal of the International Society for Respiratory Protection (national Level)
1990-93	Board of Directors, American Association for Aerosol Research (elected, national level)
1991-Present	Member of American National Standards Institute Committee Z88.12, Respiratory Protection for Infectious Agents (national level)
1993-93	Consultant to General Accounting Office of the U.S. Congress for Occupational Health Assessment of Maquiladora Industries
1994-95 1995-95	Member Nominating Committee American Association for Aerosol Research Outside Promotion Evaluator for University of Illinois at Chicago
1996-Present	Member of the Executive Committee of the NIEHS Southern California Environmental Health Sciences Center
1997	Outside Promotion and Tenure Evaluator for University of West Virginia
1997-Present	Member of the Executive Committee of the Southern California NIOSH Education and Research Center
1997	NIOSH Site-Visitor for University of Oklahoma Industrial Hygiene Program
1998	Member of the Planning Committee for the Southern California NIOSH ERC Continuing Education Program
1998-1999	Consultant to National Academy of Sciences for Strategies to Protect the Health of Deployed Forces: Physical Protection and Decontamination, Respirator Protection
1999	Reviewer for Center for Occupational and Environmental Health Student Research Awards
1999-2005	Member of the Executive Committee of the Southern California Center for Airborne Particulate Matter
2001	Member of NIOSH Special Emphasis Panel for Agricultural Disease and Injury Research, Education, and Prevention Centers
2001	Reviewer for the NIOSH Alice B. Hamilton Award
2002-2005	Member Awards Committee, American Association for Aerosol Research

2002 External tenure and promotion reviewer for University of Iowa College of Public Health

2002-2005 Member Internal Advisory Committee for Southern California Particle Center and Supersite

2002-2005 Member Advisory Committee for California Population Health Forecasting Project

2002-2004 Core Faculty Member, SPH Scholarship, Teaching, and Evaluation Program for Tobacco Use Prevention (STEP UP) American Society for Public Health/ American Legacy Foundation

2003 Proposal Reviewer for National Science and Engineering Research Council of Canada

2004 External tenure and promotion reviewer for University of Minnesota School of Public Health

2004 American Conference of Governmental Industrial Hygienists Awards Committee

2005 Joint Awards Committee for Thomas T. Mercer Award, Society for Aerosols in Medicine and American Association for Aerosol Research

2005 Proposal reviewer for Pilot Project for Southern California Environmental Health Center

2005 Proposal reviewer for NIOSH Health Effects Laboratory Division

2005 Tenure reviewer University of Illinois at Chicago

2008 Center proposal reviewer for Center of Excellence for Aerosol Science and Technology Promoting Sustainability, Swedish Research Council

2008 Proposal reviewer for Pilot Project for Southern California Environmental Health Center

2009 Proposal reviewer for NIOSH Division of Respiratory Disease Studies

2009 Promotion reviewer for National Taiwan University College of Public Health

University Committee Service

1977-82	MPH Committee	(HSPH)
1982-83	Computer Usage Advisory Committee	(UCLA SPH)
1982-83	Doctoral Admissions Committee	(UCLA SPH)
1983-84	Long-Range Planning Committee	(UCLA SPH)
1983-85	Admissions Policy Committee	(UCLA SPH)
1983-85	Computer Committee	(UCLA SPH)
1984-85	Chair of Industrial Hygiene Search Committee	(UCLA SPH)
1984-85	Chair of Admission Policy Committee	(UCLA SPH)
1984-86	Minority Advisory Committee	(UCLA SPH)

1985-86	UCI Industrial Hygiene Search Committee	(UCI DCEM)
1985-87	SPH Dean Search Committee	(UCLA)
1985-87	Credentials Committee	(UCLA SPH)
1986-89	Staff Reclassification Review Committee	(UCLA SPH)
1987-89	Chair of Industrial Hygiene Search Committee	(UCLA SPH)
1987-91	Interdepartmental Committee for Environmental Science and Engineering	(UCLA)
1987-89	Space Committee	(UCLA SPH)
1987-91	Faculty Council	(UCLA SPH)
1988-89	Environmental Science and Engineering Search Committee	(UCLA)
1991-92	SPH Research Committee (Chair)	(UCLA SPH)
1991-93	Academic Policy and Procedures Committee, Course Approval Subcommittee (Chair)	(UCLA EHS)
1991-93	Admissions and Financial Aid Committee (Chair)	(UCLA EHS)
1991-93	MPH Comprehensive Examination Committee	(UCLA EHS)
1992-94	SPH Equipment and Laboratory Committee	(UCLA SPH)
1993-93	Strategic Planning Curriculum Committee, DrPH Subcommittee (Chair)	(UCLA SPH)
1993-96	Academic Policy and Procedures Committee	(UCLA EHS)
1993-Present	Tony Norton Memorial Fellowship Committee	(UCLA EHS)
1993-Present	Interdepartmental Committee for Environmental Science and Engineering	(UCLA)
1993-94	Equipment and Laboratory Committee	(UCLA SPH)
1994-95	Faculty Promotion Ad-Hoc Committee	(UCLA)
1994-96	Research Committee	(UCLA SPH)
1994-95	Space Committee (Chair)	(UCLA EHS)
1995-96	Student Affairs Committee	(UCLA SPH)
1995-96	Personnel Committee	(UCLA COEH)
1995-1999	Admissions and Financial Aid Committee (Chair)	(UCLA EHS)
1995-97	Academic Policy Committee	(UCLA EHS)
1996-97	Equipment and Laboratory Committee	(UCLA SPH)
1996-98	Student Affairs Committee	(UCLA SPH)
1997	Faculty Appointment Ad-Hoc Committee (Chair)	(UCLA)
1997-98	Oversight Committee for Community Health Promotion Program	(UCLA SPH)
1998-2000	Student Affairs Committee (Chair)	(UCLA SPH)
1999	Faculty Promotion Ad-Hoc Committee	(UCLA Math)
1999-2001	EHS Academic Policy Committee (Chair)	(UCLA EHS)
1998-1999	Academic Policy and Procedures Committee	(UCLA EHS)
1999- 2004	Academic Policy and Procedures Committee (Chair)	(UCLA EHS)
2000-01	Community and Alumni Relations Committee	(UCLA SPH)
2000-04	Ad Hoc Committee on Health Sciences Compensation Plan	(UCLA SPH)
2001	Five-year Review Committee	(UCLA EHS)
2001	Personnel Committee	(UCLA COEH)
2001-02	Research Committee	(UCLA SPH)
2002-2005	Ad Hoc Committee on Health Sciences Compensation Plan (Chair 2003)	(UCLA SPH)
2000-Present	“UCLA Public Health” magazine Editorial Board	(UCLA SPH)
2002-2008	Occupational Health/Environmental Health faculty position in Family Medicine Search Committee	(UCLA COEH and SOM)
2002	Faculty promotion Ad-Hoc Committee	(UCLA SOM)



2003	Faculty promotion Ad-Hoc Committee	(UCLA SOM)
2004	Faculty promotion Ad-Hoc Committee	(UCLA)
2004	Faculty promotion Ad-Hoc Committee	(UCLA)
2004	External Advisory Committee for Alper Program in Environmental Genomics	(UCLA MolTox)
2005	Search Committee for Director of UCLA LOSH Program	(UCLA COEH)
2007-08	Search Committee for Director of SCERC	(UCLA)

#### Participation in Professional Meetings

Invited paper on Turbulent Coagulation: Novel Concepts, Methods, and Advanced Technology in Particulate-Gas Separation, National Science Foundation and Environmental Protection Agency, Notre Dame, Indiana (1977).

Invited paper on Dry-Dispersion Aerosol Generators, Symposium on Biological Studies of Environmental Pollutants, American Chemical Society, Honolulu, Hawaii (1979).

Session Arranger for Aerosol Technology Sessions for 1980 American Industrial Hygiene Conference, Houston, Texas (1980).

Conference Chairman for the 13th Aerosol Technology Meeting, Harvard University (1980).

Session Arranger for Aerosol Technology Sessions for 1981 American Industrial Hygiene Conference, Portland, Oregon (1981).

Session Arranger for Aerosol Technology Sessions for 1982 American Industrial Hygiene Conference, Cincinnati, Ohio (1982).

Session Chairman for Aerosol Technology Session at 1982 American Industrial Hygiene Conference, Cincinnati, Ohio (1982).

Invited paper on Anatomic Fractionation of Particulate Exposure, American Occupational Health Conference, Los Angeles, CA (1984).

Session Chairman for Optical Measurement Session at the First International Aerosol Conference, Minneapolis, MN (1984).

Session Chairman for Aerosol Technology Session at 1985 American Industrial Hygiene Conference, Las Vegas, NV (1985).

Delegate to Occupational Health Scientific Exchange in Peoples Republic of China, July 2-22, 1985.

Session Chairman for Respirator Evaluation session at Annual Meeting of American Association for Aerosol Research, Albuquerque, NM (1985).

Session Chair at the 3rd International Aerosol Conference, Kyoto, Japan September 24-27, 1990.

Invited Plenary Speaker at the 1993 International Conference on Aerosol Science and Technology, Taichung, Taiwan, R.O.C. (1993)

Session Chair, Environmental Tobacco Smoke Session, First Annual Scientific Conference, Tobacco-Related Disease Research Program (1993)

Planning Committee, Science for Students Day, American Industrial Hygiene Conference and Exposition, Anaheim, CA (1994)

Session Co-Chair, Filtration and Gas Cleaning Session, Fourth International Aerosol Conference, Los Angeles, CA (1994)

Invited Tutorial speaker, Fifth International Aerosol Conference, Edinburgh, Scotland, UK (1998).

Session Chair, Indoor Aerosols Session, Fifth International Aerosol Conference, Edinburgh, Scotland, UK (1998).

Invited tutorial speaker, European Aerosol Conference, Dublin, Ireland (2000)

Invited Presentation on Fundamentals of Filtration at Filtration Forum at American Industrial Hygiene Conference and Exposition, San Diego, CA (2002)

Session Co-Chair, PM Supersite Program, 2002 American Association for Aerosol Research, Charlotte, NC (2002)

Program Organizer and Session Chair, "Industrial Hygiene, Disaster Response, and Terrorism," at NIOSH Industrial Program Directors Annual Meeting, San Diego, CA (2002)  
Editorial Service to Scholarly Journals

Invited tutorial speaker 4th Asian Aerosol Conference 2005 (Mumbai, India) (2005)

Invited tutorial speaker, Nanotechnology and Occupational Health, Minneapolis, MN (2005).

Program Committee "Frontiers in Aerosol Dosimetry Research Conference, Irvine, CA (2005)

Invited tutorial speaker, 7th International Aerosol Conference, St. Paul, MN (2006)

#### Editorial Boards

Journal of Aerosol Science (1984-1991).

Journal of International Society for Respiratory Protection (1990-1993)

#### Occasional Referee of papers for:

Aerosol Science and Technology

American Industrial Hygiene Association Journal

American Journal of Public Health

Applied Industrial Hygiene

Applied Optics

Applied Occupational and Environmental Hygiene

Atmospheric Environment

Chest

Environmental Health Perspectives

Filtration and Separation

Journal of Aerosol Science

Journal of the Air Pollution Control Association  
Journal of Air and Waste Management Association  
Journal of Colloid and Interface Science  
Journal of Environmental Engineering  
Journal of Environmental Science and Health, Part A  
Journal of Occupational and Environmental Health  
Occupational Hygiene  
Preventive Medicine  
Powder Technology  
Science  
Talanta

## **PROFESSIONAL ASSOCIATIONS**

### Professional Associations (national and international)

Air Pollution Control Association (1975-90)  
Air and Waste Management Association (1990-1992)  
American Academy of Industrial Hygiene (1975-Present)  
American Association for Aerosol Research (1981-Present)  
American Association for Advancement of Science (1972-76)  
American Conference of Governmental Industrial Hygienists (1983-Present)  
American Industrial Hygiene Association (1973-Present)  
American Industrial Hygiene Association Special Interest Group for  
Academic Education (1999-Present)  
American Society for Testing and Materials (1973-80)  
Delta Omega (Public Health Honorary Society) (1988-Present)  
Gesellschaft Fuer Aerosolforschung (European Association for Aerosol Research)  
(1984-Present)  
International Society for Respiratory Protection (1987-1998)  
Sigma Xi (1972-Present)

### Professional Associations (local)

New England Section of American Industrial Hygiene Association (1974-82)  
Northeast Section of Air Pollution Control Association (1979-82)  
Southern California Section of American Industrial Hygiene Association (1982- Present)  
West Coast Section of Air Pollution Control Association (1982-1992)

Updated April 2009

**William C. Hinds, Sc.D.**

**PUBLICATIONS**

April 2009

**BOOKS**

1. Hinds, W., AEROSOL TECHNOLOGY: PROPERTIES, BEHAVIOR, AND MEASUREMENT OF AIRBORNE PARTICLES, Wiley-Interscience, New York, July 1982.
2. Hinds, W., AEROSOL TECHNOLOGY: PROPERTIES, BEHAVIOR, AND MEASUREMENT OF AIRBORNE PARTICLES (Japanese edition), Inoue Shoin, Ltd., Tokyo, Japan 1985.
3. Hinds, W., AEROSOL TECHNOLOGY: PROPERTIES, BEHAVIOR, AND MEASUREMENT OF AIRBORNE PARTICLES, SECOND EDITION, Wiley-Interscience, New York, January 1999.

**CHAPTERS**

1. Hinds, W., "Dry Dispersion Aerosol Generators." In GENERATIONS OF AEROSOLS, K. Willeke, ed., Ann Arbor Science Publishers, Inc., Ann Arbor, Michigan, 1980, pp. 171-187.
2. Huber, G.L., Pochay, V.E., Shea, J.W., Hinds, W.C., Weker, R.R., First, M.W., Sornberger, G.C., "An Experimental Animal Model for Quantifying the Biological Effects of Marijuana on the Defense System of the Lung." In: MARIJUANA: BIOLOGICAL EFFECTS: ANALYSIS, METABOLISM, CELLULAR RESPONSES, REPRODUCTION AND BRAIN, G.C. Nahas and W.D.M. Paton, eds., Pergamon Press, Oxford-New York, 1979, pp. 301-328.
3. Hinds, W., "Sampler Efficiency: Inspirable Mass Fraction." Chapter 5.A, PARTICLE SIZE-SELECTIVE SAMPLING IN THE WORKPLACE: REPORT OF THE ACGIH TECHNICAL COMMITTEE ON AIR SAMPLING PROCEDURES, R. Phalen et al, eds. American Conference of Governmental Industrial Hygienists, Cincinnati, OH, 1985, pp. 47-54.
4. Hinds, W.C., "Data Analysis." Chapter 3, CASCADE IMPACTOR: SAMPLING AND DATA ANALYSIS, J.P.Lodge, Jr. and T.L. Chan, eds. American Industrial Hygiene Association, Akron, OH. (1986)
5. Hinds, W.C., "Basis for Particle Size-Selective Sampling for Wood Dust." Chapter 5, ADVANCES IN AIR SAMPLING, W. John ed. Lewis Publishers, Chelsea, MI (1988).
6. Hinds, W.C., "The Role of Industrial Hygiene in Preventing Occupational Lung Disease." OCCUPATIONAL MEDICINE: PREVENTION OF PULMONARY DISEASE IN THE WORKPLACE, P. Harber and J.R. Balmes, eds. Hanley & Belfus, Philadelphia (1991).

7. Hinds, W.C., "Physical and Chemical Changes in the Particulate Phase." Chapter 5, AEROSOL MEASUREMENT, K. Willeke and P. Baron, eds. Van Nostrand Reinhold, New York (1992).
8. Hinds, W.C., "Inhalable Aerosol Sampling," Chapter 6, PARTICLE SIZE-SELECTIVE SAMPLING FOR HEALTH-RELATED AEROSOLS, J. Vincent, ed. American Conference of Governmental Industrial Hygienists, Cincinnati, OH, 1999, pp. 127-159. (1999).
9. Hinds, W.C., "Physical and Chemical Changes in the Particulate Phase." Chapter 5, AEROSOL MEASUREMENT, 2nd Edition, K. Willeke and P. Baron, eds. Van Nostrand Reinhold, New York (2001).
10. Hinds, W.C., "Particulate Air Pollution," in SOUTHERN CALIFORNIA ENVIRONMENTAL REPORT CARD 2001, A.M. Winer, ed. UCLA Institute of the Environment, Los Angeles, CA (2001).
11. Hinds, W.C., "Aerosol Properties," in AEROSOLS HANDBOOK: MEASUREMENT, DOSIMETRY, AND HEALTH EFFECTS, N.H. Harley and L.S. Ruzer, eds. CRC Press, Boca Raton, Florida (2005).
12. Hinds, W. and Zhu, Y., "Measurement and Presentation of Aerosol Size Distributions," in AIR SAMPLING TECHNOLOGIES: PRINCIPLES AND APPLICATIONS, D. Leong, ed. ACGIH, accepted (2007).

#### **DOCTORAL THESIS**

1. Hinds, W.C., "Aerosol Measurement by Laser Doppler Spectroscopy," Doctoral Thesis, Harvard University, May, 1972.

#### **PEER-REVIEWED PAPERS**

1. Snook, S.H., Hinds, W.C., and Burgess, W.A., "Respirator Comfort: Subjective Response to Force Applied to the Face," Amer. Ind. Hyg. Assoc. J., 27, 93-94 (1966).
2. Burgess, W.A., Hinds, W.C., and Snook, S.H., "Performance and Acceptance of Respirator Facial Seal Designs," Ergonomics, 13, 455-464 (1970).
3. Reist, P.C., and Hinds, W.C., "Optische Eigenschaften von Natrium-Aerosolen," Staub-Reinhalt Luft, 31, 326-331 (1971).
4. Hinds, W.C., and Reist, P.C., "Aerosol Measurement by Laser Doppler Spectroscopy: Theory and Experimental Results for Homogenous Aerosols," J. Aerosol Science, 3, 501 (1972).
5. Hinds, W.C. and Reist, P.C., "Aerosol Measurement by Laser Doppler Spectroscopy: Operational Limits, Effects of Polydispersity, and Applications," J. Aerosol Science, 3, 515 (1972).
6. Brain, J.D., Valberg, P.A., Sorokin, S.P., and Hinds, W.C., "An Iron Oxide Aerosol Suitable for Animal Exposures," Environmental Research, 7, 13 (1974).
7. Hinds, W.C., and First, M.W., "Concentrations of Nicotine and Tobacco Smoke in Public Places," N.E.J. Med., 292, 844 (1975).

8. First, M.W., and Hinds, W.C., "High Velocity Filtration of Submicrometer Particles," J. Air Poll. Control Assn., 26(2), 119 (February, 1976).
9. Mallove, E.F., and Hinds, W.C., "Aerosol Measurement by Combined Light Scattering and Centrifugation," J. Aerosol Science, 7, 409-423 (1976).
10. First, M.W., and Hinds, W.C., "Ambient Tobacco Smoke Measurement," Amer. Ind. Hyg. Assoc. J., 37, 665-667 (1976).
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## **EDUCATION**

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1968 Muhlenberg College (Allentown, PA); B.S., Natural Sciences  
1972 University of Pennsylvania (Philadelphia, PA); M.D.  
1980 Johns Hopkins University (Baltimore, MD); M.P.H.

## **LICENSURE**

1976-81 Medical License, State of Maryland  
1980-81 Medical License, State of Ohio  
1981 Medical License, State of California

## **POST-GRADUATE TRAINING**

1972-73 Internship, Rhode Island Hospital/Brown University (R-1 Medical)  
1973-74 Anesthesia/Critical Care Residency, Hospital of the University of Pennsylvania  
1974-75 Radiation Oncology Residency, Thomas Jefferson University Hospital  
1977-78 Internal Medicine Residency, Washington Veterans Hospital/Georgetown University  
1978-80 Fellowships in Pulmonary Diseases and Occupational Medicine, Johns Hopkins University  
1980-81 Supervised Practice Year (Occupational Medicine), University of Cincinnati

## **CERTIFICATIONS**

1973 Diplomat of the National Board of Medical Examiners  
1979 Board Certified, Internal Medicine  
1980 Board Certified, Pulmonary Diseases  
1980 Board Certified, Occupational Medicine: Core Preventive Medicine  
1981 Board Certified, Occupational Medicine  
1982-90 Independent Medical Examiner, California WCAB  
1982-86 Certified "B Reader", National Institute of Occupational Safety and Health  
1987-91 Re-certified "B Reader", National Institute of Occupational Safety and Health  
1992-96 Re-certified "B Reader", National Institute of Occupational Safety and Health  
1997-01 Re-certified "B Reader", National Institute of Occupational Safety and Health  
1991 Qualified Medical Examiner, California IMC

## **PROFESSIONAL POSITIONS**

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1973-74 Resident, Anesthesia/Critical Care, Hospital of the University of Pennsylvania  
1974-75 Resident, Radiation Oncology, Thomas Jefferson University Hospital  
1975-77 Director, Health Services, Ft. Detrick, MD and Assistant Chief, Medical Division, U.S. Army Medical Research Institute of Infectious Diseases  
1977-78 Resident, Internal Medicine, Washington, D.C. Veterans Administration Hospital/Georgetown University Program  
1978-80 Fellowships in Pulmonary Diseases and Occupational Medicine, Johns Hopkins Hospital and School of Hygiene and Public Health

1980-81 Assistant Professor of Medicine and Assistant Professor of Environmental Health, College of Medicine, University of Cincinnati  
 1981-91 Chief, Occupational Medicine Branch, University of California, Los Angeles  
 1981-88 Assistant Professor of Medicine  
 1987-91 Director, UCLA Occupational Health Clinical Center  
 1988-94 Associate Professor of Medicine, UCLA  
 1990-99 Director, Occupational and Environmental Medicine Program, UCLA  
 1994-99 Professor of Medicine, UCLA  
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 1999- present Chief, Division of Occupational and Environmental Medicine  
 1999- present Director, UCLA Occupational Medicine Residency Program  
 2003-2005 Vice Chair- Academic Affairs  
 2004- present Olive View-UCLA Medical Center – ambulatory care/community medicine.  
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## **HONORS**

1968 Phi Beta Kappa, Muhlenberg College  
 1968 Bernheim Award, Muhlenberg College  
 1971 Alpha Omega Alpha, University of Pennsylvania  
 1972 Mosby Book Award, University of Pennsylvania  
 1982 Fellow, American College of Chest Physicians  
 1988 Fellow, American College of Occupational Medicine  
 1994 Felton Award for Scientific Writing, Western Occupational and Environmental Medical Association  
 1995 Merit in Authorship Award, American College of Occupational and Environmental Medicine  
 1995 Hamilton Award, New England Occupational Medical Association  
 2003 Rutherford Johnstone Award- Western Occupational & Environmental Medical Association  
 2007 Richards Distinguished Visiting Lectureship, University of Utah  
 2009 Kehoe Award, American College of Occupational & Environmental Medicine

## **MEMBERSHIPS**

American Thoracic Society (ATS)  
 American College of Occupational and Environmental Medicine (Fellow) (ACOEM)  
 Western Occupational and Environmental Medicine Association (WOEMA)

## **PROFESSIONAL ACTIVITIES**

### **Government Service**

1984-85 Division of Industrial Accidents (California), Physicians Program Committee-Toxicology  
 1985-86 California Department of Occupational Safety and Health (DOSH, Cal-OSHA) Respirator Advisory Committee  
 1987-90 Technical Chair, Pulmonary Disability Committee, Division of Industrial Accidents  
 1987-90 California Division of Industrial Accidents, Heart-Lung Disease Committee  
 1989 Task Force on Occupational/Environmental Asthma, EPA/Agency for Toxic Substances  
 1990-91 Member, Malathion Public Health Effects Advisory Committee, California Department of Health Services  
 1991 Grant Reviewer, ad hoc, NIH  
 1991-92 California Department of Justice, Medical Advisory Panel, Commission on Peace Officer Standards and Training  
 1991-93 Occupational Medicine Committee, Division of Industrial Relations, Industrial Medical Council: Internal Medicine Committee, (advises and establishes policies regarding worker's compensation)  
 1991-95 Cal-OSHA Advisory Committee (Advises Division of Occupational Safety and Health and Standards Boards on programmatic responsibilities)

1991-92 Healthy Los Angeles 2000 Objective Refining Team, Los Angeles County Department of Health Services

1992 Non-pneumoconiotic lung function effects of coal mining (invited participant). National Institute for Occupational Safety and Health

1993 Occupational Asthma Workshop (invited participant). National Institute for Occupational Safety and Health

1993 Deposition Studies Program (reviewer). NIOSH/AIOSH

1993 Study Section (special panel member). SOH, National Institutes of Health.

1995 Surveillance Advisory Committee, Department of Energy

1996 Industrial Medical Council (CA)- Evidence Panel- Low Back Pain Treatment

1999 Chair, Belmont Commission Public Health Subcommittee, Los Angeles Unified School District Board Of Education

1999-00 Environmental Health Advisory Committee, Los Angeles Unified School District

2000 Special Grants Review Panel- NIOSH

2001 Special Grants Review Panel- Agricultural Research- NIOSH

2001-2 Respiratory Questionnaire Committee (NIOSH)

2002 Site Visit Team, Education & Research Center CDC/NIOSH)

2002-03 Grant Reviewer, Hong Kong Research Commission

2002-2006 CDC Study Section (IRG)-Safety & Occupational Health (SOH) (Chair- 2004-2006)

2004 Grant Review Panel (SEP) Centers For Disease Control and Prevention (CDC), member

2005-10 Beryllium Worker Repository Program, Steering Committee, Dept. of Energy

2005-8 Work Exacerbated Asthma Committee, NIOSH/CDC

2005-6 Reviewer, Agency for Toxic Substances and Disease Registry

2006, 2007 NIOSH Director's Award Committee, Chair

2006 NIOSH SEP Review (Mesothelioma Virtual Registry), Chair.

2006 NIOSH SEP Review (World Trade Center Clinical Treatment Program), Chair.

2007- present Clean Air Action Plan Advisory Committee, Ports of LA and Long Beach (mayoral appt).

2006-8 Institute of Medicine: Committee on Gulf war and Health: Depleted Uranium Update. (Project sponsored by Department of Veterans Affairs and Department of Defense)

2007 CDC: Public Health Practice through Translation Research, secondary review panel, member

2007-present Clean Air Action Plan Advisory Committee, Ports of LA and Long Beach (mayoral appt).

**American College of Occupational-Environmental Medicine (ACOEM/AOMA)**

1986-88 Occupational Lung Diseases Committee, Chair  
 1987-88 Council on Scientific Affairs, Vice-Chair  
 1989-91 Council on Scientific Affairs, Chair  
 1986-91 Council on Scientific Affairs, Member  
 1990-91 Vice Chair, Ergonomics Committee  
 1990-91 Member, Environmental Health Steering Committee  
 1992-93 Delegate, House of Delegates  
 1995 Scientific Program Chair, American Occupational Health Conference  
 1993-98 Council on Scientific Affairs, Member  
 1993-98 Medical Surveillance Committee, Chair  
 1996-98 Workers Compensation Committee, Member  
 1995-00 Practice Guidelines Committee, Member  
 1998-00 Medical Surveillance Committee, Member  
 1999-00 Council on Special Occupational Health Interests, Vice Chair  
 2000-02 Research committee, Chair  
 2000-01 Council on Special Occupational Health Interests, Chair  
 1983-present Occupational Lung Diseases Committee, Member  
 2001-02 Council on Education, Associate Chair  
 2002-03 Associate Chair, Council on scientific affairs  
 1999-02 Board of Directors  
 2002-05 Board of Directors  
 2002- present Residency Program Directors Committee  
 2002-04 Pfizer/ACOEM Grants for innovation research, committee member  
 2003-05 Committee on Practice Guidelines, Advisor 2003-2005  
 2003-04 Chair, Council on Scientific Affairs  
 2004-5 Council on Academics, Vice-Chair  
 2005-present Committee on Practice Guidelines, chair respiratory subcommittee  
 2005-6 AOHC Program Committee  
 2005- present MOC Part 4 Task Force Member  
 2005-6 Evidence Based Practice Committee  
 2005- present OEM Training Task Force Member  
 2004-6 Committee on Quality Occupational Health Management Systems  
 2006- present Committee on Occupational Medicine Competencies (member)

### **Other**

2000 Committee On Regulating Occupational Exposure to Tuberculosis, Institute of Medicine, (Consultant)  
 2001-04; 04-07 Residency Review Committee (Preventive Medicine), Accreditation Council on Graduate Medical Education (**ACGME**) Vice Chair, 2004-7

### **Western Occupational and Environmental Medical Association (WOEMA)**

1984-86 Alternate Delegate representing WOMA to AOMA  
 1985-87 Secretary  
 1985-93 Board of Directors  
 1986-87 Program Chair, Western Occupational Health Conference  
 1988-89 Second Vice-President  
 1989-90 First Vice-President  
 1990-91 President-Elect  
 1990-91 Chair, Long Range Planning Committee  
 1990-91 Program Co-Chair  
 1991-92 President  
 1992-93 Chairman of the Board

### **American College of Chest Physicians (ACCP)**

1987-92 Steering Committee, Occupational/Environmental Section



1987 Abstract Grading Committee  
 1990 Abstract Grading Committee  
 1989-91 Chair, Section on Occupational and Environmental Lung Disease  
 1990-91 Planning Committee, Fourth International Conference on Occupational and Environmental Lung Disease  
 1991 Abstract Grading Committee  
 1992-95 Co-Chair, 5th International Conference on Occupational & Environmental Lung Disease  
 2005-07 Member, Comm on Occupational Asthma Guidelines

### **American Thoracic Society (ATS)**

1982-83 Nominating Committee, Assembly on Environmental and Occupational Health  
 1991-92 Asthma Impairment Committee, Vice Chair  
 1992-96 Respiratory Protection Committee, Chair  
 1998-01 Asthma at Work and Play Committee, Member  
 2002-05 Nonmalignant Disease Due To Asbestos, Member  
 2005- present Work Exacerbated Asthma Committee  
 2006- present Webmaster, Environmental and Occupational Health  
 2007- present Environmental and occupational health assembly planning committee  
 2008-present Respiratory Impairment and Disability Comm, Chair  
 2008-present Respiratory Protection Comm

### **American Lung Association of Los Angeles**

1982-83 Program Committee Member  
 1981-85 Occupational Health Committee, (Chair of Professional Educational Subcommittee), Member  
 1985-87 Environmental/Occupational Health Committee, Vice Chair

### **UCLA**

1981-87 Southern Occupational Health Center, member  
 1984-92 Committee on Interdisciplinary Practice, UCLA  
 1988- present UCLA Center for Occupational and Environmental Health  
 1988-92 Faculty Member, USC/UCLA Occupational Medicine Residency  
 1989-92 Residency Advisory Committee, USC  
 1989-92 Campus Community Committee (Academic Senate, UCLA)  
 1991 Respiratory Therapy Committee  
 1997-98 Fogarty International Training Program participant  
 1998-99 Director, International Occupational Medicine  
 1999- present Residency Advisory Committee- Occupational Medicine UCLA  
 2000- 2003 Committee on Committees, UCLA Academic Senate  
 2000-03 University Extension Committee, UCLA Academic Senate, Chair, 2002-3; Member, 2000-03, 2004-5  
 2002- 2004 Residency Advisory Committee- General Preventive Medicine UCLA  
 2002-2006 Committee On Academic Personnel (CAP)-Dept Of Family Medicine; Chair 2003-5  
 2004 Preventive Medicine Faculty Search Committee  
 2006-8 Committee on Faculty Welfare, Academic Senate  
 2006- present Fogarty International Training Program- Ergonomics leader  
 2007- present Interdisciplinary Molecular Toxicology Program, member  
 2007 Industrial Hygiene Faculty Search Committee

### **Other Professional Service**

1986-88 Regional Editor, American Occupational Medicine Association Newsletter  
 1987-89 Consultant, Department of Public Health, American Medical Association 1987 Hazardous Waste Worker Training Center Medical Committee  
 1988-93 American National Standards Institute Respiratory Protection Committee ANSI Z88 (voting member)

1988-91	Occupational Lung Disease Committee, California Thoracic Society
1988-92	Respiratory Protection Committee, Z88.8 American National Standards Institute (ANSI), Full Suit
1988-present	Grant Reviewer, Arizona Disease Control Research Commission
1989-91	ANSI Interdisciplinary Respiratory Surveillance Committee
1990-92	Scientific Advisory Panel on Occupational Medicine, California Medical Association, member
1991-97	American Trucking Association (ATA), Medical Advisory Board
1991-92	Southern California Organizing Committee for Occupational Medicine (Co-chair)
1992	Task Force - Occupational Health Objectives for Year 2000, Los Angeles County Department of Health Services
1992-93	Task Force, Workers Compensation Reform, Los Angeles County Medical Association
1996	Rand Corporation/CA Industrial Medical Council- Permanent Disability Study Advisory Committee
1997-2003	Consultant, Scientific Advisory Group, International Carbon Black Association
2001-05	Scientific Advisory Panel on Occupational Medicine, California Medical Association, member

### **RESEARCH PAPERS (Peer-reviewed)**

1. Hudson HE, Harber P, Smith TC. Respiratory depression from alkalosis and opioid interaction in man. *Anesthesiology* 40:543-52, 1974.
2. Oster CN, Burke DS, Kenyon RH, Ascher MS, Harber P, Pedersen CE Jr. Laboratory-acquired Rocky Mountain Spotted Fever. The hazard of aerosol transmission. *N Engl J Med* 297:859-63, 1977.
3. Yamada T, Harber P, Pettit GW, Wing DA, Oster CN. Activation of the kallikrein-kinin system in Rocky Mountain Spotted Fever. *Ann Int Med* 88:764-8, 1978.
4. Ascher MS, Oster CN, Harber P, Kenyon RH, Pedersen CE Jr. Initial clinical evaluation of new Rocky Mountain Spotted Fever vaccine of tissue culture origin. *J Inf Dis* 138:217-21, 1978.
5. Harber P, Terry PB. Fatal lung abscesses: review of 11 years' experience. *Southern Med J* 74: 81-3, 1981.
6. Harber P. Prevention and control of occupational lung disease. *Clin Chest Med (Occupational Lung Diseases II)* 2:343-55, 1981.
7. Harber P, Tamimie RJ, Bhattacharya A, Barber M. Physiologic effects of respirator dead space and resistance loading. *J Occup Med* 24:681-4, 1982.
8. Harber P, Tockman M. Defining "disease" in epidemiologic studies of pulmonary function: percent of predicted or difference from predicted? *Bull Europ Physiopath Resp* 18:819-28, 1982.
9. Harber P. Physiologic effects of respirator during exercise. *Internal Med News* (15)11:4, 1982.
10. Parker RD, Harber P, Kessler LG. Evaluation of screening effectiveness. *J Med Syst* 7:11-24, 1983.
11. Harber P, Schnur R, Emory J, Brooks S, Ploy-Song-Sang Y. Statistical "biases" in respiratory disability determinations. *Am Rev Resp Dis* 128:413-8, 1983.
12. Harber P, Tamimie J, Emory J. Estimation of the exertion requirements of coal mining work. *Chest* 85:226-31, 1984.
13. Harber P. Medical evaluation for respirator use. *J Occup Med* 26:496-502, 1984.
14. Harber P, Tamimie J, Emory J, Bhattacharya A, Barber M. Effects of exercise using industrial respirators. *Am Ind Hyg Assoc J* 45:603-9, 1984.
15. Harber P, Billet E, Gutowski M, SooHoo K, Lew M, Roman A. Occupational low-back pain in hospital nurses. *J Occup Med* 27:518-24, 1985.
16. Harber P, Billet E, Gutowski M, SooHoo K, Lew M, Roman A. Occupational low-back pain in hospital nurses. *J Occup Med* 27:518-24, 1985.
17. Harber P, SooHoo K, Tashkin DP. Is the MVV:FEV1 ratio useful for assessing spirometry validity? *Chest*

88:52-7, 1985.

18. Harber P, Rappaport S. Clinical decision analysis in occupational medicine: choosing the optimal FEV1 criterion for diagnosing occupational asthma. *J Occup Med* 27:651-8, 1985.
19. Harber P. Value based interpretation of pulmonary function tests. *Chest* 88:874-7, 1985.
20. Harber P, Rothenberg LS. Controversial aspects of respiratory disability determination. *Sem Resp Med* 7:257-69, 1986.
21. Harber P, Oren A, Mohsenifar Z, Lew M. Obstructive airway disease as a risk factor for asbestos-associated malignancy. *J Occup Med* 28:82-6, 1986.
22. Harber P. Alternative partial respiratory disability rating schemes. *Am Rev Respir Dis* 134:481-7, 1986.
23. Vojtecky MA, Harber P, Sayre JW, Billet E, Shimozaki S. The use of assistance while lifting *J Safety Research* 18:49-56, 1987.
24. Harber P, Mohsenifar Z, Oren A, Lew M. Pleural plaques and asbestos-associated malignancy. *J Occup Med* 29:641-4, 1987.
25. Harber P, Tashkin DP, Lew M, Simmons M. Physiologic characterization of asbestos-exposed workers. *Chest* 92:494-9, 1987.
26. Harber P, Lew M, Tashkin DP, Simmons M. Factor analysis of clinical data from asbestos workers: implications for diagnosis and screening. *Br J Ind Med* 44:780-4, 1987.
27. Harber P, Billet E, Lew M, Horan M. Importance of non-patient transfer activities in nursing-related back pain: I. Questionnaire survey. *J Occup Med* 29:967-70, 1987.
28. Harber P, Shimozaki S, Gardner G, Billet E, Vojtecky M, Kanim L. Importance of non-patient transfer activities in nursing-related back pain: II. Observational study and implications. *J Occup Med* 29:971-4, 1987.
29. Harber P, Shimozaki S, Barrett T, Fine G. Determinants of pattern of breathing during respirator use. *Am J Ind Med* 13:253-62, 1988.
30. Harber P, SooHoo K, Lew M. Effects of industrial respirators on respiratory timing and psycho-physiologic load sensitivity. *J Occup Med* 30:256-62, 1988.
31. Harber P, Tashkin DP, Shimozaki S, Hathaway E. Veracity of disability claimants' self-reports of current smoking status: comparison of carboxyhemoglobin levels from disability claimant and reference population. *Chest* 93:561-4, 1988.
32. Shimozaki S, Harber P, Barrett T, Loisesides P. Subjective tolerance of respirator loads and its relationship to physiological effects. *Am Ind Hyg Assoc J* 49:108-16, 1988.
33. Harber P. The evaluation of pulmonary fitness and risk. *Occup Med: State Art Rev* 3:285-98, 1988.
34. Abrons HL, Petersen MR, Sanderson WT, Engelberg AL, Harber P. Symptoms, ventilatory function, and environmental exposures in Portland cement workers (published erratum appears in *Br J Ind Med* 45:368-75, 1988).
35. Harber P, Billet E, Shimozaki S, Vojtecky M. Occupational back pain of nurses: special problems and prevention. *Appl Ergonomics* 19:219-24, 1988
36. Harber P, Billet E, Vojtecky M, Rosenthal E., Shimozaki S, Horan M. Nurses' beliefs about cause and prevention of occupational back pain. *J Occup Med* 30:797-800, 1988
37. Lockey JE, Schenker MB, Howden DG, Desmeules MJ, Saracci R, Harber P. Current issues in occupational lung disease. *Am Rev Respir Dis* 138:1047-50, 1988.
38. Auerbach DM, Harber P. Diagnostic approach to acquired immunodeficient patients with pulmonary symptoms: a decision analytic strategy. *Sem Resp Med* 10:252-7, 1989.
39. Harber P, Shimozaki S, Barrett T, Loisesides P, Fine G. Effects of respirator dead space, inspiratory resistance, and expiratory resistance ventilatory loads. *Am J Ind Med* 16:189-98, 1989.
40. Harber P, McCoy JM. Predicate calculus, artificial intelligence, and workers' compensation. *J Occup Med* 31:484-9, 1989.

41. Harber P, Shimozaki S, Barrett T, Loisesides P. Relationship of subjective tolerance of respirator loads to physiologic effects and psychophysical load sensitivity. *J Occup Med* 31:681-6, 1989.
42. Harber P, Lew M, Shimozaki S, Thomas B. Noninvasive measurement of respirator effect at rest and during exercise. *Am Ind Hyg Assoc J* 50:428-33, 1989.
43. Harber P, Shimozaki S, Barrett T, Fine G. Effect of exercise level on ventilatory adaptation to respirator use. *J Occup Med* 32:1042-6, 1990.
44. Harber P. Assessing disability from occupational asthma -- a perspective on the AMA guides. *Chest* 98(supp):232S-5S, 1990.
45. Harber P, McCoy JM, Shimozaki S, Coffman P, Bailey K. The structure of expert diagnostic knowledge in occupational medicine. *Am J Ind Med* 19:109-20, 1991.
46. Harber P, Lockey J. Pulmonary function testing in pulmonary prevention. *Occup Med: State Art Rev* 6:69-80, 1991.
47. Harber P. Pulmonary prevention: programmatic characterization. *Occup Med: State Art Rev* 6:133-43, 1991.
48. Harber P, Hsu P. Program optimization: a semi-quantitative approach. *Occup Med: State Art Rev* 6:145-51, 1991.
49. Harber P, Brown C, Beck J. Respirator physiology research: answers in search of the question. *J Occup Med* 33:38-44, 1991.
50. Harber P, Smitherman J. Asbestosis: diagnostic dilution. *J Occup Med* 33:786-93, 1991.
51. Harber P, McCoy JM, Howard K, Greer D, Luo J. Artificial intelligence assisted occupational lung disease diagnosis. *Chest* 100:340-6, 1991.
52. Harber P, Beck J, Brown C, Luo J. Physiologic and subjective effects of respirator mask type. *Am Ind Hyg Assoc J* 52:357-62, 1991.
53. Harber P, Luo J, Beck J, Lee J. Relative effects of flow-resistive and pressure biased respiratory loading. *J Occup Med* 33:1055-9, 1991.
54. Harber P, Miller G, Smitherman J. Work coding: beyond SIC and SOC, BOC and DOT. *J Occup Med* 33:1274-80, 1991.
55. Smitherman J, Harber P. A case of mistaken identity: herbal medicine as a cause of lead toxicity. *Am J Ind Med* 20:795-8, 1991.
56. Harber P. Assessing occupational disability from asthma. *J Occup Med* 34:120-8, 1992.
57. Harber P, Peña L, Bland G, Beck J. Upper extremity symptoms in supermarket workers. *Am J Ind Med* 22:873-84, 1992. P H arber P. Respiratory disability: the uncoupling of oxygen consumption and disability. *Clin Chest Med (Occupational Lung Diseases)* 13:367-76, 1992. PHarber P, Bloswick D, Peña L, Beck J, Lee J, Baker D. The ergonomic challenge of repetitive motion with varying ergonomic stresses: characterizing supermarket checking work. *J Occup Med* 34:518-28, 1992.
58. Harber P, Fedoruk MJ, Goldberg RL. Accommodating respiratory handicap. *Sem Respir Med* 14:240-9, 1993.
59. Harber P, Bloswick D, Luo J, Beck J, Greer D, Peña L. Work related symptoms and check stand configuration: an experimental study. *Am Ind Hyg Assoc J* 54:371-5, 1993.
60. Harber P, Bloswick D, Beck J, Peña L, Baker D, Lee J. Supermarket checker motions and cumulative trauma risk. *J Occup Med* 35:805-11, 1993.
61. Harber P, Hsu P, Fedoruk J. Personal risk assessment under the Americans with Disabilities Act: a decision analysis approach. *J Occup Med* 35:1000-1010, 1993.
62. Chan-Yeung M, Harber P, Bailey W, Balmes J, Barnhart S, Hargreave FE, Malo J, Reed C, Richerson H. Guidelines for the evaluation of impairment/disability in patients with asthma. *Am Rev Respir Dis* 147:1056-61, 1993.
63. Harber P, Hsu P, Peña L. Subject based rating of hand-wrist stressors. *J Occup Med* 36:84-9, 1994.
64. Harber P, Peña L, Hsu P, Billet E, Greer D, Kim K. Personal history, training and worksite as predictors of

back pain of nurses. *Am J Ind Med* 25:519-526, 1994.

65. Harber P, Levin M, Lew-Weinberg J, Oversier J. The industrial hygienist as a clinical consultant. *Am J Ind Med* 26:339-347, 1994.
66. Harber P, Scanlon P, do Pico G, Garshick E. Role of chest physicians in detection and treatment of occupational and environmental respiratory disease-- a practice survey. *Chest* 107:1156-61, 1995.
67. Harber P, Czisny K, Hsu P, Rodriguez E, Leaf D, Beck J. An expert system based preventive medicine examination adviser. *J Occup Env Med* 37:563-70, 1995.
68. Gong H, Lachenbruch E, Harber P, Linn W. Comparative short-term health responses to sulfur dioxide exposure and other common stresses in a panel of asthmatics. *Tox and Indust Health* 11:467-487, 1995.
69. Harber P, Hsu P, Chen W. An atomic approach to disability assessment. *J Occup Env Med* 38:359-366, 1996.
70. Harber P, Shusterman D. Medical causation analysis heuristics. *J Occup Env Med* 38: 577-586, 1996.
71. King C; Harber P. Community environmental health concerns and the nursing process. Four environmental health nursing care plans. *AAOHN Journal*, 1998 Jan, 46(1): 20-7.
72. Harber P; King C; Tipton J; Chen W. Environmental health response clinics. A survey of program options. *J Occup Env Med*, 1997; 39(10): 983-9.
73. Harber P; Dahlgren J; Bunn W; Lockey J; Chase G. Radiographic and spirometric findings in diatomaceous earth workers. *J Occup Env Med*, 1998; 40(1): 22-8.
74. Abrons HL; Petersen MR; Sanderson WT; Engelberg AL; Harber P. Chest radiography in Portland cement workers. *J Occup Env Med*, 1997; 39(11): 1047-54.
75. Harber P; Beck J; Luo J. Study of respirator effect on nasal-oral flow partition. *Am J of Ind Med*, 1997; 32(4): 408-12.
76. Harber P; Discher D. Occupational respiratory function testing--an algorithmic approach. *J Occup Med*, 1997; 12(3): 485-512.
77. Harber P, Merz B, Chi K. Decision model for optimizing respirator protection. *J Occup Environ Med*. 1999; 41:356-65.
78. Harber P, Merz B, Lam I, Yuan M, Parker JE, Chen W. Intelligent database generated occupational questionnaire system. *J Occup Env Med*. 2000; 42(5): 483-90.
79. Martie J.A. van Tongeren, Kerry Gardiner, Charles E. Rossiter, Jerry Beach, Phil Harber and Malcolm J. Harrington. Longitudinal Analyses of Chest Radiographs from the European Carbon Black Respiratory Morbidity Study
80. Wright RS, Dyer Z, Liebhaber MI, Kell DL, Harber P. Hypersensitivity pneumonitis from *Pezizia domiciliana*. A case of El Nino lung. *Am J Respir Crit Care Med*. 1999; 160: 1758-61.
81. Abbas MAF, Faris RH, Harber P, Mishriky AM, El-Shahaly HA, Waheeb Y, and Krauss JF: Work site and personal risk factors for CTS among workers in repetitive movement jobs. *Int J Occup Environ Health* 2001; Jan-Mar;7(1):31-6
82. Harber P, Merz B, Time and Knowledge Barriers to Recognizing Occupational Disease. *J Occup Environ Med*. 2001; (43) 3:285-88
83. Harber, P., B. Merz, et al. (2000). "Intelligent database generated occupational questionnaire system." *J Occup Environ Med* 42(5): 483-90.
84. Hurwitz EL, Morgenstern H, Harber P, Kominsky GF, Belin TR, Yu F, Adams AH. The effectiveness of physical modalities among patients with low back pain randomized to chiropractic care: findings from the UCLA low back pain study. *J Manipulative Physiol Ther* 2002 Jan;25(1):10-20  
Harber P, Mullin M, Merz B, Tarazi M. Frequency of occupational health concerns in general clinics. *J Occup Environ Med*. 2001 Nov;43(11):939-45.
85. van Tongeren MJ, Gardiner K, Rossiter CE, Beach J, Harber P, Harrington. Longitudinal analyses of chest radiographs from the European Carbon Black Respiratory Morbidity Study. *Eur Respir J* 2002 Aug;20(2):417-25

86. Hurwitz EL, Morgenstern H, Harber P, Kominski GF, Yu F, Adams AH. A Randomized Trial of Chiropractic Manipulation and Mobilization for Patients With Neck Pain: Clinical Outcomes From the UCLA Neck-Pain Study. *Am J Public Health*. 2002 Oct;92(10):1634-1641xx
87. Hertzman-Miller RP, Morgenstern H, Hurwitz EL, Yu F, Adams AH, Harber P, Kominski GF. Comparing the Satisfaction of Low Back Pain Patients Randomized to Receive Medical or Chiropractic Care: Results From the UCLA Low-Back Pain Study. *Am J Public Health*. 2002 Oct;92(10):1628-1633
88. Hurwitz EL, Morgenstern H, Harber P, Kominski GF, Belin TR, Yu F, Adams AH. A randomized trial of medical care with and without physical therapy and chiropractic care with and without physical modalities for patients with low back pain: 6-month follow-up outcomes from the UCLA low back pain study. *Spine* 2002 Oct 15;27(20):2193-204
89. Harber P, Muranko H, Solis S, Torossian A, Merz B. Effect of carbon black exposure on respiratory function and symptoms. *J Occup Environ Med*. 2003 Feb;45(2):144-55.
90. Harber P, Muranko H, Shvartsblat S, Solis S, Torossian A, Oren T. A triangulation approach to historical exposure assessment for the carbon black industry. *J Occup Environ Med*. 2003 Feb;45(2):131-43
91. Harber P, Bublik M, Steimberg C, Wallace J, Merz B. Occupational issues in episodic care populations. *Am J Ind Med*. 2003 Feb;43(2):221-6
92. Shvartsblat, S., M. Kochie, P. Harber, and J. Howard.. Fatal rat bite fever in a pet shop employee. *Am J Ind Med* 2004. 45(4):357-60.
93. Harber, P., S. Mummaneni, and L. Crawford. Influence of residency training on occupational medicine practice patterns. *J Occup Environ Med* 2005.47:161-7
94. Crawford L, Gutierrez G, Harber P. Work environment and occupational health of dental hygienists: a qualitative assessment. *J Occup Environ Med*. 2005;47(6):623-32.
95. Yee T, Crawford L, Harber P. Work environment of dental hygienists. *J Occup Environ Med*. 2005;47(6):633-9.
96. Ducatman, A. M., J. M. Vanderploeg, M. Johnson, J. Rubin, P. Harber, R. Sokas, et al. Challenges and opportunities. *Am J Prev Med* 2005.28:403-12.
97. Harber P, Crawford L, Liu K, Schacter L. Working words: real-life lexicon of North American workers. *J Occup Environ Med*. 2005;47(8):859-64.
98. Kominski, G. F., K. C. Heslin, H. Morgenstern, E. L. Hurwitz, and P. I. Harber. Economic Evaluation of Four Treatments for Low-Back Pain: Results From a Randomized Controlled Trial. *Med Care* 2005.43:428-435.
99. Harber P, Ducatman A. Training pathways for occupational medicine. *J Occup Environ Med*. 2006;48(4):366-75.
100. Marchevsky AM, Harber P, Crawford L, Wick MR. Mesothelioma in patients with nonoccupational asbestos exposure An evidence-based approach to causation assessment. *Ann Diagn Pathol*. 2006;10(4):241-50.
101. Harber, P., L. Crawford, A. Cheema, and L. Schacter. 2007. Computer Algorithm for Automated Work Group Classification From Free Text: The DREAM Technique. *J Occup Environ Med* 49:41-9.
102. Harber P, Tashkin DP, Simmons M, Crawford L, Hnizdo E, Connett J. Effect of occupational exposures on decline of lung function in early chronic obstructive pulmonary disease. *Am J Respir Crit Care Med*. 2007;176:994-1000.
103. Hnizdo E, Sircar K, Yan T, Harber P, Fleming J, Glindmeyer HW. Limits of longitudinal decline for the interpretation of annual changes in FEV1 in individuals. *Occup Environ Med*. 2007;64:701-7.
104. Nuckols TK, Lim YW, Wynn BO, Mattke S, Maclean CH, Harber P, Brook RH, Wallace P, Garland RH, Asch S. Rigorous Development does not Ensure that Guidelines are Acceptable to a Panel of Knowledgeable Providers. *J Gen Intern Med*. 2007.
105. Harber P, Wynn BO, Lim YW, Mattke S, Asch SM, Nuckols TK. Selection of Workers' Compensation Treatment Guidelines: California Experience. *Journal of occupational and environmental medicine / American College of Occupational and Environmental Medicine* 2008;50(11):1282-92

106. Harber P, Bansal S, Santiago S, et al. Multidomain subjective response to respirator use during simulated work. *J Occup Environ Med* 2009; 51:38-45
107. Bansal S, Harber P, Yun D, et al. Respirator physiological effects under simulated work conditions. *J Occup Environ Hyg* 2009; 6:221-227

### **RESEARCH PAPERS (Accepted/ In Press)**

108. Harber P, Levine J, Bansal S. How Frequently Should Workplace Spirometry Screening be Performed?: Optimization Via Analytic Models. *Chest* 2009; (In press; epub).
109. Harber P, Bansal S, Balmes J. Progression from Beryllium Exposure to Chronic Beryllium Disease - an Analytic Model. *Env Health Perspect*, 2009 (Environ Health Perspect doi:10.1289/ehp.0800440 available via <http://dx.doi.org/> [Online 27 February 2009])

### **RESEARCH PAPERS / REPORTS (Non-Peer-reviewed)**

1. CDC. Fixed obstructive lung disease among workers in the flavor-manufacturing industry--California, 2004-2007. *MMWR Morb Mortal Wkly Rep*. 2007;56:389-93. (Contributor)
2. Harrison R, Gelb A, Harber P. Food flavoring workers with bronchiolitis obliterans following exposure to diacetyl, California. Berkeley: Department of Health Services, State of California.; 2006.

### **RESEARCH PAPERS (Submitted)**

1. Song M, Kochie M, Harber P. Preventable Deaths: Illustrative Case Histories of Heat Stroke Among Workers in California. *J Occup Environ Med*. 2007;(Submitted)

### **RESEARCH PAPERS (In preparation, research completed)**

### **EDITORIALS & REVIEWS (Published)**

1. Harber P. Use of personal respiratory protective devices (respirators). *West J Med* 1985.
2. Harber P. Reactive airways disease syndrome. *West J Med* 148:79, 1988.
3. Harber P. Respirator use in the work environment (review). *Am Rev Respir Dis* 138:1048-51, 1988.
4. Harber P. Occupational back pain of nurses. *West J Med* 152:175-6, 1990.
5. McDonagh TJ, De Hart RL, Gorkun LJ, Harber P, Peterson KW, Shaptini EA. To change or not to change (editorial). *J Occup Med* 32(12):1160A-1160B, 1990.
6. Harber P. Spirometry and COPD (review). *J Resp Care Pract/Resp Therapy*, 21-7, 1990.
7. Harber P. Occupational respiratory services (review). *Visions*, 1991.
8. Harber P. Interpretation of lung function tests. *Curr Pulmonol* 12:261-95, 1991.
9. Harber P. The new workplace accommodation guidelines. *West J Med* 156:408, 1992.
10. Harber P. Worker fitness and respiratory protective devices (review). *Pulm/Critical Care Update* 7(16), 1992.
11. Harber P. Worksite evaluation for respiratory disease risk. *Pulm/Critical Care Update* 8(17), 1993.
12. Harber P. Exposure measurement for cumulative trauma disorders. *OEM Report*, 7:71-2, 1993.
13. Harber P, Bunn W. Does fiberglass exposure produce significant effects on pulmonary function? *OEM Report*, 7:78-80, 1993.
14. Harber P. Assessment of impairment and disability for asthma (Committee on Asthma Disability, co-chair). *Am Rev Respir Dis*, 147:1056-1061, 1993.

15. Harber P. Control of tuberculosis in health care workers: alternative paradigms. *OEM Report*, 8:32-34, 1994.
16. Harber P, Fedoruk MJ. Work placement and worker fitness: Implications of the Americans with Disabilities Act for pulmonary medicine. *Chest* 105:1564-1571, 1994.
17. Harber P. Primary care role in preventing occupational and environmental respiratory disease. *Primary Care* 21:291-311, 1994
18. Harber P. Occupational asthma: common misconceptions. *OEM Report* 9:75-80, 1995.
19. Harber P. Algorithm: In: M. Chan-Yeung, WM Alberts, JR Balmes, S Barnhart, R Bascom, IL Bernstein, SM Brooks, LC Grammar, P Harber, J Malo, C Rose, D Schwartz, SM Tarlo, MJ Utell, Assessment of Asthma in the Workplace. *Chest* 108:1084-1117, 1995
20. Harber P. Decreasing work disability from asthma. *West J Med*, 1996; 165(3): 142-3.
21. Harber P. Spirometer Update: Changes in ATS standards. *OEM Report* 10:49-51, 1996.
22. Beckett WS; Gerrity T; McDiarmid MA; Nardbell E; Repsher L; Brousseau L; Hodous TK; et al. Respiratory protection guidelines *Am J of Resp and Crit Care Med* 1996; 154:1153-65.
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## **CONTRACTS AND GRANTS**

### **Past Grants- Principal Investigator:**

1. Problems in the Design and Evaluation of Compensation Systems for Occupationally Related Respiratory Disability, Urban Institute. 1979
2. Morbidity Study of the Cement Industry, National Institute for Occupational Safety and Health. 1980-81
3. Determination of Exertion Requirements of Coal Mining, non-governmental funding sources. 1981
4. Physiologic Effects of Respirators, American Lung Association of California. 1982-83
5. Secondary Prevention of Occupational Back Pain, California Medical Education and Research Foundation. 1982-83
6. Determinants of Cancer Development in Asbestos Workers: A Case-Control Study, Cancer Research Coordinating Committee (University of California). 1983-84
7. Respirator Tolerance (R01), NIH/National Institute for Occupational Safety and Health/CDC. 1984-87
8. Decision Analysis in Occupational Medicine, UCLA Academic Senate. 1984-85
9. Decision Analysis in Pulmonary Medicine (training grant for post-doctoral fellow), California Lung Association.
10. Pilot Study of Lifting Activity by Nurses. (Contract). National Institute for Occupational Safety and Health. 1985-86
11. Investigation of Asthmatics to Investigate Occupational Causes, California Department of Health Services. 1986-87
12. Artificial Intelligence Occupational History System (R01), NIH/National Institute for Occupational Safety and Health/CDC. 1987-89
13. Hazards of Jewelry Industry, California Department of Health Services. 1987
14. Occupational Rheumatology, Multipurpose Arthritis Center, NIH/NIAID. 1987-90
15. Respirator Tolerance (R01), NIH/CDC/National Institute for Occupational Safety and Health. 1987-91
16. Comprehensive Occupational Medical Provider System, University of California. 1990-91
17. Prospective Study of Nurses' Back Pain, NIH. 1990-92
18. Railroad Workers Injury Patterns, Union Pacific Railroad. 1992-94

19. Projected Disease Burden Models, Stch/Angel. 1993-98
20. Pulmonary Effect of Diatomaceous Earth, Manville Corporation/United Chemical Workers. 1995-7
21. Disability Systems, Dept of Labor Railroad Retirement Board/Med Tox/Association of American Railroads. 1993
22. Railroad Job Demands, Med Tox/Association of American Railroads. 1993-95
23. Medical Causation, California Division of Industrial Relations/Industrial Medical Council. 1993-94
24. Symptom Prevalence - Barstow Community, SRF. 1993-94
25. Del-Amo/Montrose Health Activities Recommendation Panel Site Specific Health Activities/University of California, Los Angeles Component, Agency for Toxic Substances and Disease Registry. 1994-97
26. Occupational Respiratory Disease Evaluation and Rehabilitation System, NIOSH/CDC. 1995-00
27. Spinal Manipulation versus Mobilization for Neck Pain. Health Resources and Services Administration, PHS. 1997-00
28. Beryllium Clinical Evaluations. Oak Ridge Associated Universities (agent for Department of Energy). 1998-99
29. Beryllium Exposure Surveillance System. Oak Ridge Associated Universities (agent for Department of Energy). 1999-02
30. Distributed Occupational Knowledge System, National Cancer Institute (RO1). 1999-02
31. Causation Model. The Workers Compensation Board of Alberta, Canada. 1998-00
32. Investigation of Occupational Asthma, Fiberglass Facility, Owens Corning Corp. 1998-01
33. Spinal Manipulation Vs. Mobilization for Neck Pain. Health Resources and Services Administration. (PI for UCLA Component; Primary grant to Southern California University of Health Sciences) 1997-01
34. Collaborative Training Program in Occupational Medicine- King Faisal University. 2000-07; extended with additional funding 2007- 10.
35. Occupational Medicine Residency, NIOSH/CDC. 1999-03
36. COPD: Occupation, Airway Responsiveness, and Smoking Effect. Centers For Disease Control and Prevention/Association of American Medical Colleges. 2001-04
37. Occupational Medicine Residency, NIOSH/CDC. 2002-2004

**Past Grants- Co-Investigator:**

1. Environmental Epidemiology and Statistics Training Program, School of Public Health, UCLA. 1984-89 (PI: Detels)
2. Clinical Center for Early Intervention for Chronic Obstructive Pulmonary Disease (COPD), HLBI1984-92 (PI: Tashkin)
3. Injury Prevention Research Center, CDC. 1988-90
4. Respirator Performance Model for Particulates, NIOSH. 1988-91 (PI: Hinds)
5. Relationship Between Sulfur Dioxide Induced Bronchoconstriction and Daily Activities in Asthmatics. Electric Power Research Institute. 1989-92 (PI- Gong)
6. UCLA-Mexico/Colombia Collaborative Training and Research Program. NIH/ Fogarty International Center. 1995-2007 (PI: Froines)
7. Chiropractic Versus Medical Care for Low Back Pain, Agency for Healthcare Quality and Research 1994-99 (PI: Morgenstern)

**Current Grants - Principal Investigator:**

1. Carbon Black Respiratory Effects, International Carbon Black Association. 2001-03 ; extended with additional funding 2005- 9.
2. Occupational Medicine Residency, NIOSH/CDC. 2004-2009



3. Working Conditions of Dental Hygienists, NIOSH/CDC/ERC/Pilot Project. 2003-4
4. RAND, Workers Compensation Guidelines. 2004 (UCLA subcontract; main project funded by CA Department of Industrial Relations)
5. Health Effects Panel- Hanford Environmental Site/ CH2Mhill. 2004-6
6. Beryllium Bio-Repository , US Dept of Energy, 2005-6.
7. Respirator Effects in Impaired Workers, CDC/ NIOSH (R01). 2005-9.
8. Adjudication Model for COPD. Workers Compensation Board of AB 2006-9.
9. DOE Beryllium Bio-Repository. US Dept. of Energy. 2007-10.
10. Health effects of surface goods movement. BNSF Foundation 2006- 2007
11. Occupational Medicine Activities and Skills: An Empiric Study. (R01) CDC. 2007-10.

**Current Grants Co-Investigator:**

1. CA Wellness Foundation. Occupational health in primary care and Gardeners 2006-8 (PI: Hinds/ Ben-Levi)
2. UCLA-Mexico/Colombia Collaborative Training and Research Program. NIH/ Fogarty International Center. 2007-2012 (PI: Froines)

**Pending Grant Application(s):**

1. Comprehensive Decision Analysis (R01)

**CONSULTATION PROJECTS (Examples)**

- 1989, Consultant to union and management for respiratory surveillance survey of dust exposed population
- 1990, Consultant on pulmonary policies for case management company
- 1990, Consultant regarding respiratory health effects
- 1990, Medical Consultant for lead foundry
- 1990, Regional Consultant for major transportation company in areas of case management and clinical policy
- 1990, Several legal consultations regarding possible exposure related health effects
- 1990, Worksite and toxicologic evaluations for several insurers
- 1991, Assisted community hospital establish industrial medical program
- 1991, Served as consultant for Medical Quality Assurance project to establish national treatment guidelines
- 1991, Periodic worker surveillance in isocyanate facility
- 1991, Designed computer based preventive medicine examination program for petroleum company
- 1991, Designed respirator program for large corporation
- 1991, Estimated occupational mortality for next 30 years for a utility company
- 1991, Estimated proportional and attributable mortality for natural fiber corporation
- 1991, Consultant - disability management
- 1992, Designed respirator program for large public utility
- 1992, Evaluated exposure and biologic monitoring for electronics manufacturing facility
- 1992, Statistically evaluated chemical exposure data for hazardous waste management company
- 1992, Evaluated data concerning effects of man-made mineral fibers
- 1992, Biologic monitoring of metal exposure for electroplating industry

1993, ADA compliance for large manufacturing facility  
1993, Development of risk predictors for railroad workers  
1994, Risk assessment for man made vitreous fibers  
1995, Statistical adjustment criteria for longitudinal spirometry in industry  
1996, Disability Management Programs  
1998, Carbon Black Industry Scientific Advisory Group: Morbidity Analysis in US and Europe

## **PROGRAMMING**

1. Access
2. Basic
3. BMDP
4. C
5. C++
6. dBase
7. Fortran
8. Level V
9. NeuralWare (Neural Net Computing)
10. VBA
11. SAS
12. Treeage

## **CLINICAL ACTIVITIES**

Clinical program in Occupational, Environmental, and Pulmonary Medicine:

- Independent medical examiners program (state and federal); agreed medical examiner
- Asbestos workers evaluation program
- Individual referrals in Occupational Medicine, Occupational Toxicology
- Consultative service - preventive/occupational medicine
- Clinical ergonomics laboratory
- Bronchoprovocation testing
- Occupational low back pain panel
- Worksite environmental surveys
- Director, UCLA Occupational Health Clinical Center, 1987-91.
- Disability Management
- Beryllium clinical center
- Agreed Evaluator ILWU and PMA

## **REVIEWER/EDITORIAL SERVICE**

**Philip Harber**

*Ad Hoc review for:*

American Journal of industrial Medicine  
American Journal of Public Health  
Archives of Environmental Health  
Journal of Occupational Medicine/Journal of Occupational and Environmental Medicine  
American Review of Respiratory Disease/American Journal of Respiratory and Critical Care Medicine  
Journal of Occupational & Environmental Hygiene  
Environmental Health Perspectives  
Pediatric Pulmonology  
International Journal of Tuberculosis and Lung Disease  
Chest  
Science  
Annals of Internal Medicine  
National Institute for Occupational Safety and Health  
American Journal of Epidemiology  
Am J Industrial Med  
Occupational and Environmental Medicine (BJIM)  
Canadian Mineralogist  
Western Journal of Medicine  
International Journal of Occup- Environ Med

**Editorial Board:**

Occupational and Environmental Medicine Report, 1992-8  
Toxicological Reviews, 2001-6

**COURSES/SYMPOSIUMS ORGANIZED (Off-Campus, CE Outreach)**

1. Symposium on Occupational Lung Disease, American Lung Association of Los Angeles County, (April). 1983
2. Asthma and the Environment, American Lung Association of Los Angeles County, (March). 1984
3. Advanced Industrial Pulmonary Function testing, UCLA Extension, (May). 1984
4. Decision Analysis in Occupational Medicine, American Academy of Occupational Medicine, Salt Lake City, (September). 1984
5. Health Effects of Fibers Symposium, American Lung Association of Los Angeles County, (April), (chair). 1985
6. Research in Occupational Health (medical school elective). 1986
7. Western Occupational Health Conference, Program Chair. 1986
8. Artificial Intelligence in Occupational Medicine, American Occupational Health Conference. 1990
9. Co-Chair, Western Occupational Health Conference. 1990
10. New Technologies Course, Western Occupational Health Conference. 1990

11. Respiratory Surveillance, American College of Occupational Medicine. 1991
12. Biologic Monitoring, UCLA Invitational 2-Day Seminar, (July). 1991
13. Respiratory Protection Update, American College of Occupational Medicine. 1992
14. Environmental Lung Disease -- Current Issues (symposium), American College of Chest Physicians, (October). 1992
15. Occupational Lung Disease (full day postgraduate course), American College of Chest Physicians. 1992
16. Medical Surveillance (full day), American Occupational Health Conference. 1994
17. Providing Pulmonary Services to Workers (full day postgraduate course), American College of Chest Physicians, (October). 1994
18. Exposure Assessment in Workers' Compensation, Industrial Medical Council, (May). 1994
19. Scientific Program Chair, American Occupational Health Conference. 1995
20. Occupational Respiratory Disease: Recognition, Prevention, and Accommodation, UCLA Occupational and Environmental Medicine - Kaiser Permanente Seminar Series (January – February). 1997
21. Course Overview: What's New: A Literature Review of Advances in Occupational and Environmental Medicine. American Occupational Health Conference (ACOEM), Orlando (May). 1997
22. Curso de diplomado: Organized UCLA components of one year course in Baja California training Mexican physicians in occupational medicine. 1996
23. Ergonomia (Ergonomics): Sociedad Nacional de Salud de Trabajo annual meeting. Guadalajara, (June). 1997
24. International Occupational Medicine Conference: Co-Sponsored by UCLA Fogarty Center and Sociedad Mexicana de Salud del Trabajo: (3 day meeting), (organizer). 1997
25. Ergonomia y Asma, Universidad Nacional Autonomia de Mexico (UNAM), 2 day course. 1998
26. Workers Compensation Causation Assessment, Edmonton Canada, (April), (Co-organizer) 1999
27. Workers Compensation Causation Model, Canada (June), (Co-organizer) 1999
28. Occupational asthma, American College of Occupational and Environmental Medicine, San Antonio, (October), (invited presenter). 1999
29. Today's Research, Tomorrow's Practice, American College of Occupational and environmental medicine, Nashville, (November), (symposium organizer). 2000
30. Occupational disease update, American College of Occupational and Environmental Medicine, San Francisco, April. 2001
31. Occupational disease update, American College of Occupational and Environmental Medicine, Seattle, October. 2001
32. Current Research, American College Of Occupational & Environmental Medicine, Chicago, April. 2002
33. Occupational Asthma, American Association of Occupational Health Nurses, Chicago. 2003
34. Health Culture and Productivity. 2004
35. Enhancing Prevention in Occupational Health: Implications for Academic Programs. In Steps to a Healthier U.S. Workforce, sponsored by CDC/NIOSH (Washington, October, 2004) 2004
36. Health effects of surface goods movement, February 2007

### **COURSES/SYMPOSIA ORGANIZED (On-Campus)**

1. 1982-93, Medicine 265, Occupational Medicine Advanced Clinical Clerkship (yearly course for medical students).
2. 1982-89, Public Health 256, Scientific Basis for Occupational Health (co-instructor/instructor), (4 credits).

3. 1988-00, UCLA Occupational and Environmental Medicine Seminar (monthly).
4. 1990-93, Environmental Health Sciences 251, Occupational Diseases (primary responsibility), (4 credits).
5. 1994-95, Environmental Health Sciences 251, Introduction to Occupational Medicine (3 units, School of Public Health).
6. 1995-96, Environmental Health Sciences 251, Introduction to Occupational Medicine (3 units, School of Public Health)
7. 1996, Winter-Spring UCLA Environmental and Occupational Medicine (CME course credit)
8. 1996-97, Environmental Health Sciences 251, Introduction to Occupational Medicine (3 units, School of Public Health)
9. 1997, Winter-Spring UCLA Environmental and Occupational Medicine (CME course credit)
10. 1998, Winter-Spring UCLA Environmental and Occupational Medicine. Includes a mini-symposia on Health Services Organization
11. 1997-98, Environmental Health Sciences 251, Introduction to Occupational Medicine (3 units School of Public Health)
12. 2000-01, Occupational-Environmental Medicine core curriculum (weekly lecture/seminar)
13. 2001-02, Occupational-Environmental Medicine core curriculum (biweekly lecture series)
14. 2001-02, Occupational-Environmental Medicine management (monthly lecture/seminar)
15. 2003 Occupational diseases prevention and recognition (EHS 251a- spring quarter )
16. 2003 Occupational Diseases Prevention And Recognition (EHS 251a- winter quarter )
17. 2004 Occupational Diseases Prevention And Recognition (EHS 251a- winter quarter )
18. 2002-3:Occupational Medicine Core Lecture Series
19. 2003-04 Occupational-Environmental Medicine Core Lecture Series
20. 2004-05 Occupational-Environmental Medicine Core Lecture Series (weekly during academic year)
21. 2003 EHS 251. Recognition and Prevention of Occupational Disease
22. 2005-6 Occupational-Environmental Medicine Core Lecture Series (weekly during academic year)
23. 2003 EHS 596 Directed Individual study and Research
24. 2005 EHS 400 Field Studies
25. 2003 EHS 400 Field Studies
26. 2006 EHS 251. Recognition and Prevention of Occupational Disease
27. 2006-7 Occupational-Environmental Medicine Core Lecture Series (weekly during academic year)
28. 2007 EHS 251 Prevention of Disease in Workers and Workplaces

### **LECTURES AND PRESENTATIONS (Off-campus and continuing education)**

1. SO<sub>2</sub> standard; Testimony at Minnesota State Hearing. 1980
2. Respiratory medical programs; Industrial Hygiene Conference of National Distiller. 1980
3. Health effects of air pollutants (invited lecture); Indiana State Association of Public Health Officers. 1980
4. Work rehabilitation of pulmonary impaired workers (invited lecture); Ohio State Rehabilitation Program. 1980
5. Physiologic effects of respiratory disability determination; ACCP International Occupational Lung Disease Conference, Chicago. 1982
6. Statistical "biases" in respiratory disability determination; ACCP International Occupational Lung Disease Conference, Chicago. 1982

7. Estimation of exertion requirements of coal mining work; ACCP International Occupational Lung Disease Conference, Chicago. 1982
8. Statistical considerations in clinical pulmonary function test interpretation (seminar, repeated three times); American Thoracic Society Meeting. 1982
9. Respiratory disability. Seminar chair; American Thoracic Society Meeting. 1982
10. Overview of occupational lung disease; Los Angeles Committee on Occupational Safety and Health (LACOSH). 1982
11. How to determine if a cancer is due to occupation, in Surveillance and Prevention of Cancer in the Workplace; sponsored by Johnson Cancer Center and Lung Association. 1982
12. Health effects of hazardous waste in hazardous waste management; Continuing education course of UCLA School of Engineering. 1982
13. 1982, Use and abuse of spirometry (invited lecture); Western Occupational Medical Association Meeting.
14. Prevention of occupational back pain (invited seminar); Northern Occupational Health Center, San Francisco. 1983
15. Asbestos-related diseases (invited grand rounds; occupational medicine); Northern Occupational Health Center, San Francisco. 1983
16. Clinical approach to occupational lung disease (meeting chair); Symposium on Occupational Lung Disease sponsored by the Lung Association of Los Angeles County. 1983
17. Optimizing industrial pulmonary function testing; American Occupational Medical Association, Washington, D.C. 1983
18. Medical certification for respirator use; American Occupational Medical Association, Washington, D.C. 1983
19. Conference on aging and productivity (participant); Andrus Gerontology Center and National Commission of Aging, Los Angeles. 1983
20. Ergonomic consideration in VDT workstation design; Los Angeles Committee on Occupational Safety and Health (LACOSH), Los Angeles. 1983
21. Occupational lung disease: perspectives on prevention; Arizona Lung Association, Tucson. 1983
22. Silicosis; respirators; American Lung Association of Los Angeles. 1984
23. Determining work relatedness of asthma; American Lung Association of Los Angeles County. 1984
24. Asthma and the environment (seminar chair); American Lung Association of Los Angeles County. 1984
25. Toxic hazards of hospital work I (invited lecture); Olive View Medical Center. 1984
26. Medical suitability for respirator use (invited lecture); National Naval Environmental Health Conference, Norfolk, VA. 1984
27. Toxic hazards of hospital work II (invited lecture); Olive View Medical Center. 1984
28. Toxic hazards of hospital work III (invited lecture); Olive View Medical Center. 1984
29. Toxic hazards of hospital work IV (invited lecture); Olive View Medical Center. 1984
30. Occupational asthma (invited lecture); American Occupational Medical Association National Meeting, Los Angeles. 1984
31. Respiratory disability and impairment; American Thoracic Society Annual Meeting, Miami. 1984
32. Effects of industrial respirators on respiratory pattern and load sensitivity; American Thoracic Society Annual Meeting, Miami. 1984
33. Occupational lung disease; Valley Park Hospital, Los Angeles. 1984
34. Decision analysis in Occupational Medicine (invited course). Joint Conference on Occupational Health/American Academy of Occupational Medicine; Salt Lake City. Topics include: Introduction; Decision trees (methacholine challenge); Utilities and values; ROC curves; Screening; The future. 1984

35. Asbestos related disease (invited seminar); Medical-Legal Institute, Las Vegas. 1984
36. Occupational asthma (invited lecture); Cedars-Sinai Medical Center, Pulmonary Grand Rounds. 1985
37. Industrial toxic emergencies (grand rounds); Emergency Medical Center, UCLA. 1985
38. The disabled lung (invited lecture); California Medical Association, San Diego. 1985
39. Health information systems (invited speaker, also session chair); American Occupational Medicine Association, Kansas City. 1985
40. Job specific ability and disability; American Thoracic Society, Anaheim. 1985
41. Asbestos and obstructive lung disease (invited presentation); Los Angeles Occupational Epidemiology Forum. 1985
42. Evaluation for respirator use (invited lecture); Western Occupational Health Conference. 1985
43. Quantitative testing methods in occupational medicine (invited lecture); Occupational Medicine Association of Canada, Calgary. 1985
44. Toxicology (quality care in the California workers' compensation system) (invited lecture); Division of Industrial Accidents/University of Southern California. 1985
45. Pulmonary research (session chair); Joint Conference on Occupational Health, Orlando. 1985
46. Alternative partial respiratory disability systems (research paper); American Academy of Occupational Medicine, Orlando. 1985
47. Preplacement testing (invited seminar); University of Southern California. 1986
48. Occupational asthma (invited lecture); Long Beach Memorial Medical Center, Long Beach. 1986
49. Occupational lung disease (invited lecture); Midway Hospital, Los Angeles. 1986
50. Cadmium inhalation; American Lung Association of Los Angeles. 1986
51. Occupational restrictive lung diseases (invited lecture); University of California, Irvine. 1986
52. Occupational back pain in nurses: recent findings (research paper); American Occupational Medicine Association Meeting, Philadelphia. 1986
53. Early manifestations of occupational lung disease (session chair); American Occupational Medical Association, Philadelphia. 1986
54. Obstructive disease from inhaled fibers; American Occupational Medical Association, Denver. 1986
55. Beyond limits of spirometry (invited lecture); American Occupational Health Conference, Denver. 1986
56. Assessing physical disability in disability evaluation in workers' compensation (invited lecture); Los Angeles. 1986
57. Environmental determinants of occupational back pain in nurses (research paper); Fifth International Epidemiology in Occupational Health Symposium, Los Angeles. 1986
58. Pleural plaques and asbestos associated malignancy (research paper); ACCP International Conference on Occupational and Environmental Disease, Montreal. 1986
59. Occupational asthma (invited seminar); Trudeau Society, Los Angeles. 1986
60. Defining the scope of occupational medicine practice (invited seminar); American Academy of Occupational Medicine, Washington. 1986
61. Respirator medical certification (invited lecture); UC System-wide Industrial Hygiene Conference. 1986
62. Chairman's introduction; Western Occupational Health Conference, San Francisco. 1986
63. New methods in evaluating disability (invited lecture); Disability evaluation seminar, Thousand Oaks. 1987
64. Occupational lung disease; White Memorial Medical Center, Los Angeles (grand rounds). 1987
65. Pulmonary exercise testing; American Occupational Medical Association, Philadelphia (invited seminar). 1987
66. Veracity of smoking information from disability claimants: comparison of carboxyhemoglobin levels in

- nonsmoking disability and reference subjects; American Thoracic Society, New Orleans (research paper). 1987
67. Respirator tolerance: interaction of physiologic, psychophysical, and subjective factors; American Thoracic Society, New Orleans (research paper). 1987
  68. Non-patient contact activities and occupational back pain among nurses; International Occupational Epidemiology Conference, Los Angeles (research paper). 1987,
  69. Subjective tolerance of industrial respirators: effects of resistive and dead space loads; American College of Chest Physicians, Atlanta (research paper). 1987
  70. Screening workers at high risk of occupational lung disease; American Occupational Health Conference, New Orleans (invited lecture). 1988
  71. Effect of asthma on work and home life; American Thoracic Society, Las Vegas (research paper). 1988
  72. Effect of exercise level on ventilatory adaptation to respirator use; American Thoracic Society, Las Vegas (research paper). 1988
  73. Respirator use in the work environment; American Thoracic Society, Las Vegas (invited speaker). 1988
  74. Sentinel health event surveillance; California Department of Health Services, Berkeley (invited presentation). 1988
  75. Computers in clinical decision-making; Harbor-UCLA Medical Center, Torrance (invited lecture). 1988
  76. Occupational lung disease; Tarzana Regional Medical Center, Tarzana (invited lecture). 1988
  77. Toxicology of lung disease; Pacific Occupational Safety and Health Conference, Costa Mesa (invited lecture). 1988
  78. Clinical and epidemiologic evaluation of the asbestos exposed patient; Asbestosis Symposium, Cedars-Sinai Medical Center, Los Angeles (invited lecture). 1988
  79. Effect of corticosteroid use on occupational disability among asthmatics; American College of Chest Physicians, Anaheim (research paper). 1988
  80. Office spirometry and challenges; American College of Allergy and Immunology, Los Angeles (invited seminar). 1988
  81. Respirators in the work environment; Southern California Association of Occupational Health Nurses, Pasadena (invited speaker). 1989
  82. Respirator effect in pulmonary impaired subjects; American Thoracic Society, Kansas City (research paper). 1989
  83. Functional impact of small airway dysfunction; American Thoracic Society, Kansas, City (research paper). 1989
  84. Occupational asthma; Hoag Hospital, Newport Beach (invited speaker). 1989
  85. Upper extremity symptoms in supermarket workers -- an epidemiologic biomechanical approach; Los Angeles Epidemiology Forum, Los Angeles (invited lecture). 1989
  86. Evaluation of worker fitness for respirator use; California Thoracic Society (invited lecture). 1989
  87. Workshop on environmental and occupational asthma; US Task Force on Environmental Career and Heart and Lung Disease, ATSDR (CDC) (invited participant and speaker). 1989
  88. Decision analysis in pulmonary medicine; Pulmonary Grand Rounds, Cedars-Sinai Medical Center, Los Angeles (invited lecture). 1990
  89. Carpal tunnel syndrome; (radio interview). 1990
  90. Cumulative trauma disorders; Physicians Journal Update (television interview). 1990
  91. Changing diagnostic aspects of pneumoconiosis; American College of Occupational Medicine, Houston (invited lecturer). 1990
  92. Common occupational disorders in primary care; Santa Monica Hospital, Santa Monica (invited lecture). 1990



93. Assessment of environmental and community toxins; Los Angeles Society of Allergy and Clinical Immunology, Los Angeles (invited lecture). 1990
94. Occupational health and safety software; American College of Occupational Medicine, Houston (invited postgraduate course). 1990
95. Occupational surveillance and fitness; American Thoracic Society, Boston (invited lecture in postgraduate course). 1990
96. Clinic based surveillance for hazards: questionnaire, expert and expert system approaches; American Thoracic Society, Boston (research paper). 1990
97. Role of subjective response in evaluating respirators; American Thoracic Society, Boston (research paper). 1990
98. Assessing work ability and disability; Fundamentals of Occupational Medicine in a Provider Based Setting, Santa Barbara (invited lecture). 1990
99. Occupational asthma; Sepulveda Veterans Hospital, Los Angeles (grand rounds). 1990
100. Repetitive trauma disorders; KNBC (radio interview). 1990
101. Respiratory stress, pulmonary fitness, and respirator use; American College of Occupational Medicine State of the Art Conference, Pittsburgh (invited lecture). 1990
102. Occupational lung disease and protective equipment; American College of Occupational Medicine State of the Art Conference, Pittsburgh (invited seminar). 1990
103. Surveillance program design; Pacific Occupational Safety and Health Conference, Long Beach (invited lecture). 1990
104. Occupational and environmental health; American College of Chest Physicians, Toronto (session chair). 1990
105. New perspectives on asbestos; American College of Chest Physicians, Toronto (moderator). 1990
106. Prevention program optimization; Western Occupational Health Conference, Los Angeles (invited lecture). 1990
107. Western Occupational Health Conference; Los Angeles (co-chair). 1990
108. Selecting real goals: program optimization; Western Occupational Health Conference, Los Angeles (invited lecture). 1990
109. Occupational lung diseases; Wadsworth VA Hospital (invited lecture). 1991
110. Respiratory surveillance; American Occupational Health Conference, San Francisco (course organizer and speaker). 1991
111. Asbestos as a health hazard; Hoag/Memorial Hospital, Newport Beach (invited lecture). 1991
112. Respiratory impairment; Harbor-UCLA Medical Center, Torrance (invited pulmonary grand rounds). 1991
113. Clinical significance of plain film abnormalities, pneumoconiosis post-graduate course; Cedars Sinai Medical Center, Los Angeles (invited lecture). 1991
114. Nasal-oral flow partition with respirator use; American Thoracic Society, Anaheim (research paper). 1991
115. Respiratory evaluation; SCE Health Care, Pasadena (invited lecture). 1991
116. Respiratory user medical evaluation: simple methods succeed; 4th International Environmental Lung Disease Conference, Montreal (research paper). 1991
117. Radiologic abnormalities among diatomaceous earth miners; 4th International Environmental Lung Disease Conference, Montreal (research paper). 1991
118. Respiratory disability accommodation; 4th International Environmental Lung Disease Conference, Montreal (research paper). 1991
119. Diagnostic methods; 4th International Environmental Lung Disease Conference, Montreal (session chair). 1991
120. Respiratory disease (3 hour seminar); State Compensation Insurance Fund, Monterey Park (invited

- lecturer). 1991
121. Assessing job requirements under the ADA: fitting the worker to the job; Western Occupational Health Conference, Monterey (invited lecture). 1991
  122. Western Occupational Health Conference; Monterey (session moderator). 1991
  123. Fiberglass and cancer risk. Testimony to Assembly of State of California; Sacramento. 1992
  124. Lexical analysis: feasibility consideration of computerized occupational lung disease language interpretation; American Thoracic Society, Miami (research paper). 1992
  125. Respiratory pattern effect of acute sulfur dioxide exposure in asthmatics; American Thoracic Society, Miami (research paper). 1992
  126. Interpreting pulmonary function tests; American College of Occupational and Environmental Medicine, Washington (invited lecture). 1992
  127. Respirator medical clearance; American College of Occupational and Environmental Medicine, Washington (session chair). 1992
  128. Respirator tolerance: theoretical approaches. American College of Occupational and Environmental Medicine, Washington (invited lecturer). 1992
  129. Americans with Disabilities Act; UC Davis Occupational and Environmental Medicine Annual Symposium, Davis, (invited lecture). 1992
  130. Respiratory disease (3 hour seminar). State Compensation Insurance Fund, Monterey Park, CA (invited lecturer). 1992
  131. Occupational lung disease; Wadsworth VAMC (invited lecture). 1992
  132. Assessing impairment and disability from occupational airways disease; American College of Chest Physicians, Chicago (invited lecture). 1992
  133. Ability and disability; American College of Chest Physicians (invited lecture). 1992
  134. Expected work life; Union Pacific Medical Meeting, Vail (research presentation). 1992
  135. Potroom (aluminum) asthma; Alcoa Corporation International Health Meeting, Atlanta (invited lecture). 1992
  136. Trends in occupational medicine. American Industrial Hygiene Association (southwest); San Diego (invited lecturer). 1993
  137. Occupational lung disease (3 hour seminar); State Compensation Insurance Fund, Commerce, CA (invited lecturer). 1993
  138. Marketing of ergonomics products and services; Truth in advertising? UC San Francisco Occupational-Environmental Grand Rounds, San Francisco (invited lecturer). 1993
  139. Assessing work ability in worker's compensation; SEAK, Inc., San Francisco (invited lecture). 1993
  140. Asthma disability; American College of Occupational and Environmental Medicine, Atlanta (invited lecture). 1993
  141. Impairment evaluation in occupational asthma, and Worker fitness and respiratory protection; University of South Florida and the American College of Chest Physicians, Tampa (invited lectures). 1993
  142. Occupational lung disease (4 hour lecture); State Compensation Insurance Fund, Costa Mesa (invited lecturer). 1993
  143. Work placement; Ryan & Associates, Santa Barbara (invited lecturer). 1993
  144. The work environment and ergonomics: Implications for practicing physicians; Saint Joseph Medical Center, Burbank (invited lecturer). 1993
  145. Redefining asbestosis; American College of Chest Physicians, Orlando (invited lecturer). 1993
  146. Biologic monitoring: programmatic aspects; American Industrial Hygiene Association of Orange County, Norwalk (invited lecturer). 1993
  147. Guidelines for Permanent Disability in Lung Disorders; American Academy of 1993, Disability Evaluating

- Physicians. San Diego (invited lecturer). 1993
148. Job-task-subtask analysis - an overview; Association of American Railroad (invited lecturer). 1993
  149. Asbestos; Chest Grand Rounds, Harbor-UCLA Medical Center, Torrance (invited lecturer). 1994
  150. Outcome determinations, workshop on non-traditional disability management; Union Pacific Corporation, Las Vegas (invited lecturer). 1994
  151. Prevention and assessment of occupational lung disease; American College of Chest Physicians, Miami (invited seminar). 1994
  152. Occupational data for interpreting risk assessments; Society for Risk Analysis, Southern California Chapter, Los Angeles (invited lecture). 1994
  153. Quantitative decision methods; Conference on Biomarkers, United States Department of Energy, Santa Fe (invited research presentation). 1994
  154. Pleural abnormalities in diatomaceous earth workers; American Thoracic Society, Boston (research presentation). 1994
  155. Respiratory protection; American Thoracic Society, Boston (session chair & organizer). 1994
  156. Bioaerosols (respiratory protection); American Thoracic Society; Boston (invited lecturer). 1994
  157. Asthma and hypersensitivity pneumonitis (occupational lung diseases mini-course); UC Davis, Sacramento (invited lecturer). 1994
  158. Respirators; UC Davis, Sacramento (invited lecturer). 1994
  159. Occupational pulmonary medicine; UC Davis Mini Course (invited lecturer). 1994
  160. Cumulative Trauma Disorders: Determination of Causation; National Workers Compensation and Occupational Medicine Seminar; Cape Cod (invited lecturer). 1994
  161. Job Demand Determination; National Workers Compensation and Occupational Medicine Seminar; Cape Cod (invited lecturer). 1994
  162. Medical surveillance. Organizational Resource Counselors (ORC); Washington. 1994
  163. Job demand assessment (invited presentation); Association of American Railroads, Santa Monica. 1994
  164. Integrated approach to job demand assessment; Association of American Railroads, Washington. 1995
  165. Atomic approach to disability assessment (invited research lecture); University of Texas, School of Public Health, Houston. 1995
  166. Impact of asthma; International Environmental and Occupational Lung Disease Conference, Orlando (invited lecturer). 1995
  167. Exposure assessment for carpal tunnel syndrome; American Occupational Health Conference (AHOC), Las Vegas (research presentation). 1995
  168. Screening: Beyond sensitivity; American Occupational Health Conference (AHOC), Las Vegas (invited lecture). 1995
  169. Respiratory disability; American Occupational Health Conference (ACOEM), Las Vegas (invited lecturer). 1995
  170. Medical surveillance; American Industrial Hygiene Association, Kansas City (invited lecture). 1995
  171. Generic medical surveillance; Organizational Resource Counselors (ORC), Washington (invited lecturer). 1995
  172. Respiratory disability; Western Occupational and Environmental Medical Association, Monterey (invited lecturer). 1995
  173. Computers in occupational medicine - future possibilities; Western Occupational and Environmental Medical Association, Monterey (invited lecturer). 1995
  174. Occupational lung disease (3 hour lecture); State Compensation Insurance Fund, Los Angeles (invited lecturer). 1995

175. Exposure assessment (4 lectures); Harbor General - UCLA Family Practice Program (invited lecturer). 1995
176. Respiratory surveillance; ACOEM State of the Art Conference, Seattle (invited lecture). 1995
177. Medical standards for job placement; New England College of Occupational and Environmental Medicine, Boston (invitational lecture). 1995
178. Harriet Hardy Award acceptance; New England College of Occupational and Environmental Medicine, Boston (invited lecturer). 1995
179. Database Models: Implications for Public Health Surveillance; California Department of Health Services, (OHSEP), Berkeley (research presentation). 1995
180. Model for Asbestos Disease Development and Progression in Individuals and Populations, ATS, (research presentation). 1995
181. Respiratory Disease Course (3 hours); State Compensation Insurance Fund Los Angeles (invited lecturer). 1996
182. Work Ability and Disability (Chest Grand Rounds); Harbor-UCLA Medical Center, Torrance (invited lecturer). 1996
183. Assessing Chemical Exposure in the Workplace and Community; UCLA Family Practice Grand Rounds (invited lecturer). 1996
184. Occupational Lung Disease-Literature Review; American Occupational Health Conference (ACOEM), San Antonio (invited lecturer). 1996
185. Course Overview: What's New: A literature review of advances in occupational and environmental medicine; American Occupational Health Conference (ACOEM), San Antonio (Course organizer). 1996
186. Respiratory Protection; American Thoracic Society, New Orleans (invited lecturer). 1996
187. Change in Spirometer: Impact on Longitudinal Data; American Thoracic Society. New Orleans (invited lecturer). 1996
188. Atomic Approach to Occupational Dis/Ability Assessment; American Thoracic Society. New Orleans (invited lecturer). 1996
189. Case Study. Los Angeles County Department Health Services Public Health Programs & Services (ATSDR) Redondo Beach, California (invited lecturer). 1996
190. Occupational Lung Disease; Wadsworth Veterans Administration (invited lecturer). 1997
191. Occupational Health: Integrating Public Health Services; Harbor-UCLA Medical Center (invited lecturer). 1997
192. Occupational Respiratory Disease: Recognition, Prevention, and Accommodation. (3 lectures); UCLA Occupational and Environmental Medicine - Kaiser Permanente Seminar Series (invited lecturer). 1997
193. Occupational Health and Workers' Compensation System; White Memorial Hospital (invited lecturer). 1997
194. Occupational Asthma. Cedars Sinai Medical Center, Los Angeles Pulmonary/ Critical Care Grand Rounds (invited lecturer). 1997
195. Asthma Disability; American Occupational Health Conference (ACOEM), Orlando (invited lecturer). 1997
196. Occupational Respiratory Disease; Whittier Intercommunity Hospital Whittier, CA. (invited lecturer). 1997
197. Environmental Health Response Clinics; American Occupational Health Conference (ACOEM), Orlando (invited lecture). 1997
198. Airway Responsiveness; American Occupational Health Conference (ACOEM), Orlando (invited lecture). 1997
199. Occupational Respiratory Disease; Kaiser Cadillac Los Angeles: (Invited lecture). 1997
200. Intelligent database system to resolve the specificity/generality conflict for occupational respiratory questionnaires, American Thoracic Society, San Francisco (Research presentation). 1997

201. Occupational Lung Disease: International Occupational Medicine Conference: UCLA/Sociedad Mexicana de Salud del Trabajo (invited lecturer). 1997
202. Ergonomics: Exposure Assessment: International Occupational Medicine Conference: UCLA/Sociedad Mexicana de Salud del Trabajo (invited lecturer). 1997
203. Environmental Toxicology: Bay Shores Hospital Torrance, (invited CME lecture). 1997
204. Environmental Exposure Assessment: Harbor General Medical Center, Torrance (invited lecturer). 1997
205. Risk Communication: Harbor General Medical Center, Torrance. 1997
206. Fiber Glass Risk: Presentation to Cal-OSHA Toxic Air Contaminants Committee, San Francisco (invited lecturer). 1997
207. Occupational Toxicology. State Compensation Insurance Fund, San Bernardino (invited lecturer). 1997
208. SV40 and Mesothelioma Risk- Epidemiologic Approach. SV40 Study Consortium; New York (invited lecturer). 1997
209. Occupational Asthma; Cedars Sinai Medical Center, Los Angeles (invited lecturer). 1997
210. Occupational Asthma and Rhinitis; Allergy Association, Santa Barbara (invited lecturer). 1997
211. Respiratory Personal Protection; USC Occupational Medicine residency Program (invited lecturer). 1998
212. Causation Analysis- SEAK National Workers Compensation conference, San Francisco (invited lecturer). 1998
213. Computer methods in occupational Health Management in 2020- SEAK National Workers Compensation Conference, San Francisco (invited lecturer). 1998
214. Computer methods to link public health and clinical occupational medicine- UC, San Francisco (invited lecture). 1998
215. Respiratory Protection; Emeryville, UC Berkeley (invited lecturer). 1998
216. Respiratory Disease and Work- Health Systems Considerations- Kaiser, Bellflower CA. 1998
217. Asthma Disability and Ability: American College of Occupational and Environmental Medicine Boston (invited lecturer). 1998
218. Occupational and Environmental Medicine- Boston, (research presentation)
219. Public Health/ Clinical integration for Respiratory Diseases- American College 1998
220. Asma y Ocupacion, Mexico City, (invited lecture) 1998
221. Occupational Lung Disease, Providence- Holy Cross Hospital, Mission Hills, 1998
222. Sistemas de salud ocupacional, Universidad Nacional Autonomia de Mexico (UNAM), Mexico City, (invited lecture to monthly grand rounds) 1998
223. Ergonomia y Ashma, Universidad Nacional Autonomia de Mexico (UNAM), Mexico City, (lectures) 1998
224. Occupational Health Care Delivery Systems- Is There a Best Choice? , State of the Art Conference, American College of Occupational and Environmental Medicine, Phoenix, (Invited presentation) 1998
225. Determining Causation, European Respiratory Society, Madrid, (invited lecture) 1999
226. Causation Assessment, American College of Occupational and Environmental Medicine, San Antonio, (invited presentation) 1999
227. Occupational Asthma Prevention, American College of Occupational and Environmental Medicine, San Antonio, (invited presentation) 1999
228. Occupational Asthma Management, Occupational Asthma Workshop Quebec, PQ (invited discussant) 2000
229. Occupational Health Concerns in General Medical Clinics, American Thoracic Society, Toronto, (research paper) 2000
230. Lexical Analysis of General Pulmonary and Occupational Medicine Text, American Thoracic Society, Toronto, (research paper) 2000

231. Reinventing the Role of Occupational Medicine, Kaiser Permanente Newport Beach, (invited lecture) 2000
232. Occupational Asthma - Union Pacific Railroad- Denver (invited lecturer). 2000
233. Causation Analysis: Programmatic Approaches -American Assn of State Compensation Insurance funds, San Diego, (invited lecturer). 2000
234. Effect of Production Process on Carbon Black Exposure, European Respiratory Society; Florence, Italy; (research paper). 2000
235. UCLA Beryllium Experiment U.S. Dept of Energy” Denver, (invited presentation). 2000
236. Occupational Health Services – Is there a Mandate? , American College of Occupational and Environmental Medicine, Nashville ( invited lecture) 2000
237. Linking Public Health and Clinical Medicine by Computer Technology American College of Occupational and Environmental Medicine, Nashville (invited lecture) 2000
238. Occupational Health Surveillance - Hong Kong Academy of Medicine, (invited to give a presentation) 2000
239. Hong Kong College of Occupational Medicine, Hong Kong (invited lecture) 2000
240. Occupational Respiratory disease - Hong Kong College of Family practitioners (invited lecture). 2000
241. Causation Analysis, Robert Wood Johnson Medical School, New Brunswick NJ, (invited lecture) 2000
242. Computer Methods to Link Public Health and Clinical Approaches. National Occupational Research Agenda Meeting (NIOSH), Washington, (research presentation). 2001
243. Fatal Asbestosis 50 Years after brief high-intensity exposure in a vermiculite expansion plant. American Thoracic Society, San Francisco, (research presentation). 2001
244. Optimization of Beryllium Worker Screening. American Thoracic Society, San Francisco, (research presentation). 2001
245. Malignant Mesothelioma- Therapy and SV40. Chicago, (session chair). 2001
246. Lung Tissue Asbestos Content and SV40 Status in Mesothelioma Patients. Malignant Mesothelioma- Therapy Options and the Role of SV40: an Update; Chicago, (research presentation). 2001
247. Asbestos: what’s new? American College of Occupational and Environmental Medicine, San Francisco, (invited lecture). 2001
248. Occupational Lung Disease: University of California, San Francisco; continuing medical education course, (invited lecture). 2001
249. Morbidity Studies. International Carbon Black Association, Rome, (invited presentation). 2001
250. Beryllium project update. Department of energy. Denver, 2001
251. Work ability and accommodation. American College of Chest Physicians, Philadelphia, (invited lecture). 2001
252. Respiratory Protection. American College of Chest Physicians, Philadelphia, (invited lecture). 2001
253. Spirometry and Exercise Testing. American College of Occupational and Environmental medicine, Seattle, (invited lecture). 2001
254. Chronic Beryllium Disease- UCLA update. U.S Department of Energy, Denver, (invited presentation). 2001
255. Occupational Lung-Disease Board Review. Pulmonary Board Review Group. Los Angeles, (invited lecture) 2001
256. Indoor Air Quality and Molds: Cedar Sinai Medical Center Grand Rounds. Los Angeles, (invited lecture) 2001
257. Occupational Lung Disease. Pulmonary Board Review. Los Angeles. 2001
258. Chair, “Current Research”, American Occupational Health Conference, Chicago, April 2002

259. Refocusing occupational medicine-types and frequency of occupational health concerns. American Occupational Health Conference, (Research Paper). Chicago, April 2002
260. "How Common Are Occupational Health Concerns?" Occupational Health Standards and Operating Procedures Conference (Invited lecture). Los Angeles, April, 2002.
261. Tasks Analysis. CE/CME Ergonomics Course. LA 2002
262. P Harber, H Pass, A Gazdar, F Pooley . Asbestos lung content among sv-40 positive mesothelioma patients. American Thoracic Society, Atlanta, 2002
263. Silica: Cancer & Obstructive Disease. Hong Kong Pneumoconiosis Board, Hong Kong. (invited lecture). November 2002
264. Silicosis: Assessing disability. Hong Kong Thoracic society, Hong Kong SAR. (Invited lecture) November, 2002.
265. Variable location residency programs (preventive medicine). American College of Preventive Medicine, San Diego. (Invited presentation) February 2003.
266. Occupation & Obstructive Lung Disease. American College Of Occupational & Environmental Medicine, Atlanta. ( Invited paper) April 2002
267. Occupational asthma. American association of occupational health nurses, Atlanta. (Invited lecture) May 2003
268. Harber, P., and C. S. D. Don, M. Mullin, C. Cooper.. Optimization Of Beryllium Worker Screening. American Thoracic Society (Research presentation). 2001
269. Wright, R., P. Harber, and B. B. J.L. Abraham. Fatal Asbestosis 50 Years After Brief High Intensity Exposure In A Vermiculite Expansion Plant. American Thoracic Society 2001
270. Harber, P., and S. S. H Muranko, A Torrossian, B Merz. Effect Of Carbon Black Exposure Upon Spirometry. American Thoracic Society (Research presentation) 2002
271. Harber, P., H. Pass, A. Gazdar, and F. Pooley. 2002. Asbestos Lung Content Among SV-40 Positive Mesothelioma Patients. American Thoracic Society 2002
272. Harber, P., and D. P. T. M. Simmons, E. Hnizdo, L. Schachter.. What Do Dust, Fume, Mask Use Really Mean? American Thoracic Society (Research presentation) 2003
273. Harber, P., and E. H. D.P. Tashkin, M. Simmons. Influence of Early COPD on Employment Status. American Thoracic Society (Research presentation) 2003
274. Harber, P. J. Okada., C. Cooper, V. Morkjaroenpong. 2003. Natural Course of Beryllium Disease Development-An Analytic Model Approach. American Thoracic Society (Research presentation) April 2003
275. Rutherford Johnstone Honor Lecture: Scope and Future of Occupational Medicine. Western Occupational and Environmental Medical Assn., Napa, CA October, 2003
276. Occupational Medicine Training. Johns Hopkins (Bloomberg) School of Public Health, Baltimore Nov, 2003
277. Occupational Asthma (West Los Angeles Veterans Admin Hosp) 2004
278. Occupational Asthma (West Los Angeles Veterans Admin Hosp January, 2004
279. Harber, P., L. Crawford, L. Schachter, and k. Liu. Exposure group classification by computerized free text lexical analysis. Orlando, American Thoracic Society. 2004
280. Harber, P., and D. T. M. Simmons, E. Hnizdo, L. Crawford, J. Connett. Effect of Fume Exposure on FEV1 in Early COPD. Orlando, American Thoracic Society. 2004
281. Structures for Integrating General Prevention & OEM Education . In Steps to a Healthier U.S. Workforce, sponsored by CDC/NIOSH (Washington, October, 2004)
282. Academic Occupational Medicine: Challenges and Opportunities. WOEMA Retreat. Pasadena. (invited presentation) 2005 (Jan)
283. Academic Occupational Medicine: Challenges and Opportunities. WOEMA Retreat. Pasadena. (invited presentation) 2005 (Jan)

- presentation) 2005 (Jan)
284. Causation Assessment/ Guide to Creating Large Claims. CA Assoc of Occupational Health nurses. San Francisco. (Invited lecture) 2005 (October)
  285. Beryllium: Genetics, Ethics, and Public Health. Harbor General Pulmonary Grand Rounds. Torrance CA. (invited lecture) 2005 (November)
  286. Health Care Environment. Medical Staff. Olive View Medical Center. (invited lecture) 2006 (Jan)
  287. Risks in Healthcare. Wadsworth VA Lecture. West LA VA. (invited lecture) 2006 (Jan)
  288. Hanford Tank Farm Respiratory Risks. Hanford Worker/ DOE meeting. Richland WA. Research Summary 2006 (Feb)
  289. Occupational Asthma. Pulmonary Grand Rounds- Cedars Sinai. Los Angeles. invited grand rounds 2006 (February)
  290. Research Training. Educational Summit- Occupational Medicine. Washington. (Invited presentation) 2006 (March)
  291. Context of Longitudinal Analysis: Decision Analysis Model. NIOSH Workshop on Longitudinal lung Function Analysis. Washington. (research presentation) 2006 (March)
  292. Bronchiolitis Obliterans: Linking Clinical and Public Health Approaches. Council of State and Territorial Epidemiologists. Anaheim. invited lecture 2006 (June)
  293. Airway Disorders. American College of Occupational and Environmental Medicine. Los Angeles. (invited lecture) 2006 (May)
  294. Parenchymal Lung Disease (in basic curriculum course). American College of Occupational and Environmental Medicine. Los Angeles. (invited lecture) 2006 (May)
  295. Longitudinal Lung Function Analysis. American College of Occupational and Environmental Medicine. Los Angeles. 2006 (May)
  296. Bronchiolitis obliterans from Diacetyl: Linking Clinical and Public Health Approaches. Medical Grand Rounds-University Of California, Irvine. Santa Ana. Invited grand rounds 2006 (December)
  297. Limit of Normal Decline for FEV1. American Thoracic Society. San Diego. research 2006 (May)
  298. Occupational Lung Disease 1950-2050 (Richards Lecture). University of Utah. Salt Lake City. invited lecture 2007 (April)
  299. Exposure group classification by computerized free text lexical analysis.. American Thoracic Society. Orlando. Research Presentation 2004
  300. Effect of Fume Exposure on FEV1 in Early COPD. American Thoracic Society. Orlando. Research Presentation 2004 (May)
  301. Comparison of 3 methods for assigning exposure metrics for evaluating occupation effect upon COPD.. American Thoracic Society. San Diego. Research Presentation 2005 (May)
  302. Respirator Effects During Simulated Real-Life Activity: Methodology. American Thoracic Society. San Francisco. Research Presentation 2007 (May)
  303. Linking Sentinel Events to Public Health Responses - System or Serendipity? Diacetyl Experience. American Thoracic Society. San Francisco. Research Presentation 2007
  304. Occupational Asthma. Harbor-UCLA Med Center. Torrance CA. Invited Lecture 2007 (October)
  305. Airway Diseases. SOTAC/ ACOEM Course. Vancouver, BC. Invited Lecture 2007 (October)
  306. Interstitial Diseases; Surveillance. SOTAC/ ACOEM Course. Vancouver, BC. Invited Lecture 2007 (October)

### **LECTURES AND PRESENTATIONS (On-campus)**

1. Physiologic Effects of Respirators. Kettering Institute Seminar; April. 1980
2. A Stochastic Model of Lung Cancer Progression. University of Cincinnati Bio-mathematical Model



Seminars; October. 1980

3. Air Pollution. University of Cincinnati Medical College, 2nd year class; November. 1980
4. Spirometry: Standards and Equipment. Seminar series in Clinical Epidemiology. University of Cincinnati. Lecture include: Rates; Models of exposure; P-value and significance; Clinical traits; Hypothesis generation: PMR and Decision analysis. Presented three times as part of NIOSH/University of Cincinnati Spirometry Course. 1980-81
5. Lung and Environment Course (For physicians and hygienists). Topics include: Asbestos; Respiratory Disability; Respirators; Work Ability; Occupational Lung Cancer; Air Pollutants. University of Cincinnati. 1980-81
6. Occupational Lung Disease. Department of Medicine, Noon Conference, UCLA; February. 1982
7. Occupational air pollutants (2 hours). UCLA School of Public Health; March. 1982
8. Occupational Lung Disease: Epidemiologic Methods. UCLA School of Public Health, Epidemiology Division; May. 1982
9. Respiratory Disability. UCLA Pulmonary Fellows Conference; June. 1982
10. Making Work Safe. UCLA Allied Health Programs; June. 1982
11. Asbestos Related Lung Disease. UCLA Medical Grand Rounds; September. 1982
12. Occupational and Environmental Lung Cancer. UCLA Pulmonary Fellows Conference; September. 1982
13. Role of Occupational Medicine. UCLA School of Public Health; October. 1982
14. Occupational Lung Disease. UCLA School of Public Health; October. 1982
15. Workers' Compensation. UCLA School of Nursing; November. 1982
16. Assessment of Occupational Disability. UCLA Department of Medicine; May. 1983
17. Environment and Health. UCLA Department of Geology; May. 1983
18. Occupational Asthma and Allergic Disorders. Center for interdisciplinary research in Immunology and Diseases; June. 1983
19. Defining "Normality" I. UCLA Pulmonary Conference; June. 1983
20. Defining "Normality" II. UCLA Pulmonary Conference; June. 1983
21. Role of occupational medicine. UCLA School of Public Health; October. 1983
22. Occupational lung disease. UCLA School of Public Health; October. 1983
23. What is "Normal" Pulmonary Function? UCLA; January and February. 1984
24. Occupational/Environmental Lung Disease. Pathophysiology of Disease Core Course. UCLA School of Medicine; February. 1984
25. Respiratory disease. UCLA Nurse/Practitioner Program; February. 1984
26. Occupational Health. (Public Health 256). Lectures include: Occupational Lung Disease; Occupational Lung Disease Due to Organics; Hematologic, Immunologic and Cardiac Effects; Ergonomics, Management of the Worker With Disease. 1984
27. Advanced industrial pulmonary function testing. UCLA (course chair). Lectures given: Introduction: What is normal function? When to contract, Handling spirometry data; Should you use published normals or develop your own standards? 1984
28. Occupational medicine. UCLA Pulmonary Fellows Lecture Series; August. 1984
29. Normality (pulmonary function). UCLA Respiratory Physiology Conference; August. 1984
30. Respiratory Disease. UCLA Nurse/Practitioner Program (3 hours); October. 1984
31. Decision and Analysis. UCLA Pulmonary Research Seminar; October. 1984
32. Asbestos -- Diseases. UCLA Pulmonary Fellows Conference; October. 1984
33. Ergonomics. UCLA School of Public Health; November. 1984

34. Chemical Exposure, Clinical Approach. General Internal Medicine Conference; November. 1984
35. Respiratory Ability and Disability. UCLA Pulmonary Fellows Conference; January. 1985
36. Industrial Toxic Emergencies. UCLA Emergency Medicine Center Grand Rounds; February. 1985
37. Occupational Health (Public Health 256). Lectures include: Lung diseases – Inorganics; Asthma and Hypersensitivity Disease, Immunologic Diseases, Hematologic and Cardiac Disease; 1985
38. Hospitals -- a dangerous place to work (invited lecture). UCLA Allied Health Programs; May. 1985
39. Occupational lung disease. UCLA Pulmonary Conference; August. 1985
40. Pulmonary disease. UCLA Nurse/Practitioner Course (4 hours); October. 1985
41. Ergonomics. UCLA School of Public Health; November. 1985
42. What is normal lung function? UCLA Pulmonary Physiology Conference; December. 1985
43. Toxic hazards in the hospital. UCLA Allied Health Programs; January. 1986
44. Respiratory surveillance: opportunities and risks. UCLA Occupational Medicine Seminar; January. 1986
45. Hazards of jewelry industry. UCLA/SOHC Conference; February. 1986
46. Immunologic environmental lung disease. UCLA Pulmonary Conference; March. 1986
47. Occupational asthma. UCLA Pulmonary Division; April. 1986
48. Occupational medicine. UCLA Pulmonary Fellows Lecture; July. 1986
49. Defining Normal Lung Function. UCLA Pulmonary Physiology Series; September. 1986
50. Respirator research. UCLA Pulmonary Research Series; September. 1986
51. Occupational health research. UCLA School of Nursing; October. 1986
52. Pulmonary Diseases. UCLA Nurse/Practitioner Program, School of Nursing; October. 1986
53. Ergonomics and Cumulative Trauma. UCLA School of Public Health; November. 1986
54. Identifying occupational disease. UCLA School of Public Health, November. 1986
55. Occupational Health (Public Health 256), Lectures include: Occupational Asthma, Immunologic Disease, Asbestos, Non-Asbestos Silicates, Silica, Coal and other Pneumoconioses. 1986
56. Occupational lung diseases (6 lectures). UCLA School of Public Health; Winter. 1987
57. Preplacement testing -- practical and ethical concerns. UCLA Occupational Medicine Seminar; February. 1987
58. Occupational lung disease. UCLA Sophomore Medical School Lecture; February 1987,
59. Occupational lung disease. UCLA Medical School Pathophysiology of Pulmonary Disease course; February. 1988
60. Occupational lung disease. UCLA House staff Series; May. 1988
61. What is normal lung function? UCLA Pulmonary Physiology Series; May. 1988
62. Pathophysiology of Occupational Lung Disease. Wadsworth VA Hospital/UCLA; August. 1988
63. Occupational Health (Public Health 256), Lectures include: Introduction; Ergonomics; asbestos; Asthma; Pulmonary disease; Immunologic disease. 1988
64. Pathophysiology of Disease (Medicine 202): Occupational Lung Disease; February. 1989
65. Clinical aspects of occupational lung disease. UCLA School of Public Health 126; Fall. 1989
66. Occupational Rheumatology. UCLA Rheumatology Division; September. 1989
67. Occupational Health (Public Health 256). Lectures include: Introduction; Asthma and immunologic Disease; Ergonomics, Noise and Hearing Conservation; Winter. 1989
68. Defining normality of lung function. UCLA Pulmonary Physiology Series; January. 1990
69. Pathophysiology of Disease (Medicine 202). Occupational Lung Disease; February. 1990

70. Occupational Health (Public Health 256), Lectures include: Introduction; Ergonomics; Lung Function; Physical Environment: Heat; Physical Environment: Noise; Asbestos Disease; Occupational Asthma and Immune Responses; Winter. 1990
71. Epidemiology of occupational respiratory disease. Occupational epidemiology course, School of Public Health; May. 1990
72. Public Health 156: Lectures include: Clinical Approach to Ergonomics; Fall. 1990
73. Pathophysiology of Disease: Environmental Lung Disease; February. 1991
74. Occupational Disease (Environmental Health 256), Numerous lectures; Winter. 1991
75. Clinical Approaches. Public Health 156; November. 1991
76. Pathophysiology of Disease: Environmental Lung Disease; February. 1992
77. Environmental Health Sciences 250, Lectures: Clinical approaches to Occupational Health and Ergonomics; fall. 1992
78. marketing of ergonomic services and products: truth in advertising? UCLA Occupational Medicine Seminar; January. 1993
79. Pathophysiology of environmental lung disease. Second year medical school; February. 1993
80. Environmental Asthma. UCLA Allergy and Immunology seminar; September. 1993
81. Environmental Health Sciences 250: Occupational health systems. Occupational medicine; October. 1993
82. Asbestosis. Pulmonary Seminar; October. 1993
83. Pathophysiology of Environmental Lung Disease. UCLA School of Medicine (2nd year curriculum); February. 1994
84. Pathophysiology of Environmental Lung Disease. UCLA School of Medicine (2nd year curriculum); February. 1995
85. Occupational Data for Interpreting Risk Assessments (Invited lecture). Southern California Chapter, Society for Risk Assessment in Los Angeles; May. 1994
86. Occupational Medicine. EHS 250, School of Public Health; November. 1994
87. Occupational Medicine. EHS 250, School of Public Health; October. 1995
88. Pathophysiology of Environmental Lung Disease. UCLA School of Medicine (2nd year curriculum); February. 1996
89. Introduction to Occupational Medicine. Lectures on topics including ergonomics, respiratory disease, ADA, noise/hearing, screening theory, organization of services, toxic effects, heat stress, risk communication. EHS 251, School of Public Health; Winter Quarter. 1994
90. Introduction to Occupational Medicine. Lectures on topics including ergonomics, respiratory disease, ADA, noise/hearing, screening theory, organization of services, toxic effects heat stress, risk communication. EHS 251, School of Public Health; Winter Quarter. 1995
91. Atomic approach to dis/ability assessment. UCLA Occupational and Environmental Seminar; March. 1995
92. Ergonomics: Overall Job Demand. 1996 Winter-Spring UCLA Environmental and Occupational Medicine Seminar; January. 1996
93. Practice Opportunities in Occupational Medicine. UCLA Family Practice; February. 1996
94. Respirators: Medical Aspects. 1996 Winter-Spring UCLA Environmental and Occupational Medicine Seminar; April. 1996
95. Introduction to Occupational Medicine. Lectures on topics including: ergonomics, Respiratory disease, ADA, noise/hearing, screening theory, organization of services, toxic effects, heat stress. EHS 251, School of Public Health; Winter Quarter. 1996
96. Occupational Asthma. UCLA Pulmonary Series; April. 1996
97. Asbestos Related Disease. UCLA Pulmonary Series; June. 1996

98. Occupational Medicine: An Overview. UCLA Family Practice; July. 1996
99. Environmental Exposures. UCLA Family Practice (Grand Rounds); August. 1996.
100. Occupational Medicine. EHS 250, School of Public Health; October. 1996
101. Introduction to Occupational Medicine. EHS 251, School of Public Health; Winter Quarter. Lectures on topics including ergonomics, respiratory disease, ADA, noise/hearing, Screening theory, organization of services, toxic effects, heat stress, risk communication. 1996
102. Carpal Tunnel Syndrome. UCLA Family Medicine (Grand Rounds); November. 1996.
103. Occupational Health: Current Context. 1997 UCLA Environmental-Occupational Medicine Seminar; January. 1997
104. Computer Approaches to Link Clinical and Public Health Occupational Medicine. 1997 UCLA Environmental - Occupational Medicine Seminar; March. 1997
105. Rehabilitation and Accommodation of Workers. UCLA Family Medicine Lecture; March 1997.
106. Overview of occupational medicine. UCLA Family Medicine Lecture; July. 1997
107. Occupational Health Care Systems. Environmental Health Science course (EHS 251); October. 1997
108. Introduction to Occupational Medicine. EHS 251, School of Public Health (Quarter course: Includes 30 hrs of lecture, including 24 by Harber, P); Winter Quarter. 1998
109. Overview of Occupational Health Delivery Systems. UCLA Occupational Medicine Seminar Series; February. 1998
110. Occupational Lung Disease. Pathophysiology of Disease Course (2nd yr medical students); February 1998
111. Occupational Medicine Approaches. UCLA Internal Medicine (house staff); September. 1998
112. Computers in Occupational Health: Friend or Foe? UCLA Occupational Medicine Seminar Series; April. 1998
113. Occupational Medicine Systems. UCLA Family Medicine Grand Rounds; November. 1998
114. Occupational Health Systems. UCLA Preventive Medicine May. 2000
115. Determinants Of Work Loss Due To Back Pain. UCLA Occup. Med Seminar; May. 2000
116. Workers Compensation. UCLA Family Medicine Grand Rounds; October. 2000
117. Organizational Structure & Workplace Stress. UCLA Family Medicine Grand Rounds; July. 2000
118. Occupational Medicine: Overview: Occupational Asthma, Ergonomics: Maximal Lift Equations, and Surveillance: An Overview. UCLA Occupational - Environmental Medicine Core Series; fall. 2000
119. Pathophysiology of occupational lung disease ( second-year medical student course2001-02 Occupational – Environmental Medicine Core Series: (Asbestos; Causation) 2001 ( February )
120. Pathophysiology of occupational lung disease ( second-year medical student course2002 ( February )
121. asbestos; occupational history
122. occupational medicine core series2002 (September- December)
123. Pathophysiology of occupational lung disease ( second-year medical student course) 2003 ( February )
124. Occupational Medicine Overview (Family Medicine Residents) 2003 (December)
125. (Environmental Health Sciences 251a, each two hours):
  - a. ergonomics 2003 (April-June)
  - b. occupational asthma
  - c. occupational health surveillance methods
  - d. organization of occupational health services
126. (Environmental Health Sciences 251a, each two hours) Overview of occupational- environmental medicine ; organization of occupational health services ; occupational health surveillance methods ; occupational asthma 2003 ( January- March)

127. Overview of occupational- environmental medicine (Environmental Health Sciences 251a, each two hours): 2004 ( January- March)
  - a. The indoor environment
  - b. cultural competency overview
  - c. heat & cold
  - d. solvents
  - e. respiratory protection
128. Occupational Asthma (EHS 251 course) 2004 (January)
129. Pathophysiology of occupational lung disease ( second-year medical student course) 2004 ( February ):
130. Occupational Lung Disease. UCLA Pulmonary Division 2004 (Sept).
131. Structure of Occupational Medicine Services in U.S.. UCLA, November, 2004
132. Pulmonary Function Testing I. UCLA, November, 2004
133. Pulmonary Function Testing II. UCLA, November, 2004
134. Organization of Occupational and Preventive Services. UCLA 2005.Jan, 2005.
135. Causation and Apportionment. UCLA 2005.Jan, 2005
136. Heat Stress. EHS Course. 2006 (Feb)
137. Occupational Asthma. EHS Course. campus. Course 2006 (Feb)
138. Occup Lung Disease. EHS Course. 2006 (Jan)
139. Scope of Occupational Medicine. EHS Course. 2006 (Jan)
140. Solvents. EHS Course. 2006 (March)
141. Risk Communication. EHS Course. campus. Course 2006 (March)
142. Radiologic Surveillance. Seminar. 2006 (September)
143. Occupational Health Surveillance. EHS Course. 2007 (Feb)
144. Asbestos and Other Fibers. EHS Course. 2007 (Feb)
145. Scope and Organization of occupational preventive medicine. EHS Course. 2007 (Jan)
146. Solvents and Beryllium. EHS Course. 2007 (Feb)
147. Ability and Disability. EHS Course. 2007 (March)
148. Noise and Heat. EHS Course. 2007 (March)
149. Workers Compensation Guidelines Development. Seminar. 2007 (April)
150. Occupational Lung Disease. Pulmonary Division. UCLA. invited lecture 2007 (September)
151. Bronchiolitis Obliterans Flavoring Products. Pulmonary Division. UCLA. Invited Lecture 2007 (October)

2009 Curriculum Vitae

**RICHARD JOSEPH JACKSON, MD, MPH**

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**PROFESSIONAL EXPERIENCE**

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School of Public Health

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August 2003 - April 2004

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California State Department of Health Services  
2151 Berkeley Way, Room 701  
Berkeley, CA 94704

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CHIEF, HAZARD IDENTIFICATION AND  
RISK ASSESSMENT BRANCH

California Environmental Protection Agency  
Office of Environmental Health Hazard Assessment

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Public Health Medical Administrator I July 1991 – December 1992	2151 Berkeley Way, Annex 11 Berkeley, CA 94704
CHIEF, HAZARD IDENTIFICATION AND RISK ASSESSMENT BRANCH Public Health Medical Officer III March 1990 to March 1991 Public Health Medical Administrator I April 1991 – July 1991	California State Department of Health Services 2151 Berkeley Way, Room 704 Berkeley, CA 94704
ACTING CHIEF, OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT Public Health Medical Officer III February 1988 - March 1990	California State Department of Health Services 714 P Street, Room 442 Sacramento, CA 95814
CHIEF, HAZARD EVALUATION SECTION Public Health Medical Officer III April 1985 - February 1988	California State Department of Health Services Berkeley, California 94704
ACTING CHIEF, CALIFORNIA OCCUPATIONAL HEALTH PROGRAM Public Health Medical Officer III May 1985 - November 1986	California State Department of Health Services Berkeley, California 94704
CHIEF, COMMUNITY TOXICOLOGY UNIT Public Health Medical Officer III June 1982 to April 1985	California State Department of Health Services Epidemiologic Studies Section Berkeley, California
CHIEF, PESTICIDE UNIT Medical Epidemiologist Public Health Medical Officer II November 1979 - June 1982	California State Department of Health Services Epidemiological Studies Section Berkeley, California
EPIDEMIC INTELLIGENCE SERVICE OFFICER July 1975 - July 1977	U.S. Public Health Service Centers for Disease Control, Atlanta, Georgia On assignment to: New York State Health Department Bureau of Disease Control Albany, New York
SPECIAL EPIDEMIOLOGIST January 1976 - April 1976	World Health Organization Smallpox Eradication Program Bihar State, India

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#### ADDITIONAL ADJUNCT AND CLINICAL APPOINTMENTS

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ADJUNCT PROFESSOR September 2009 - Present	California State University Department of Environmental Health Northridge, CA
ADJUNCT PROFESSOR 2000-2005	The George Washington University Department of Environmental & Occupational Health Washington, DC

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ADJUNCT PROFESSOR 1998-2005	Emory University Rollins School of Public Health Department of Environmental & Occupational Health Atlanta, Georgia
ASSISTANT CLINICAL PROFESSOR 1986 to 2002	University of California San Francisco Department of Medicine
ASSISTANT CLINICAL PROFESSOR Affiliate Faculty Member June 1982 to June 1986	University of California Davis Department of Community Health Occupational and Environmental Medicine
ATTENDING PEDIATRICIAN April 1978 - June 1985	Children's Hospital Medical Center Oakland, California
ADJUNCT ASSISTANT CLINICAL PROFESSOR OF PEDIATRICS October 1975 - July 1978	Albany Medical College Albany, New York
ADJUNCT LECTURER, EPIDEMIOLOGY AND INTERNATIONAL HEALTH April 1980 – Present	University of California San Francisco Department of Epidemiology and International Health

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## EDUCATION

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MASTER OF PUBLIC HEALTH (MPH) Epidemiology 1979	University of California Berkeley School of Public Health Berkeley, California
PEDIATRIC RESIDENCY LEVEL III July 1977 - June 1978	University of California San Francisco Moffitt Hospital San Francisco, California
PEDIATRIC RESIDENCY LEVEL II PEDIATRIC INTERNSHIP LEVEL I June 1973 - June 1975	University of California San Francisco and San Francisco General Hospital San Francisco, California
DOCTOR OF MEDICINE (MD) 1973	University of California San Francisco School of Medicine San Francisco, California
MASTER OF MEDICAL SCIENCES (MMS) 1971	Rutgers Medical School New Brunswick, New Jersey
BACHELOR OF ARTS (AB) BIOLOGY 1969	St. Peter's College Jersey City, New Jersey
NOVICE, SOCIETY OF JESUS August 1964 - June 1966	Novitiate of Saint Andrew on Hudson Poughkeepsie, New York

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**ADDITIONAL PROFESSIONAL TRAINING**

LEADERSHIP AT THE PEAK 2001	Center for Creative Leadership Colorado Springs, Colorado One-week intensive leadership training
EXECUTIVE DECISION MAKING 1998	John F. Kennedy School of Government Cambridge, Massachusetts
PUBLIC HEALTH LEADERSHIP INSTITUTE 1995	Public Health Institute Oakland, CA Part time, year long program

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**LICENSE TO PRACTICE MEDICINE AND SPECIALTY CERTIFICATIONS**

California License	G34076 Effective May 1977 - Present
New York License	125526 Effective September 1975; Inactive
National Board of Medical Examiners	129957 Diplomate July 1974
American Board of Pediatrics	Board certified October 1979
American Board of Preventive Medicine	Board certified February 1985

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**MILITARY**

COMMISSIONED OFFICER (L-CDR) July 1975 - July 1977	U.S. Public Health Service Centers for Disease Control Bureau of Epidemiology Atlanta, GA PHS #43319
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**GRANTS**

PRINCIPAL 2007-2008 Awarded to the Media/Policy Center to produce PBS series on Built Environment and Health with companion text and appropriate video modules for primary, secondary and college students.	Kresge Foundation, \$500,000, 2008 California Endowment, \$500,000, 2008 Kaiser Permanente, \$75,000, 2008 Robert Wood Johnson Foundation, \$50,000, 2008 Marisla Foundation, \$35,000, 2007; \$25,000, 2009 American Institute of Architects, \$150,000, 2007
PRINCIPAL INVESTIGATOR 2007	Kellogg Foundation, \$10,000 To Develop "Agriculture Policy as Health Policy" report.

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**AWARDS – PARTIAL LIST**

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EXCELLENCE IN TEACHING May 28, 2009	Public Health Student Association UCLA School of Public Health
LIFETIME ACHIEVEMENT AWARD February, 2008	New Partners for Smart Growth Washington, DC
DISTINGUISHED TEACHING AND MENTORSHIP May 12, 2007	University of California Berkeley School of Public Health
HERO'S AWARD March 23, 2006	Breast Cancer Fund San Francisco, California
PRESIDENTIAL DISTINGUISHED RANK AWARD May 1, 2005	Conferred by President of the United States For exceptional Long-term Accomplishment
ALUMNUS OF THE YEAR 2005 May 2005	University of California Berkeley School of Public Health
CHAMPION OF ENVIRONMENTAL PUBLIC HEALTH AWARD December 2003	Centers for Disease Control & Prevention For outstanding leadership and management in the field of Environmental Public Health, 1994-2003
SECRETARY'S AWARD FOR DISTINGUISHED SERVICE June 2002	Conferred by U.S. Secretary of Health and Human Services Honoring World Trade Center and Anthrax Investigation Response Team
CALVER AWARD October 2001	American Public Health Association Top Environmental Health Award, Distinguished Annual Lecture
<i>ALPHA OMEGA ALPHA</i> Inducted 1999	Honor Medical Society Ongoing member
ELECTION TO <i>COLLEGIUM RAMAZZINI</i> October 23, 1998	Worldwide fellowship of Occupational and Environmental Health Leaders Bologna, Italy
MERITORIOUS SERVICE AWARD September 1998	United States Department of Health and Human Services
OUTSTANDING ALUMNUS June 1997	University of Medicine and Dentistry of New Jersey New Brunswick, New Jersey
ALEXANDER D. LANGMUIR PRIZE April 1977	U.S. Public Health Service Centers for Disease Control, Bureau of Epidemiology Co-recipient for outstanding epidemic Investigation

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**RECOGNITION - PARTIAL LIST**

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AIA NATIONAL BOARD OF DIRECTORS

American Institute of Architects

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Public Member December 2005 - December 2007	Washington, DC
DISTINGUISHED SERVICE AWARD November 2007	City of Richmond, CA General Plan Advisory Group Member Community Health and Wellness Element
5 <sup>TH</sup> ANNUAL GREAT ORMOND STREET LECTURE September 27, 2006	Great Ormond Street Hospital for Children London, England
CERTIFICATE OF CONGRESSIONAL RECOGNITION March 23, 2006	Conferred by Nancy Pelosi, Member of Congress For Outstanding and Invaluable Service to the Community
CERTIFICATE OF RECOGNITION March 23, 2006	State of California Legislature (Assembly) In recognition of recipient of Breast Cancer Fund Award
PRINCE'S FUND KEYNOTE LECTURE "Celebrating Achievement" January 26, 2006	At the request of HRH Charles, Prince of Wales Saint James' Palace London, England
HALL OF FAME INDUCTION November 20, 2005	Township of Nutley, New Jersey
COMMENDATION AND PROCLAMATION November 2005	Governor and Legislature of State of New Jersey
COMMENCEMENT SPEAKER June 17, 2005	University of California Los Angeles School of Public Health <a href="http://www.ph.ucla.edu/students_keynote.html">http://www.ph.ucla.edu/students_keynote.html</a>
KEYNOTE SPEAKER ANNUAL MEETING December 7, 2004	Society for Risk Analysis
KEYNOTE SPEAKER STATEWIDE MEETING November 18, 2004	California Medical Association "Importance of Public Health in Clinical Practice"
25 ENVIRONMENTAL CHAMPIONS July 2004	Interiors and Sources Magazine "A Tribute to the Trailblazers"
ANNUAL HONORARY LECTURESHIP April 2004	National Association of Local Boards of Health Ned E. Baker Lecture in Public Health
SELLERS-MCCROAN LECTURE April 2004	Georgia Public Health Association Annual Honorary Lectureship
AIA PRESIDENTIAL CITATION March 2004	American Institute of Architects
GOVERNOR'S COMMENDATION February 2004	Governor, State of Hawaii For significant contributions to children's health
CHAMPION 1994-2003 December 2003	Trust for America's Health In appreciation for Leadership as a Public Health
KEYNOTE SPEAKER, NATIONAL MEETING	American Society of Landscape Architects

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October, 2003

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DISTINGUISHED VISITING SCHOLAR LECTURE September 2003	The University of Kansas Medical Center Lawrence, Kansas
SERVICE TO AMERICA MEDAL FINALIST July 2003	Partnership for Public Service, Washington, D.C. Environment, Science, and Technology
KEYNOTE LECTURE, NATIONAL MEETING June 2003	Congress for New Urbanism Washington, DC
DEAN'S LECTURER 2003 Hørder Førelæsning May 2003	Odense University Denmark
<i>LEZIONE MAGISTRALE</i> LECTURE October 2002	<i>Collegium Ramazzini</i> Carpi, Italy
TEAM AWARD NATIONAL CENTER FOR ENVIRONMENTAL HEALTH October 2002	Centers for Disease Control & Prevention For dedication and service to CDC following the events of 9/11
<i>DIPLOMA DE HONOR</i> August 2001	Municipalidad de San Juan de Lurigancho, Peru For "Invaluable Support for the Urban Environmental Health Project in our Prestigious District"
PRESIDENTIAL CITATION June 2001	National Environmental Health Association Recognition of Distinguished Service, Leadership and Accomplishment on Behalf of Environmental Health
AWARD OF APPRECIATION August 2000	United States Department of Defense For Outstanding Contributions as a Member of the Armed Forces Epidemiological Board
TEACHING CERTIFICATE OF APPRECIATION 2000 - 2004	Emory University Rollins School of Public Health Department of Environmental & Occupational Health Teaching Theory and Practice of Public Health
BRONZE MEDAL FOR COMMENDABLE SERVICE May 24, 2000	U.S. Environmental Protection Agency Removal of Allercare products for health protection
SECRETARY'S AWARD FOR DISTINGUISHED SERVICE, HHS GROUP HONOR AWARD May 9, 2000	United States Secretary of Health and Human Services For China-U.S. Collaborative Project for Neural Tube Defect Prevention
COMMENDATION AS A CHILD HEALTH LEADER October 12, 1999	American Academy of Pediatrics
AWARD OF APPRECIATION June 8, 1999	National Association of County and City Health Officials For leadership in public health
CERTIFICATE OF APPRECIATION November 17, 1998	Physicians for Social Responsibility For creative and visionary approaches to making environmental health a crucial part of the Nation's agenda for the future

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GROUP HONOR AWARD INTERNATIONAL HEALTH June 17, 1998	Centers for Disease Control & Prevention and Agency for Toxic Substances and Disease Registry For elimination of micronutrient malnutrition in Russia
DISTINGUISHED ALUMNI AWARD September 1997	Robert Wood Johnson Medical School New Brunswick, New Jersey
SENIOR EXECUTIVE SERVICE PERFORMANCE AWARD, 1996-2003	Centers for Disease Control & Prevention
CERTIFICATE OF APPRECIATION 1994	U.S. Environmental Protection Agency For service on Science Advisory Panels
WHO'S WHO IN AMERICA	1994 – Present
WHO'S WHO IN SCIENCE & ENGINEERING	1994 – Present
WHO'S WHO IN MEDICINE & HEALTHCARE	1994 – Present
CERTIFICATE OF APPRECIATION February 1990	Agency for Toxic Substances and Disease Registry Case Studies in Environmental Medicine For services on Board of Scientific Counselors
CERTIFICATE OF APPRECIATION October 1987	United States Surgeon General For work on Global Smallpox Eradication Program
OUTSTANDING LECTURE TO FIRST YEAR CLASS 1987 and 1995. Nominated 1985 – 2001	University of California San Francisco School of Medicine

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**COMMITTEES AND CONSULTATION – NATIONAL ACADEMY OF SCIENCES & INSTITUTE OF MEDICINE**

National Research Council of the National Academies	Science and Technology for Sustainability Program Policy and Global Affairs Division Certification of Sustainable Products and Services, 2008 - Present
Institute of Medicine	Roundtable on Environmental Health Sciences, Research & Medicine 1999 – Present Co-convener of a number of workshops including: Rebuilding the Unity of Health and the Environment: A New Vision of Environmental Health for the 21 <sup>st</sup> Century January 2003 Public Health Aspects of Climate Change September 2007
Institute of Medicine, National Academy of Sciences	Committee on Curriculum Development in Environmental Medicine Member 1993-1994. Report issued 1993
Institute of Medicine, National Academy of Sciences	Committee on the Practice of Occupational and Environmental Health Consultant May 1991
National Research Council, National Academy of Sciences	Board on Environmental Studies and Toxicology Frontiers in Assessing Human Exposures to Environmental Toxicants

	Consultant May 1990
Institute of Medicine, National Academy of Sciences	Workshop on Information Systems Available to Physicians Consultant August 1989 - December 1989
National Research Council, National Academy of Sciences	Committee on Pesticides in the Diets of Infants and Children Member September 1988 - June 1993. Report issued June 1993

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## COMMITTEES AND CONSULTATION

National Conversation on Chemical Exposures	Policies and Practices Work Group Chair, Consultant to CDC/ATSDR September 2009 - Present
City of Richmond, CA, General Plan Update	Technical Advisory Group on Health Policy Update Member February 2007 – November 2007
American Institute of Architects	Board of Directors Sustainability Work Group January 2006 – December 2007
University of California Davis	Committee to Create a School of Public Health Co-chair June 2005 - April 2007
Environmental Protection Agency – U.S. Department of Agriculture	Committee to Advise on Reassessment and Transition Member 2000 - 2003
National Toxicology Program	Executive Committee Member 1997 - 2003
Mt. Sinai Medical Center, New York	The Center for Children’s Health and the Environment Government Liaison 1999 - 2005
Office of the President of the United States Executive Order 13045	Task Force on Children’s Environmental Health & Safety Co-lead of multi-agency effort April 1997 - December 2001
Russian Federation and United States of America	Joint Coordinating Committee For Radiation Effects Research (JCCRER) Executive Committee Member October 1996 - 2001
American Public Health Association	Epidemiology Section Elected member October 1996 - October 1999
U.S. Environmental Protection Agency	Food Safety Advisory Committee Member September 1996 - 1999
Gore – Chernomyrdin (United States – Russia) Health Committee	Co-Lead on Environmental Health 1996 – 1999
United States Department of Defense	Armed Forces Epidemiology Board

	Member 1996 – 2000
Centers for Disease Control and Prevention	Health and Safety Advisory Board Member 1995 – 1999, Chair 1996
Centers for Disease Control and Prevention	Public Health Practice Advisory Committee Vice-Chair 1996 Chair 1997-98
Executive Office of the President Office of Science and Technology Policy	Interagency Oxygenated Fuels Assessment Steering Committee Chair of Health Subcommittee 1995 - 1996
Department of Health and Human Services	Environmental Health Policy Committee Member 1994 to Present Chair Subcommittee on Emerging Issues 1995 – 1996 Chair Subcommittee on Drinking Water 1995 – Present Chair Committee on Children and the Environment 1996 – Present
U.S. Environmental Protection Agency	Science Advisory Board Environmental Health Committee Member October 1993 - September 1994
Agency for Toxic Substances and Disease Registry	Board of Scientific Counselors Member January 1993 - September 1994
U.S. Department of Health and Human Services Centers for Disease Control	Expert Advisory Committee to Centers for Disease Control on Prevention of Childhood Lead Poisoning Member, August 1990 - September 1994
State of Massachusetts	Woburn Cancer Cluster Science Advisory Panel Member May 1989 - July 1991
Agency for Toxic Substances and Disease Registries	Expert Peer Review Panel On Training for Primary Care Physicians on Toxicologic Hazards Member December 1988 - December 1993
U.S Environmental Protection Agency	Federal-State Expert Panel On Worker Notification Options Related to Chlordimeform Member August 1988 - December 1988
Association of State and Territorial Health Risk Assessors (ASTHRA)	Program Chair February 1988 - October 1990 President October 1990 - December 1992
U.S. Department of Labor, Occupational Safety and Health Administration	Training Program Lecturer on Pesticide Issues December 1987 – 1991
Centers for Disease Control	Expert Peer Review Group On West-Central Phoenix Childhood Cancer Cluster Member October 1987 - 1991
American Academy of Pediatrics	Environmental Hazards Committee Member May 1985 - July 1991. Chair July 1987 - July 1991

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American Academy of Pediatrics

Northern California Chapter  
Member Board of Directors 1981 - December 1991

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State of California

Governor's Review Panel on Health Risk Assessment Related to  
Malathion Spraying  
Member 1981

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American Academy of Pediatrics

Northern California Chapter  
Committee on Environmental Health  
Chair 1980 - 1991. Member 1991 - 1994

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### EDITORIAL BOARDS

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The Wellness Letter  
University of California Berkeley  
December 2006 - February 2008

Environmental Research  
Assistant Editor  
February 1988 - Present

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American Journal of Industrial Medicine  
Advisory Editor  
September 1994 - Present

Public Health Reports  
Assistant Editor  
June 1995 - Present

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### JOURNAL PEER REVIEWER / ON REQUEST

- American Journal of Public Health
- Pediatrics
- Environmental Research
- Journal of the American Medical Association
- Lancet

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### BOARDS OF DIRECTORS

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Children Now  
Academic Advisory Board  
Oakland, CA  
2009 - Present

University of Southern California  
Annenberg School for Communication, Norman Lear Center  
Los Angeles, California  
2004 – Present

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American Public Health Association  
Science Board  
Washington, DC  
2007 - 2010

Partnership for Prevention  
Washington, DC  
Founding Board Member  
July 1991 - May 1995

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American Institute of Architects (AIA)  
Washington, DC  
Board of Directors, Public Member  
2005 - 2007

Alliance to End Childhood Lead Poisoning  
Washington, DC  
Executive Committee and Founding Board Member  
January 1990 - September 1994

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Children's Environmental Health Network  
Washington, DC  
Board of Directors  
2005 - Present

Pesticide Education Center  
San Francisco, CA  
Founding Board Member  
January 1989 - September 1994

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Environmental Media Services  
Washington DC  
Advisory Board  
2005 - Present

Contra Costa Health Services Department  
Contra Costa County, CA  
Public and Environmental Health Advisory Board  
1992 - September 1994

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Policy Media Center  
Producers of "Edens Lost & Found" PBS series  
Santa Monica, CA  
2005 - Present

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#### PROFESSIONAL SOCIETIES MEMBERSHIP

- Rutgers (Robert Wood Johnson) Medical School Alumni Association
- American Public Health Association
- University of California, San Francisco Medical School - Alumni-Faculty Association
- American Academy of Pediatrics Fellowship (1974-1996)
- Epidemic Intelligence Service Alumni Association
- Physicians for Social Responsibility
- Council of Fellows of the *Collegium Ramazzini*
- American Association for the Advancement of Science
- *Alpha Omega Alpha* Honor Medical Society

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#### INTERNATIONAL EXPERIENCE

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ASIA	India 1976; China 1996; Thailand 2000
LATIN AMERICA	Mexico 1973, 1974, 1999; Peru 2001
EUROPE	Poland 1991; Russia 1996; Western Europe--multiple trips

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#### LANGUAGE ABILITIES

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FRENCH	Speak adequately; read well
SPANISH	Speak poorly; read adequately

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#### PEER-REVIEWED PUBLICATIONS

Agriculture Policy is Health Policy. Jackson RJ, Minjares R, Naumoff KS, Shrimali BP, Martin LK. *Journal of Hunger & Environmental Nutrition* 4: 1-16, 2009. *In Press*.

A Model Curriculum for a Course on the Built Environment and Public Health: Training for an Interdisciplinary Workforce. Botchwey ND, Hobson SE, Dannenberg AL, Mumford KG, Contant CK, McMillan TE, Jackson RJ, Lopez R, Winkle C. *American Journal of Preventive Medicine* 36(2) :S63-S71 (2009).

Preparing the US Health Community for Climate Change. Richard Jackson and Kyra Naumoff Shields, *Annual Reviews of Public Health* 2008. 29 <http://arjournals.annualreviews.org/doi/abs/10.1146/annurev.publhealth.29.020907.090755>

Environment Shapes Health - Including Children's Mental Health, Richard J Jackson and June Tester, *Journal of the American Academy of Child and Adolescent Psychiatry*, 47:2, February 2008

Environment Meets Health, Again – Editorial, *Science* Vol 315, March 2007 p1337

Commentary on Active Living Research. *American Journal of Preventive Medicine*. Vol 28, Issue 2. 2005. Elsevier Press

Concentrations of Dialkylphosphate Metabolites of Organophosphorus Pesticides in the US Population. Barr DB, Bravo R, Weerasekera G, Calabiano LM, Whitehead RD, Olsson AO, Caudill SP, Schober SE, Pirkle JF, Sampson EJ, Jackson RJ, Needham LL. *Environmental Health Perspectives*. Vol 112, No. 2, February 2004, pp 186-200.

Health and the Built Environment, Fox DM, Jackson RJ, Barondess, JA, *Journal of Urban Health*. Vol 80, No 4, pp 534-5. December 2003.

The Impact of the Built Environment on Health: An Emerging Field, Jackson RJ, *American Journal of Public Health*. Vol 93, No 9. pp 1382-1384. September 2003.

The Impact of Community Design and Land-Use Choices on Public Health: A Scientific Research Agenda, Dannenberg AL, Jackson RJ, Frumkin H, Schieber RA, Pratt M, Kochtitzky C, Tilson HH. *American Journal of Public Health*. Vol 93, No 9, pp 1500-1508. September 2003.

Public Health Effects of Inadequately Managed Stormwater Runoff, Gaffield SJ, Goo RL, Richards LA, Jackson RJ. *American Journal of Public Health*. Vol 93, No 9, pp 1527-1533. September 2003.

Chernobyl and Iodine Deficiency in the Russian Federation: An Environmental Disaster, Leading to a Public Health Opportunity," Jackson RJ, DeLozier DM, Gerasimov G, Borisova O, Garbe PL, Goultchenko L, Shakarishvili G, Hollowell JG, Miller DT. *Journal of Public Health Policy*. Vol 23, No 4, pp 453-470. November 2002.

Land Use Planning: Why Public Health Must Be Involved, Jackson R, Harp T, Wright T. *The Journal of Law, Medicine & Ethics*. Supplement to Volume 30:3, Fall 2002. pp 70-74.

Will Biomonitoring Change How We Regulate Toxic Chemicals? Jackson R, Locke P, Pirkle J, Thompson FE, Sussman D. *The Journal of Law, Medicine & Ethics*. Supplement to Volume 30:3. Fall 2002. pp 177-183.

Economic gains resulting from the reduction in children's exposure to lead in the United States, Grosse SD, Matte TD, Schwartz J, Jackson RJ. *Environmental Health Perspectives*. 110:563-569, June 2002.

The Built Environment and Children's Health, Cummins SK, Jackson RJ. In: Paulson J, ed. *The Pediatric Clinics of North America*. Philadelphia: W.B. Saunders Company, pp 1241-1252. October 2001

What Olmsted Knew. Jackson, RJ. *Western City*. March 2001 (<http://www.westerncity.com/Mar01Olmsted.htm>)

Levels of Seven Urinary Phthalate Metabolites in a Human Reference Population, Blount BC, Silva MJ, Caudill SP, Needham LL, Pirkle JL, Sampson EJ, Lucier GW, Jackson RJ, Brock JW. *Environmental Health Perspectives* 108:979-982, October 2000.

Exposure of the U.S. Population Aged 6 Years and Older to Cadmium: 1988-1994, Paschal DC, Burt V, Caudill SP, Gunter EW, Pirkle JL, Sampson EJ, Miller DT, Jackson RJ. *Archives of Environmental Contamination and Toxicology*. 38:377-383 (2000).

Expanding the Physician's Role in Pediatric Environmental Health, Paulson JA, Jackson RJ, Sussman D. *Journal of The Medical Association Of Georgia*. December 1999; Vol. 88, No. 4.

Protecting Children's Health and the Environment in the 21<sup>st</sup> Century, Jackson RJ. *European Journal of Oncology*. November/December 1999.

Environmental Pesticide Illness and Injury, the Need for a National Surveillance System, Blindauer KM, Jackson RJ, McGeehin M, Pertowski C, Rubin C. *Journal of Environmental Health*. June 1999.

International study finds breast milk free of significant lead contamination. Sinks T, Jackson RJ. *Environmental Health Perspectives*. February 1999, 107(2), A 58-9, discussion A 60-1.

Hypospadias Trends in Two US Surveillance Systems, Paulozzi LJ, Erickson JD, Jackson RJ. *Journal of Urology*. 161(1): 366. January 1999.

Maternal Pesticide Exposure from Multiple Sources and Selected Congenital Anomalies. Shaw GM, Wasserman CR, O'Malley CD, Nelson V, Jackson RJ. *Epidemiology*. January 1999; Vol. 10 (1).

Habitat and Health: The Role of Environmental Factors in the Health of Urban Populations, *Journal of Urban Health*. Vol. 75 Issue 2. pp 258-262, June 1998.

Public Health Role in Environmental Decision Making: The Value of Biomonitoring. Kelly AE, Kochtitzky CS, DiSirio MR, Jackson RJ. *Research in Human Capital & Development*. 1998; Vol. 12, pp 201-209.

Iodine Nutrition in the United States. Trends and Public Health Implications: Iodine Excretion Data from National Health and Nutrition Examination Surveys I and III (1971-1974 and 1988-1994), Hollowell JG, Staehling NW, Hannon WH, Flanders DW, Gunter EW, Maberly GF, Braverman LE, Pino S, Miller DT, Garbe PL, DeLozier DM, Jackson RJ. *Journal of Clinical Endocrinology and Metabolism*. 1998; Vol. 83 (10) pp 3401-3408.

Preventing Landmine-Related Injury and Disability: A Public Health Perspective, Krug EG, Ikeda RM, Qualls ML, Anderson MA, Rosenberg ML, Jackson RJ. *Journal of the American Medical Association*. Vol. 280, No. 5. August 1998.

Commentary on "The Exposure of Children to Lead" by J. Julian Chisholm and Harold E. Harrison. 1956:18;943-958. Richard Jackson, MD, MPH. *Pediatrics* 50<sup>th</sup> Anniversary Supplement, pp 227-229. July 1998.

Habitat and Health: The Role of Environmental Factors in the Health of Urban Populations, Jackson, RJ. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*. Vol. 75 (2) pp 258-262. June 1998.

Changing sex ratio in the United States, 1969-1995, Marcus M, Kiely J, Xu F, McGeehin M, Jackson R, Sinks T. *Fertility and Sterility*. August 1998; Vol 70 (2) pp 1-4.

Hypospadias Trends in Two US Surveillance Systems, Paulozzi LF, Erickson JD, Jackson RJ. *Journal of Urology*. 159(4): 1407. April 1998.

Preventing Childhood Lead Poisoning: The Challenge of Change, Jackson RJ, Cummins SK, Tips NM, Rosenblum LS. *American Journal of Preventive Medicine*. April 1998 (14) 3S pp 84-86.

CDC's Lead Screening Guidance: A Systematic Approach to More Effective Screening, Tips NM, Falk H, Jackson RJ. *Public Health Reports*. Jan-Feb. 1998; 113(1) pp 47-51.

Trace Metals in Urine of United States Residents: Reference Range Concentrations, Paschal DC, Ting BG, Morrow JC, Pirkle JL, Jackson RJ, Sampson EJ, Miller DT, Caldwell KL. *Environmental Research* (1998) 76(1); pp 53-59.

Public Health Principles and Women's Environmental Health: No More Lost Opportunities, Kelly A, Jackson RJ. Observations from CDC. *Journal of Women's Health*. November 1, 1998; VOL 7, pp 15-18. Mary Ann Liebert, Inc.

Serum Dioxin Levels in Seveso, Italy, population in 1976. Needham et al. *Teratogenesis, Carcinogenesis and Mutagenesis* 17: 225-240. (1997/1998).

Lead Continues to Threaten Our Children, Kaufmann RB, Jackson RJ. *Forum Applied Research Public Policy* 1997; 12 p 147.

Reproductive Toxins and Alligator Abnormalities at Lake Apopka, Florida, Semenza JC, Tolbert PE, Rubin CH, Guillette LJ Jr, Jackson RJ. *Environmental Health Perspectives* 1997; pp 105:1030-1032.

Childhood Lead Poisoning in Russia: A Site-Specific Pediatric Blood Lead Evaluation, Rubin CH, Esteban E, Jones R, Noonan G, Gurvich E, Utz S, Spirin V, Revich B, Kruchkov GI, Jackson, RJ. *International Journal of Occupational and Environmental Health* 1997; 3 (No. 4): pp 241-248.

Public Health Implications of Fetal Alcohol Syndrome, Jackson RJ. *The Challenge of Fetal Alcohol Syndrome: Overcoming Secondary Disabilities* edited by Ann Streisguth and Jonathan Kanter 1997. Univ. of Washington Press. Seattle.

Environmental Exposures and Controls, *Occupational and Environmental Medicine*. LaDou, J, Jackson RJ, Howard JJ. Appleton & Lange, 1997 (Chapter 39).

Hypospadias Trends in Two US Surveillance Systems, Paulozzi, LJ, Erickson, JD, Jackson, RJ. *Pediatrics*. November 1997; Vol. 100(5), pp 831-834.

Environmental Public Health Surveillance, MacDonald SC, Pertowski CA, Jackson RJ. *J Public Health Management Practice*, 1996, 2(4), pp 45-49. Aspen Publishers, Inc.

A Community-Based Epidemiologic Study of Acute Health Effects from a Metam-Sodium Spill in California=s Sacramento River, Kreutzer RA, Hewitt DJ, Sun R, Draper W, Mangiamele D, Goldman L, Jackson R, Smith D, Shusterman D (1996). *Toxicology and Industrial Health*; pp 267-275.

Potential Carcinogenicity of Chloral Hydrate--A Review, Salmon AG, Kizer KW, Zeise L, Jackson RJ, Smith MT. *Journal of Clinical Toxicology*; Vol. 33, ISS 2, 1995, pp 115-21.

Use and Safety of Acellular Pertussis Vaccine among Adult Hospital Staff during an Outbreak of Pertussis, Shefer A, Dales L, Nelson M, Werner B, Baron R, Jackson R. *Journal of Infectious Diseases* (April 1995); Vol. 171(4):pp 1053-1056.

Hantavirus Pulmonary Syndrome in California: Report of Two Cases and Investigation, Shefer AM, Tappero JW, Bresee JS, Peters CJ, Ascher MS, Zaki SR, Jackson RJ, Werner SB, Rollin PE, Ksiazek TG, Nichol ST, Bertman J, Parker S, Failing RM. *Clinical Infectious Diseases* 1994; 19:1105-9.

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Integrating Risk Management and Risk Communication into a Risk Assessment of a Medfly Eradication Project in California Russell H, Fan AM, DiBartolomeis M, Arnesen C, Stratton J, Jackson RJ. *Journal of Hazardous Materials* 39 (1994) 267-278.

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#2 - Vinyl Chloride Toxicity	#18 - Carbon Tetrachloride Toxicity
#3 - Methylene Chloride Toxicity	#19 - Beryllium Toxicity
#4 - Radon Toxicity	#20 - Methanol Toxicity
#5 - Arsenic Toxicity	#21 - Toluene Toxicity
#6 - Trichloroethylene Toxicity	#22 - Cholinesterase-Inhibiting Pesticide Toxicity
#7 - Dioxin Toxicity	#23 - Pentachlorophenol Toxicity
#8 - Asbestos Toxicity	#24 - 1,1,1-Trichloroethane
#9 - Tetrachloroethylene Toxicity	#25 - Chlordane Toxicity
#10 - Cadmium Toxicity	#26 - Taking an Exposure History
#11 - Benzene Toxicity	#28 - Skin Lesions and Environmental Exposures
#12 - Polychlorinated Biphenyl Toxicity	#29 - Reproductive and Developmental Hazards
#13 - Polynuclear Aromatic Hydrocarbon Toxicity	#30 - Ethylene/Propylene Glycol Toxicity
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U.S. Senate, Committee on Agriculture. Pesticides in Children's Diets: The Alar Controversy. March 1989.

## CURRICULUM VITAE

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### **EDUCATION**

B.A.	Genetics	UC Berkeley, 1984
M.S.- E.H.S.	Environmental Health Science/Industrial Hygiene	UC Los Angeles, 1994
Ph.D.	Environmental Health Science/Aerosol Science	UC Los Angeles, 2000

### **HONORS AND AWARDS**

Nominated, ASPH/Pfizer Award for Teaching Excellence, July 2009

Delta Omega Society, Iota Chapter, member since 2007

UCLA Public Health Student Association Teaching Assistant of the Year, 2000

Sigma Xi, member since 2000

Southern California American Industrial Hygiene Association Outstanding  
Graduate Student, 1986

American Association for Aerosol Research Student Travel Grant, 1997

UCLA Health Careers Opportunity Program Special Recognition Award, 1985



## PROFESSIONAL EXPERIENCE

- 2006 - present      Director, Hazardous Substances Academic Training Program, NIOSH Southern California Education and Research Center (SCERC), UCLA School of Public Health
- 2005 - present      Assistant Professor in Residence, UCLA School of Public Health, Environmental Health Sciences Department, Industrial Hygiene Program
- Research interests: exposure assessment - retrospective analysis, experimental design, design and testing of air monitoring devices, environmental exposures to particle matter; aerosol science - particle behavior; respirator efficiency; methods for measurement and control of workplace nanoparticles; heat related illness *in re* global climate change
- teaching: physical agents lecture, physical agents laboratory, industrial hygiene measurements laboratory, health hazards of industrial process, industrial hygiene field assessment, industrial hygiene measurements laboratory, ventilation laboratory, geographic information systems
- 2002 - present      Lecturer, California State University at Northridge, Department of Environmental and Occupational Health
- 2000 - 2005      Assistant Researcher and Adjunct Assistant Professor, UCLA School of Public Health, Environmental Health Sciences Department, Industrial Hygiene Program
- 1991 - 2000      Graduate Student Researcher, UCLA School of Public Health
- major interest: aerosol science with a focus on the inhalability of large particles  
other work: industrial hygiene assessment of selected maquiladoras, retrospective exposure assessment of a rocket test facility, carpal tunnel syndrome study for selected occupations
- 1992 - 2000      Teaching Assistant, UCLA Department of Environmental Health Sciences

courses: aerosol technology, ventilation, health hazards of industrial processes, physical agents, industrial hygiene monitoring

1987 - 1991      Manager, Industrial Hygiene Services, Drucker Health & Safety Management, Inc., Manhattan Beach, CA and Atlanta, GA

## **CERTIFICATION**

Full Diplomate of the American Board of Industrial Hygiene - Certified Industrial Hygienist (CIH) in Comprehensive Practice, cert # 5551, 1993 - present

State of California, Division of Occupational Safety and Health - Certified Asbestos Site Surveillance Technician, cert # 96-2059, 1996 - 1999

Certified Hazardous Materials Manager (CHMM), Master level, cert # 13399, September 2005 - present.

## **PROFESSIONAL SERVICE**

Board Member - Southern California American Industrial Hygiene Association, Secretary 1995 - 1997, Membership Director 2001-2002, Professional Development Director 2002 - 2003, Professional Relations Director 2003 - 2004, Treasurer 2009 - present.

Local Conference Committee Chair, American Industrial Hygiene Conference and Exposition, Anaheim, CA 2005

Reviewer of submitted manuscripts for *Annals of Occupational Hygiene*, *Aerosol Science and Technology*, *Journal of Occupational and Environmental Health*, and CDC NIOSH

## **ACADEMIC SERVICE**

UCLA School of Public Health Disaster Committee, February 2006 - present

Environmental Health Sciences Department representative to UCLA Academic Senate, March 2006 - present

UCLA School of Public Health Academic Computing Committee, November 2008 to present

Reviewer of proposals for NIOSH Southern California Education and Research Center pilot project grants

Advisory Board member for the UCLA Labor Occupational Safety and Health Program (LOSH) Occupational Health Internship Program (OHIP), February 2008 to present

## **DOCTORAL COMMITTEES**

Jeffrey Birkner (chair), graduated June 2007, *Release of Particles from Commonly used Respirator Filters*

George Brogmus (chair)

David Fung

Isabel Garcia

Nancy Jennerjohn (chair), graduated August 2009, *Instrumentation for the Exposure Assessment of Airborne Carbon Nanotubes in the Workplace*

Sayaka Takaku

## **PROFESSIONAL AND ACADEMIC ASSOCIATIONS**

American Industrial Hygiene Association, 1989 - present

American Conference of Governmental Industrial Hygienists, 1991 - 93, 2001-present

American Industrial Hygiene Association - Southern California section, 1986 - 89 and 1992 - present

American Association for Aerosol Research, 1997 - present

Institute of Hazardous Materials Management, 2005 - present

Southern California Environmental Health Sciences Center, Affiliate Member - Exposure Assessment and GIS cores

## **PUBLICATIONS**

Jennerjohn, N., Eiguren-Fernandez, A., Fung, D.C., Hirakawa, K.S., J.D., Hinds, W.C., Kennedy, N.J.: Design, Demonstration and Performance of a Versatile Electrospray Aerosol Generator for Nanomaterial Research and Applications. submitted March 2009 to *Nanotechnology*, accepted with revision June 2009.

Zhu, Y., Zhang, Q., Fung, D.C., Kennedy, N.J., Hinds, W.C.: Analysis of Factors Affecting Concentrations of Ultrafine Particles and Associated Pollutants on Freeways, submitted February 2009 to *Atmospheric Environment*.

Birkner, J.S., Hinds, W.C.; Fung, D., Kennedy, N.J.: Particle Release from Respirators, Part I: Determination of the Effect of Particle Size, Drop Height and Load, accepted with revision March 2009 *JOEH* (ms no. 08-0164).

Birkner, J.S., Kovalchik, S., Hinds, W.C.; Fung, D., Kennedy, N.J.: Particle Release from Respirators, Part II: Determination of the Effect of Tension Applied in Simulation of Removal, accepted with revision March 2009 *JOEH* (ms no. 08-0165).

Birkner, J.S., Hinds, W.C.; Fung, D., Kennedy, N.J.: Particle Release from Respirators Part III: Assessment of Risk, accepted with revision March 2009 *JOEH* (ms no. 08-0166).

Zhu, Y., Fung, D.C., Kennedy, N.J., Hinds, W.C., Eiguren-Fernandez, A.: Measurements of Ultrafine Particles and Other Vehicular Pollutants inside a Mobile Exposure System on Los Angeles Freeways, *J. Air & Waste Manage. Assoc.*, 58:424-434, March 2008.

Xing, X., Wu, G., Wei, F., Liu, P., Hu, W., Wang, C., Xu, J., Xun, L., Jia, J., Kennedy, N., Elashoff, D., Robbins, W.: Biomarkers of Environmental and Workplace Boron Exposure, *JOEH* 5(3):141-147, March 2008.

Krishnadasan, A., Kennedy, N., Zhao, X., Morgenstern, H., Ritz, B.: Nested Case-Control Study of Occupational Physical Activity and Prostate Cancer Among Workers Using a Job Exposure Matrix, *Cancer Causes Control* 19(1):107-114, December 2007.

Krishnadasan, A., Kennedy, N., Zhao, X., Morgenstern, H., Ritz, B.: Nested Case-Control Study of Occupational Chemical Exposures and Prostate Cancer in Aerospace and Radiation Workers, *Am. J. Ind. Med.* 50(5):383-390, April 2007.

Zeidler, M.R., Goldin, J.G., Kleerup, E.C., Kim, H.J., Truong, D.A., Gjertson, D.W., Kennedy, N.J., Newman, K.B., Tashkin, D.P., Silverman, J.M., *et al.*: Small Airways Response to Naturalistic Cat Allergen Exposure in Subjects with Asthma. *J. Allergy and Clinical Immunology* 118(5):1075-1081, November 2006.

Ritz, B., Zhao, Y., Krishnadasan, A., Kennedy, N., Morgenstern, H.: Estimated Effects of Hydrazine Exposure on Cancer Incidence and Mortality in Aerospace Workers. *Epidemiology* 17(2):154-161, March 2006.

Zhao, Y., Krishnadasan, A., Kennedy, N., Morgenstern, H., Ritz, B.: Estimated Effects of Solvents and Mineral Oils on Cancer Incidence and Mortality in a Cohort of Aerospace Workers. *Am. J. Ind. Med.* 48(4):249-258, Oct 2005.

Krishnadasan, A., Kennedy, N., Zhao, Y., Ritz, B.: Nested Case-Control Study of Occupational Physical Activity and Prostate Cancer using a Job Exposure Matrix. *Am. J. Epi.* 161 (11): S40-S40 Suppl. S, June 1, 2005.

Kennedy, N.J. and Hinds, W.C.: Release of Anthrax Simulating Particles from Disposable Respirators, *JOEH* 1(1):7-10 (2004).

Hinds, W.C., Ashley, A., Kennedy, N.J., Buckman, P.: Conditions for Cloud Settling and Rayleigh-Taylor Instability. *Aerosol Sci. Tech.* 36(12):1128-1138 (2002).

Kennedy, N.J. and Hinds, W.C.: Inhalability of Large Solid Particles. *J. Aerosol Sci.* 33:237-255 (2002).

Kennedy, N.J., Tatyán, K., Hinds, W.C.: Comparison of a Simplified and Full-Size Mannequin for the Evaluation of Inhalable Sampler Performance. *Aerosol Sci. Tech.* 35:564-568 (2001).

Hinds, W.C. and Kennedy, N.J.: An Ion Generator for Neutralizing Concentrated Aerosols. *Aerosol Sci. Tech.* 32:214-220 (2000).

Hinds, W.C., Kennedy, N.J., Tatyán, K.: Inhalability of Large Particles for Mouth and Nose Breathing. *J. Aerosol Sci.* 29:S277-S278 (1998).

## **PRESENTATIONS**

Fung, D.C.\*, Hinds, W., and Kennedy, N.J., and Jennerjohn, N.: Physical Characteristics of Ultrafine Particles Generated from Cooking Ranges. poster session at the American Association for Aerosol Research Conference, Orlando, FL (October 20-24, 2008).

Jennerjohn, N.\*, Eiguren-Fernandez, A., Fung, D.C., Hinds, W., and Kennedy, N.J.: Examination of Simulated Workplace Aerosols for Nanoparticle Contamination Using Transmission Electron Microscopy. platform session at the American Association for Aerosol Research Conference, Orlando, FL (October 20-24, 2008).

Jennerjohn, N.\*, Fung, D.C., Hinds, W., Kennedy, N.J., and Eiguren-Fernandez, A.: Aerosolization of Manufactured Nanotubes and Quantum Dots Mixed with Urban Dust and Diesel Particulate Matter Using an Electrospray Device. poster session at the American Association for Aerosol Research Conference, Reno, NV (September 24-28, 2007).

Jennerjohn, N.\*, Kennedy, N.J., Eiguren-Fernandez, A., Fung, D., and Hinds, W.: Aerosolization of Manufactured Carbon Nanotubes using Electrospray. poster session at the Toxic Substances Research and Teaching Program 20th Annual Research Symposium, Santa Cruz: April 21-22, 2007.

Kennedy, N.J.\* and Hinds, W.C., Inhalability of Large Liquid Particles. poster session at the American Association for Aerosol Research Conference, Charlotte, NC (October 2002).

Hinds, W.C.\* , Kennedy, N.J., Zhu, Y, and Creek, K.L.: An Eight-Channel, Five-Stage Personal Cascade Impactor. poster session at the American Association for Aerosol Research conference in Portland, OR (October 2001).

Hinds, W.C.\* , Ashley, A.B., and Kennedy, N.J., Cloud Settling and Rayleigh-Taylor Instability. poster session at the American Association for Aerosol Research Conference, St. Louis, MO (November 2000).

Hinds, W.C.\* , Ashley, A.B., and Kennedy, N.J., Cloud Settling and Rayleigh-Taylor Instability. poster session at the International Association for Aerosol Research Conference, Dublin, Ireland (September 2000).

Hinds, W.C. and Kennedy, N.J.\* , Performance of Personal Samplers for Inhalable Particles. poster session at the American Association for Aerosol Research Conference, Tacoma, WA (1999).

Kennedy, N.J.\* and Hinds, W.C., Inhalability of Large Solid Particles. poster session at the American Association for Aerosol Research Conference, Denver, CO (1997).

Hinds, W.C.\* and Kennedy, N.J., An Ion Generator for Neutralizing Concentrated Aerosol Streams. poster session at the American Association for Aerosol Research Conference, Orlando, FL (1996).

Perry, D.M.\* , Froines, J.R., Sanchez, D., Kennedy, N.J., Sabty, R., Smalstig, T., Que Hee, S., and Hinds, W.C., Health and Safety Conditions in the Maquiladora Auto Parts Industry in Mexico. platform session at the American Public Health Association Annual Meeting, San Francisco, CA (1993).

\* indicates presenting author

# CURRICULUM VITAE

**Name:** Shane S. Que Hee

**Birthdate:** October 11, 1946

**Birthplace:** Sydney, Australia

**Residences:**

85 Roscoe St. Flat 16 (1946-50)  
Bondi Beach, Sydney, Australia 2026

29 Branyan Street (1950-64)  
Bundaberg, Queensland, Australia 4670

King's College (1964-71)  
Upland Road  
St. Lucia, Brisbane,  
Queensland, Australia 4000

Laverendyre House (1971-72)  
University of Saskatchewan  
Saskatoon, Saskatchewan, Canada S7N-0W0

403 3rd Ave S (1973-75)  
Saskatoon, Saskatchewan, Canada

1105-175 Hunter Street (1975-76)  
Hamilton, Ontario, Canada (416-523-4305)

220 E. Piedmont Mews (1978-89)  
Cincinnati, OH 45219 (513-281-7496)

715 Gayley Ave #403 (1989-90)  
Los Angeles, CA 90024 (213-208-1624)

923 Levering Ave. Unit #102 (1990+)  
Los Angeles, CA 90024 (310-208-1624)

**U.S. Status:** Resident Alien: Australian Citizen

**Soc. Sec. No:** 296-72-2345

## **Expertise in Non-Professional Areas:**

### **Music:**

Australian Music Associate: 1963 (Aust. Mus. Exam. Board)  
Australian Music Licentiate: 1968 (Aust. Mus. Exam. Board)  
Licentiate Trinity College: 1971 (Trinity College, University of London, U.K.)

### **Teachers:**

1956-1962 Ms. Essie Hefferin, Bundaberg, QLD, Australia  
1962-1964 Ms. Isobel Grigor, Bundaberg, QLD, Australia  
1965-1970 Mr. John Ellis, Brisbane, QLD, Australia

### **Public Recitals of Compositions:**

Sonata in G. Minor, Opus 3: (self as soloist): 29 November  
1965. Bundaberg, Queensland, Australia.

Sonata in Bb Minor: 2 songs (self as soloist; Ms. Diana Evans  
as singer), February 1968, Brisbane, Queensland, Australia.

Music for Tartuffe (Moliere) performed on March 31, 1975,  
Saskatoon, Saskatchewan, Canada.

Sonata in Bb Minor: Void: (self as soloist): May 14, 1979,  
Cincinnati, Ohio, USA.

"Void" in C major, Fantasia and Fugue in Bb Minor, June 6,  
1987, Cincinnati, Ohio, USA.

### **List of Musical Works:**

- OP 1 SONATA IN G MINOR (Pianoforte)  
i Tempo Rubato  
ii Fantasia  
iii Misterioso 20 min; med. diff.
- OP 2 BALLADE (Pianoforte)  
i Elegy in D Minor  
ii Arabesque in C Major-"Brunnen" 10 min; med. diff.
- OP 3 SONATA IN G MINOR (Pianoforte) 35 min; diff.
- OP 4 i Nocturne in B Major  
ii Song (contralto/piano)-Sonnet 22 "God's Nature"  
iii Fantasie in F# Minor-"Youth"  
a. Largo misterioso



- b. Early Impressions
  - c. Variations on a Nursery Rhyme
  - d. Psychedel
  - iv Prelude 40 min; diff.
- OP 5
- i Song (S or T/piano-Sonnet; "A Lament for US"
  - ii Sonata in Bb Minor
  - iii "Void" in C Major 30 min; diff.
- OP 6
- i Fantasia and Fugue in Bb Minor
  - ii Suite -"Destiny of Man"
    - a. Genesis
    - b. Passacaglia (De Profundo)
    - c. Ground -Enigma
    - d. Romance
    - e. Finale (Ab uno disce omnes)
  - iii Etude in the Old Style in C# Minor
  - iv Song (contralto/piano)-"Joe Allen"
  - v "Tartuffe" -a suite apres Moliere  
Also scored for 2 flutes, 1 Bb clarinet, 1 bassoon, 1 oboe, and pianoforte
  - vi (S or T/piano) -"A New Life" 40 min; diff.

**Nonprofessional Honorary Positions:**

1. Founder, University of Saskatchewan Squash Club, 1971.
2. President, University of Saskatchewan Squash Club, 1971-72.
3. Secretary/Treasurer, Saskatoon Cricket Assoc., 1974-1975.
4. Secretary/Treasurer, Saskatchewan Cricket Assoc., 1974.
5. Draftee, Constitution of Saskatchewan Cricket Assoc., 1975.
6. Original Member, Cincinnati Composers' Guild, 1978.
7. Trustee, Cincinnati Composers' Guild, 1978-1979.
8. Draftee, Constitution of Cincinnati Composers' Guild, 1979.
9. State of Ohio Guarantor, Cincinnati Composers' Guild, 1980-1985.
10. Cofounder, Stonewall Cincinnati, 1981.
11. Secretary, Greater Cincinnati Chapter, Lesbian/Gay Academic Union, 1981-88.
12. Facilitator, Cincinnati Coalition Against Apartheid, 1984-85.
13. Facilitator and Founder, Gay and Lesbian March Activists, Cincinnati, Ohio, 1987-89.
14. President, Greater Cincinnati Chapter, Lesbian/Gay Academic Union, 1988/89.
15. Membership Chairperson, Cincinnati Rainbow Coalition, 1988-89.
16. Steering Committee Member, UCLA Lesbian and Gay Faculty/Staff Network, 1992-98
17. President, Lesbian/Gay Health and Health Policy Foundation, 1994+.
18. Member, UCLA Faculty Committee for a Lesbian/Gay Minor or Major, 1995-8.
19. President, Village Terrace Homeowners Association, 923 Levering Ave, Los Angeles 1997,1999,2001
20. Vice President, Village Terrace Homeowners Association, 923 Levering Ave, Los Angeles

2002

21. Treasurer, Village Terrace Homeowners Association, 923 Levering Ave, Los Angeles, 2003+
22. Co-Coordinator, Platform Working Group, Green Party of California, 2004+

**Personal Awards not Connected to Professional Career:**

1. Department of Education State Scholarship, 1960-62, Queensland, Australia.
2. Department of Education State Extension Scholarship, 1963-65, Queensland, Australia.
3. Commonwealth of Australia Scholarship Award, 1965 to 1969.
4. Community Excellence Award, Greater Cincinnati Gay/Lesbian Coalition, 1987.
5. Outstanding Member Award, UCLA Lesbian and Gay Faculty/Staff Network, 1993.

**Recreational Activities:**

Bridge, chess, tennis, squash, racketball, table tennis, softball, cricket, reading, writing, poetry, civil rights causes.

**Sports Achievements and Awards**

1. Champion, 4.5 Singles, Colonial Racquet Club, Cincinnati Ohio, 1987.
2. Champion, Division C tennis men's doubles with David Dickerson (FL), Pride Classic National Tennis Tournament, Los Angeles, CA, June 12, 1995.
3. Champion, Division C tennis men's doubles with Norman Bowling (Los Angeles), Los Angeles Tennis Association Labor Day National Tennis Tournament, Sept 4, 1995.
4. Craig Van Eyck Sportsman of the Year Award, Los Angeles Tennis Association, 1996.
5. Runnerup, Tier C Singles Tennis Championship, Fred Orange Club Championship, Los Angeles Tennis Association, June 21, 1997.
6. Runnerup, C Division, Second Annual Over 35 Singles National Championship, U.S. Gay/Lesbian Tennis Association, Las Vegas, NV, October 19, 1997.
7. Champion, B Division Consolation, 1999 Pride Classic National Tennis Tournament, Los Angeles, April 4, 1999.
8. Champion, 55+ Singles, 2001 United States Gay Open Tennis Championships, San Francisco, May 28 2001.
9. Runnerup, Tier C Tennis Doubles with Sal Veas, Fred Orange Club Championship, Los Angeles Tennis Association, June 29, 2003.
10. Champion, 40+ C Doubles with Russell Pritchard (San Francisco), 2006 United States Gay Open Tennis Championships, San Francisco, May 29, 2006.
11. Silver Medal, Gay Games VII, July 15-July 22, 2006, Chicago, Age  $\geq$ 60 Men's Tennis Doubles, with Owen Murray (Capetown, South Africa).
12. Bronze Medal, Gay Games VII, July 15-July 22, 2006, Chicago, Age  $\geq$ 60 Men's Tennis Singles.
13. Runnerup, C Division Consolation, Los Angeles Open III National Tennis Tournament, Los Angeles, CA, April 6, 2007.
14. Champion, Consolation E Tier Singles, Fred Orange Club Championship, Los Angeles Tennis Association, June 14, 2008.
15. Champion with Steve Perry, Consolation E Tier Doubles, Fred Orange Club Championship, Los Angeles Tennis Association, June 22, 2008.

16. Champion with Bryan Emler, D Division Men's Doubles, San Diego Open 23, July 4-6, 2008. Round Robin 4-0.
17. Finalist, D Division Men's Singles, San Diego Open 23, July 4-6, 2008.
18. Runner up with Edwin Rocha, E Tier Doubles, Fred Orange Club Championship, Los Angeles Tennis Association, July 19, 2009.

## **Los Angeles Tennis Association League Championships**

### **Singles**

1. #5 Singles, Fall, Sunday, 1990
2. #3 Singles, Summer, Sat, 1994
3. #2 Singles, Winter, Sat, 2000.
4. #2 Singles, Summer, 2002
5. #3 Singles, Winter, 2009

### **Doubles**

1. #3/4 Doubles, Winter/Spring, Sat, 1995
2. #1/2 Doubles, Winter/Spring, Sun, 1996
3. #3/4 Doubles, Summer, Sat, 2005.
4. Pool E Doubles, Summer, Thursday, 2007.
5. #3/4, Winter/Spring, Sat, 2009

### **Team**

1. Sat League, Winter, 1998
2. Wed League, Winter, 2001
3. Sat League, Summer, 2005
4. Sat League, Summer, 2006
5. Sat League, Winter, 2009

### **Works as a Civil Rights Activist**

1. *Dialogue*: The Newsletter of the Hamilton-McMaster Homophile Association, 1970-78 in two volumes, 1970-1976; 1976-78 with S Que Hee as Secretary.
2. Canada's *The Body Politic* Articles 1975-1978 by/on Shane S. Que Hee. S Que Hee, 1995.
3. Lesbian/Gay Academic Union of Greater Cincinnati 1979-1990; Newsletters and Organizational, S Que Hee, 1995.
4. Lesbian/Gay Academic Union of Greater Cincinnati: John Zeh Case. Shane Que Hee, 1995.
5. *The Yellow Page* Articles 1981-1985 by/collated by Shane S. Que Hee. Shane Que Hee, 1995.
6. *Good Times!* Articles 1984-1987 by Shane S. Que Hee. Shane Que Hee, 1995.
7. Cincinnati Coalition Against Apartheid 1985-1986: Files of Shane Que Hee, Facilitator and Secretary, 1985-1986. Shane Que Hee, 1995.
8. *Gaybeat* Articles 1985-1990 on/by Shane S. Que Hee. Shane Que Hee, 1995.
9. Cincinnati Gay/Lesbian March Activists 1987-1989: Outside Correspondence. Shane Que Hee, 1995.

10. Cincinnati Gay/Lesbian March Activists 1987-1989: Newsletters, Minutes, Rainbow Coalition. Shane Que Hee, 1995.
11. Cincinnati Gay/Lesbian March Activists: Partial Discrimination File 1988-1989. Shane Que Hee, 1995.
12. Cincinnati Gay/Lesbian March Activists 1988: Cincinnati Human Rights Ordinance *Cincinnati Enquirer* and *Cincinnati Post* Background File 1951-1987. Shane Que Hee, 1995.
13. Cincinnati Gay/Lesbian March Activists: Hobson Bill (Ohio Senate Bill 2) File 1989. Shane Que Hee, 1995.
14. *To The Root(s)* Organizational 1988-1989. Shane Que Hee, 1995.
15. *Nouveau Midwest* 1988-1993 by/on Shane S Que Hee. Shane Que Hee, 1995.
16. *UCLA Lesbian/Gay Faculty and Staff Network Newsletter*, Articles, 1992-98.
17. Greens and the LGBT Community. *Green Focus* (Spring/Summer), p4, 2008. Shane Que Hee.
18. Green Party Needs to Stay Out in Front on Same-Sex Marriage Issue. *Green Focus* (Spring/Summer), 2009, p2. Shane Que Hee.

### **Other**

1. Shane Que Hee, "UCLA's Unhealthy Public Policy", *Daily Bruin* June 28, 1993, p15.
2. Shane Que Hee, "Self-Imposed?", *Daily Bruin* November 12, 1993, p13.

## PROFESSIONAL CAREER

**Degrees:** **B.Sc.** (Honors in Chem and Biochem), Department of Chemistry, University of Queensland, St. Lucia, Brisbane, Queensland, Australia, 1968.

**M.Sc.** (Physical Chemistry), Department of Chemistry, University of Queensland, St. Lucia, Brisbane, Queensland, Australia, 1971.

*Thesis Title:* Weak Luminescence Emitted by the Yeast *Saccharomyces Cerevisiae*  
109 pp.

**Ph.D.**, Department of Chemistry and Chemical Engineering,  
University of Saskatchewan, Saskatoon, Saskatchewan, Canada, 1976.

*Thesis Title:* Environmental Fate and Photochemistry of 2,4-D and its Compounds  
309 pp.

**Other Education** Bundaberg State High School. Queensland, Australia (1958-1963)  
Classes: 2H, 3A-1, 4A-1, 5-1, 6-1

Weapons Research Establishment, Elisabeth, South Australia, 1967:  
Adelaide Research on Rocket Fuels. Vacation employment

Australian Atomic Energy Commission, Lucas Heights, Sydney, Australia, 1968:  
Research on Azobenzenes synthesis. Vacation employment.

Kettering Laboratory and the Department of Environmental Health, University of Cincinnati, Cincinnati, Ohio, week long course, 1978:  
Principles and Practice of Industrial and Environmental Hygiene.

Waters Associates, Milford, Massachusetts 01757, week long course,  
October 1979: Practical Course in Liquid Chromatography.

Allied Analytical (Jarrell-Ash), Waltham, Massachusetts; week long course,  
March, 1983: Practical Course on ICP-AES/Apple II Computer Methodology.

### **Experience:**

1969-1970: Tutor in Physical Chemistry, King's College, University of Queensland, Brisbane, Queensland, Australia.

1970: Worked Problems in First-Year Physical Chemistry, King's College, University of Queensland, Brisbane, Australia, 130 pp.

1974: Instructor in Organic Chemistry, Department of Chemistry and Chemical Engineering, University of Saskatchewan, Saskatoon, Canada. (A first-year

organic chemistry course given to 81 nurses.)

1974: Laboratory Manual for Third-Year Organic Chemistry, Department of Chemistry and Chemical Engineering, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, 150 pp.

1976-1978: **Teaching/Research Post-doctoral Fellow**, Department of Chemistry, McMaster University, Hamilton, Ontario, Canada.

1978-1984: **Assistant Professor**, Department of Environmental Health, University of Cincinnati Medical Center.

Lecturer in the following Continuing Education Short-Courses given under the auspices of the Department of Environmental Health:

Industrial Hygiene Chemistry: NIOSH 590

GC/Mass Spectroscopy and Spectrophotometry

Industrial Hygiene Measurements: NIOSH 550:

Adsorption

1984-1989: **Associate Professor with Tenure**, Department of Environmental Health, University of Cincinnati Medical Center

1989-1994: **Associate Professor with Tenure**, Step III, Department of Environmental Health Sciences, School of Public Health, UCLA Center for Occupational and Environmental Health, University of California at Los Angeles.

1992-94 **Vice-Chairperson**, Department of Environmental Health Sciences, School of Public Health, University of California at Los Angeles.

1994-96 **Professor**, Step I, Department of Environmental Health Sciences, School of Public Health, UCLA Center for Occupational and Environmental Health, University of California at Los Angeles.

1996-00 **Professor**, Step II, Department of Environmental Health Sciences, School of Public Health, UCLA Center for Occupational and Environmental Health, University of California at Los Angeles.

2000- 03 **Professor**, Step III, Department of Environmental Health Sciences, School of Public Health, UCLA Center for Occupational and Environmental Health, University of California at Los Angeles.

2003-2006 **Professor**, Step IV, Department of Environmental Health Sciences, School of Public Health, UCLA Center for Occupational and Environmental Health, University of California at Los Angeles.

2006+ **Professor**, Step V, Department of Environmental Health Sciences, School

of Public Health, UCLA Center for Occupational and Environmental Health, University of California at Los Angeles.

2009+ **Distinguished Professor**, National Taiwan University, School of Public Health, Institute of Environmental Health

2009+ **Director, UCLA Industrial Hygiene Program 2009+**, Department of Environmental Health Sciences, School of Public Health

Since the UCLA Industrial Hygiene Program for Master's students is accredited by the American Board of Engineering Technology (ABET), the UCLA Industrial Hygiene Director also answers to ABET. The UCLA Industrial Hygiene Program itself that deals with doctoral and Master's students and research in Industrial Hygiene has been funded by NIOSH through its Education and Research Center (ERC) since pre- 1989. The ERC was headquartered initially at the University of Southern California and then from 1999 at UCLA.

### **Professional Honors:**

#### **a. Biographies**

1. Biography in *American Men and Women of Science, Physical and Biological Sciences*, 14th Ed., Jaque Cattell Press, New York, 1979, p.4067.
2. Biography in *Who's Who in Technology Today, Civil and Earth Sciences*, 2nd Ed., 1981, Technology Recognition Corporation, Pittsburgh, PA, p.1529.
3. Biography in *Who's Who in the West*, 23rd ed., Marquis Inc., Wilmette, IL, 1990.
4. Biography in *Who's Who in the Safety Profession*, National Security Institute, Framingham, MA, 1990.
5. Biography in *International Biography*, 4th ed., Elsevier, Amsterdam, The Netherlands, 1994.
6. Biography in Who's Who Registry, 1994-95, *Who's Who Worldwide*, Lake Success, New York.
7. Biography in *Who's Who in the World*, 1995-96, 12th ed., Marquis Inc., Wilmette, IL.
8. Induction into *International Who's Who of Professionals*, Jacksonville, NC, 1998
9. Biography in *Who's Who in Medicine and Healthcare*, 2nd Ed., 1999+, Marquis Inc., New Providence, N.J., 1998.
10. Biography in *Who's Who in Asia and the Pacific Nations*, 4th Ed., Ed. S. Mason, International Biographical Centre, Cambridge, England, 1999.
11. Biography in *International Directory of Distinguished Leadership*, 9th Ed., American Biographical Institute, Raleigh, North Carolina, 2000.
12. Biography in *Who's Who in America*, 55th Ed, Marquis, New Providence, New Jersey, 2001.
13. Biography in *Outstanding People of the 20th Century*, 2nd Ed., Ed. Gifford, J., International Biographical Centre, Melrose Press, Cambridge, England, UK., 2001.
14. Biography in *Who's Who in American Education*, 6<sup>th</sup> Ed., Marquis, New Providence, New Jersey, 2003
15. Biography in *International Who's Who Historical Society*, Washington DC, Ericson Publishing, Washington DC, 2005.

**b. Scientific Groups**

1. Member, Western Canada Pesticides Group, 1971 to 1973.
2. Consultant Chemist, National Department of Defense, Suffield Trials, Alberta, Canada, 1973.
3. Member, Joint Editorial Board of *Standard Methods for the Examination of Water and Wastewater*, 1993+.
4. Member, Biological Monitoring Committee, American Industrial Hygiene Association, 1993+.
5. Member, Dermal Exposure Committee (later, the EASC Dermal Project Team), 1998+
6. Member, Report on Carcinogens Expert Registry, National Institute of Environmental Health Sciences, 2005+
7. Secretary, Biological Monitoring Committee, American Industrial Hygiene Association, 2006.
8. Vice-Chairperson/Secretary, Biological Monitoring Committee, American Industrial Hygiene Association, 2007.
9. Chairperson, Biological Monitoring Committee, American Industrial Hygiene Association, 2008-2009.
10. Facilitator and Founder, Biological Environmental Exposure Level Team Project of the Biological Monitoring Committee, American Industrial Hygiene Association, 2000-2007.
11. Chairperson, Biological Environmental Exposure Level Project Team of the Biological Monitoring Committee, American Industrial Hygiene Association, 2008-2009.

**c. Government Agency Honors**

1. *Certificate of Award in Recognition of Noteworthy Contribution and Special Achievement* for the U.S. Environmental Protection Agency, 1981.
2. Member TOXNET, Data Base Peer Review Committee of The National Library of Medicine, 1985-1989 (Hazardous Substances Data Bank -HSDB).
3. Member, Board of Scientific Counselors, National Institute for Occupational Safety and Health, Centers for Disease Control, 2001-2004.
4. Member, Report on Carcinogens Registry, National Institute of Environmental Health Sciences, 2005+

**d. University Honors**

1. Member of Graduate Faculty of the University of Cincinnati, 1982.
2. Achieved Tenure/Promotion at the University of Cincinnati, 1984.
3. Outstanding Faculty Award, UCLA School of Public Health Alumni Association, 1991.
4. Faculty Noteworthy Contribution to Health Careers Opportunity Program of the UCLA School of Public Health, 1992.
5. Outstanding Faculty Award, Health Careers Opportunity Program, UCLA School of Public Health, 1994.
6. Certificate of Appreciation, Health Careers Opportunity Program, UCLA School of Public Health, 1995
7. Certificate of Appreciation, University of California at Los Angeles Industrial Hygiene Students Association, June 2000.



e. **Professional Society Honors**

1. Fellow of the American Institute of Chemists (FAIC), 1986.
2. Fellow, American Industrial Hygiene Association (FAIHA), March 30, 1999.
3. Certificate, Member of the Biological Monitoring, 1999 Outstanding Committee of the American Industrial Hygiene Association, 1999.
4. Award for Excellence in Technical Achievements, Southern California Section of the American Industrial Hygiene Association, 2002.
5. American Industrial Hygiene Association Biological Monitoring Committee Award for Outstanding Leadership, Dedication and Contributions to the Practice of Industrial Hygiene and the Biological Monitoring Committee, May 2004.
6. American Industrial Hygiene Association, 2004 Critics Choice , 7<sup>th</sup> Annual AIHA Publications Award, 2005. For *Biological Monitoring: A Practical Field Manual*.
7. Certificate of Appreciation, 25 years of Service, Division of Environmental Chemistry, American Chemical Society, September 21, 2005.
8. Certificate of Achievement, 25 years of Continuous Membership in the American Industrial Hygiene Association In Recognition of the Commitment to Advance the Profession and Protect the Health and Safety of People in the Workplace and the Community, November 1, 2005.
9. The Biological Monitoring Service Award in Recognition of Exemplary Contribution to the Committee and the BEELs Project Team, Biological Monitoring Committee, American Industrial Hygiene Association June, 2007. (Noted in *Synergist* Oct 2007 p28).
10. AIHA Outstanding Project Team Award as part of the EASC Dermal Project Team, June 2008.
11. Michigan Industrial Hygiene Society, MIHS Best Paper Award 2008, A Moving Robotic Hand System for Whole-Glove Permeation and Penetration: Captan and Nitrile Gloves. J. Occup. Environ. Hyg. 5(4) (April): 257-270, 2008. Robert Phalen (student) and Shane Que Hee.

**Professional Societies:**

1. Air and Waste Management Association
2. American Association for the Advancement of Science 1971+
3. American Chemical Society 1977+
4. American College of Toxicology
5. American Conference of Governmental Industrial Hygienists
6. American Industrial Hygiene Association 1980+
7. American Institute of Chemists
8. American Public Health Association
9. American Water Works Association
10. Association of the Official Analytical Chemists
11. New York Academy of Sciences, Life Member.
12. Ohio Academy of Science, Life Member.

**Certifications:**

1. Certificate of Short Course Completion, "General Principles of Industrial Hygiene", Department of Environmental Health, University of Cincinnati, 1978.
2. *Registration as a Professional Industrial Hygienist (RPIH)*, Association of Professional Industrial Hygienists, 1997+.

**Journal Reviewer:**

1. Environmental Science and Technology, 1978+.
2. Analytical Chemistry, 1983+.
3. Microchemical J., 1985+.
4. Toxicol. Appl. Pharm., 1988+.
5. Fund Appl Toxicol, 1988+
6. American Industrial Hygiene Assoc. J., 1988+.
7. Biological Monitoring, 1988/89.
8. J. Assoc. Official Analytical Chemists, 1989+.
9. J. Agr. Food Chem., 1990+.
10. Applied Occupational and Environmental Hygiene, 1993+
11. Arch. Environ. Contam. Toxicol., 1994+
12. Occupational and Environmental Medicine, 1994+
13. Clinical Chemistry, 1994+
14. J. Applied Polymer Science, 1996+
15. Toxicology and Industrial Health, 1996+
16. Environmental Research, 1997+
17. J. Labelled Compounds and Radiopharmaceuticals, 1998+
18. Am. J. Indust. Med., 1998+
19. Annal. Occup. Hygiene, 2000+
20. Journal of the Science of Food and Agriculture 2004+.
21. Estuarine Coastal and Shelf Science, 2005+
22. Journal of Occupational and Environmental Hygiene, 2005+
23. Atmospheric Environment, 2005+
24. Science of the Total Environment, 2006+
25. Journal of Occupational and Environmental Hygiene, 2007+

### **National Professional Meeting Symposia Organized:**

1. *Sampling and Analysis of Complex Mixtures of Gases, and/or Vapors*, 190th American Chemical Society Meeting, Chicago, IL, September 8-13, 1985.
2. *Biological Monitoring for Health Effects*, 192nd American Chemical Society Meeting, Anaheim, California, September 7-12, 1986.
3. *AIDS: Chemical, Workplace Issues and Biological Monitoring*, 195th American Chemical Society Meeting and The Third Chemical Congress of The North American Continent, Toronto, Ontario, Canada, June 5-11, 1988.
4. *Safety and Health in the Electronics Industry*, American Chemical Society Meeting, Boston, Massachusetts, April 22-27, 1990.
5. *Analytical Chemistry Aspects of Biological Monitoring*, American Industrial Hygiene Conference and Exposition, Washington DC, May 18-24, 1996. Roundtable and Technical Session.
6. *Analytical Chemistry State of the Art in Biological Monitoring*, American Industrial Hygiene Conference and Exposition, Toronto, Ontario, Canada, June 5-11, 1999. Roundtable.
7. *Biological Monitoring/Medical Surveillance Programs in Academic and Corporate Workplaces*, American Industrial Hygiene Conference and Exposition, New Orleans, LA, June 2-7, 2001. Roundtable.
8. *Basis of the Proposed Biological-Based Environmental Exposure Level (BEEL) for 4,4'-Methylene Dianiline*, American Industrial Hygiene Conference and Exposition, San Diego, June 1-6, 2002. Forum.
9. *Human Biological Monitoring in Risk and Exposure Assessment*, American Industrial Hygiene Conference and Exposition, Atlanta, GA, May 8-13, 2004. Roundtable.
10. *Biological Monitoring and Government Agencies: Past, Present, and Future*, American Industrial Hygiene Conference and Exposition, Anaheim, CA, May 21-26, 2005. Roundtable.
11. *Biological Monitoring: Sparking Industrial Hygiene*. American Industrial Hygiene Conference and Exposition, Philadelphia PA, June 2-7, 2007. Roundtable.
12. *BEELs: Biological Monitoring and Skin Absorption*, American Industrial Hygiene Conference and Exposition, May 31-June 5, 2008, Minneapolis MN. Roundtable.
13. *BEELs II: Biological Monitoring and Skin Absorption*, American Industrial Hygiene Conference and Exposition, May 30-June 4, 2009, Toronto, Ontario, Canada. Roundtable.

### **Invited Speaker**

1. Dept. of Inorganic and Physical Chemistry, Univ. Western Australia, Aug 19, 1986: "*Pattern recognition studies using multielemental analysis, to identify sources of pollution by atmospheric aerosols.*"
2. Dept. of Chemistry, Univ. Queensland, Brisbane, Australia, Aug 21, 1986: "*Pattern recognition studies using multielemental analysis to assign sources of pollution to atmospheric aerosols.*"
3. Department of Environmental Health Sciences Seminar, May 17, 1990: "*What PCB Do You Think You Have?*"
4. UCLA Graduate School of Education, Project Enterprise, November 7, 1991: "*Toxics Disposal and Transport*".

5. Department of Environmental Health Sciences Seminar, UCLA School of Public Health, November 14, 1991: "*Analytical Methods for Aldehyde Ozonolysis Byproducts in Drinking Water.*"
6. Professional Symposium: Orange County Section, American Industrial Hygiene Association, Norwalk, CA, Oct 12 1993: "*Analytical Laboratory Aspects of Biological Monitoring.*"
7. UCLA Center for Occupational & Environmental Health, EHS 298C Seminar Series in Occupational Ergonomics, Feb 9, 1994: "*Biochemical Indicators of Fatigue*".
8. UCLA Civil and Environmental Engineering Department Environmental Engineering Seminar Series: "*Bioassay-directed Analysis using Luminescent Bacteria,*" May 9, 1995.
9. Am. Ind. Hyg. Conf. Expos., May 26, Kansas City, MO, 1995: "*Carcinogen-Protein Adducts*". In: "*Biological Monitoring for Chemical Carcinogens in the Workplace*" Roundtable 29.
10. Am. Chem. Soc., Southern Section: "*Biologically Directed Chemical Assay for Biological and Environmental Materials*", Jan 24, Los Angeles, 1996.
11. Am. Ind. Hyg. Conf. Expos., May 21, 1996, Washington D.C., 1996: "*Connections between Breath-Sampling/Air Sampling, and Wipe Sampling/Skin Sampling.* In: "Analytical Chemistry in Biological Monitoring", Roundtable 216.
12. Department of Environmental Health Sciences Seminar, UCLA School of Public Health, April 10, 1997: "*Bioassay-Directed Chemical Analysis*".
13. UCLA Occupational and Environmental Medicine Seminar, March 11, 1997: "*Biological Monitoring for Antineoplastic Drugs.*"
14. Air and Waste Management Association, 91st Annual Meeting, San Diego, June 14-21, 1998. Panel Member: "*Critical Review: Assessment of Risk from Multi-Media Exposure of Children to Environmental Chemicals*".
15. Panelist. "*Critical Review: Assessment of Risk from Multimedia Exposure of Children to Environmental Chemicals Childhood Health,*" 91st Air and Waste Management Association, June 14-18, 1998, San Diego, CA.
16. Department of Environmental Health Sciences Seminar, UCLA School of Public Health, October 29, 1998, "*Permeation of Pesticides Through Protective Materials*".
17. Speaker, Southern California Section, American Industrial Hygiene Association, "*Glove Permeation Studies*", January 13, 1999, Los Angeles, CA.
18. Plenary Speaker. "*Bioassay-Directed Analytical Chemistry Analysis*", Fourteenth Annual National Congress of Analytical Chemistry, September 29-October 1 1999, Facultad de Ciencias Quimicas, Universidad Autonoma de Baja California, Tijuana, B.C.
19. American Industrial Hygiene Conference and Exposition, New Orleans, LA, June 2-7, 2001. "*Environmental Monitoring and Biological Monitoring/Medical Surveillance: Past and Future in Nontraditional and Traditional Workplaces*", in the Roundtable, *Biological Monitoring/Medical Surveillance Programs in Academic and Corporate Workplaces.*
20. Department of Civil and Environmental Engineering, University of Southern California, "*Permeation of Pesticide Formulations Through Glove Materials*", March 22, 2002 as part of the Environmental Engineering Seminar series.
21. Department of Environmental Health, University of Cincinnati, "*Pesticide Permeation Through Gloves*", April 10, 2002 as part of the Environmental Health Seminar Series.
22. American Industrial Hygiene Conference and Exposition, San Diego, June 1-6, 2002. "*MDA Risk Assessment Models*", in the Forum, *Basis of the Proposed Biological-Based Environmental Exposure Level (BEEL) for 4,4'-Methylene Dianiline.*

23. Speaker, Spring 2003 Biomedical Sciences Seminar Series, California State University Los Angeles, CA, April 11, 2003. "Bioassay-Directed Chemical Analysis". Minority Biomedical Research Support and Minority Access to Research Careers students and faculty attended.
24. Keynote Speaker, 2003 Taiwan Conference on Industrial Hygiene, China Medical College, Taichung, Taiwan, April 26 and 27, 2003. "Biological Monitoring Developments: Industrial Hygienists, Engineers, Risk Assessors, and Physicians Must Cooperate".
25. Keynote Speaker, 2003 Conference on Industrial Hygiene, China Medical College, Taichung, Taiwan, April 26 and 27, 2003. "Detecting the Tools of Terrorism and Workplace Chemicals: Direct Reading Devices".
26. Speaker, American Industrial Hygiene Conference and Exposition, Atlanta, GA, May 8-13, 2004, in the Roundtable, *Human Biological Monitoring in Risk and Exposure Assessment*.
27. Speaker, 11<sup>th</sup> Annual Central New York Air & Waste Management Association Technical Conference, March 28, 2007, Syracuse, NY. "Biological Environmental Exposure Levels".
28. Speaker, American Industrial Hygiene Conference and Exposition, June 2-7, 2007, Philadelphia PA, in the Roundtable, *Biological Monitoring: Sparking Industrial Hygiene*. "BEELs: The Team Project for the Future."
29. Speaker, Michigan Safety Conference, April 15, 2008, Lansing, Michigan on *Biological Monitoring, BEIs, BEELs: What Is Going On?* in the Symposium *Biological Monitoring: its Role, Methods and Interpretation of Results*.
30. Speaker, American Industrial Hygiene Conference and Exposition, May 31-June 5, 2008, Minneapolis MN, in the Roundtable *BEELs: Biological Monitoring and Skin Absorption*. "n-Octyl Alcohol".
31. Speaker, American Industrial Hygiene Conference and Exposition, May 31-June 5, 2008, Minneapolis MN, in the Roundtable *Skin Exposure and Biological Monitoring*. "A Review on Skin Absorption and Biological Monitoring".
32. Speaker, Department of Environmental Occupational Health, Medical College, National Cheng Kung University, Tainan, Taiwan, October 23, 2008: "Skin Absorption & Biological Environmental Exposure Levels (BEELs): New Frontiers in Occupational/Environmental Health"
33. Speaker, Institute of Environmental and Occupational Health Sciences, National Yang-Ming University, Beitou, Taipei, Taiwan, October 29 2008: "Skin Absorption & Biological Environmental Exposure Levels (BEELs): New Frontiers in Occupational/Environmental Health".
34. Speaker, Department of Safety, Health and Environmental Engineering, National Kaohsiung First University of Science and Technology, Kaohsiung, Taiwan, October 30 2008: "Skin Absorption & Biological Environmental Exposure Levels (BEELs): New Frontiers in Occupational/Environmental Health".
35. Speaker, Department of Environmental & Occupational Health, Fu-Jen Catholic University, Shin-Chuang, Taiwan, November 4, 2008: "Skin Absorption & Biological Environmental Exposure Levels (BEELs): New Frontiers in Occupational/Environmental Health".
36. Speaker, Department of Environmental & Occupational Health, Fu-Jen Catholic University, Shin-Chuang, Taiwan, November 4, 2008: "BEELs".

37. Speaker, Institute of Occupational Safety & Health, Council of Labor Affairs, Executive Yuan, Sijhih City, November 7, 2008: "Skin Absorption & Biological Environmental Exposure Levels (BEELs): New Frontiers in Occupational/Environmental Health".
38. Speaker, Institute of Occupational Safety & Health, Council of Labor Affairs, Executive Yuan, Sijhih City, November 7, 2008: "BEELs".
39. Speaker, School of Public Health, Taipei Medical College, Taipei, Taiwan, November 13, 2008: "Skin Absorption & Biological Environmental Exposure Levels (BEELs): New Frontiers in Occupational/Environmental Health".
40. Speaker, School of Public Health, Kaohsiung Medical University, Kaohsiung, Taiwan, November 14, 2008: "Skin Absorption & Biological Environmental Exposure Levels (BEELs): New Frontiers in Occupational/Environmental Health".
41. Speaker, Institutes of Environmental Health and Occupational Health and Occupational Medicine, College of Public Health, National Taiwan University, November 24, 2008: "Skin Absorption & Biological Environmental Exposure Levels (BEELs): New Frontiers in Occupational/Environmental Health".
42. Speaker, Department of Environmental Health Sciences, UCLA School of Public Health, February 12, 2009: "Skin Absorption & Biological Environmental Exposure Levels (BEELs): New Frontiers in Occupational/Environmental Health".
43. Speaker, American Industrial Hygiene Conference and Exposition, May 30-June 4, 2009, Toronto, Ontario, Canada, in the Roundtable *BEELs II: Biological Monitoring and Skin Absorption*, "BEEL for 1-Octanol".
44. Keynote Speaker, International Conference on Healthy City and Environmental Health, Imperial Palace Hotel, Seoul, Korea, October 29, 2009: "Biological Monitoring- One Scientist's Perspective".
45. Keynote Workshop Speaker on Biological Monitoring: International Conference on Healthy City and Environmental Health, Imperial Palace Hotel, Seoul, Korea, October 30, 2009: "Sampling, Quality Assurance/Quality Control and Biomarker Analysis in Biological Monitoring".

### **Professional Development Courses Organized/Taught at National Scientific Meetings**

1. Instructor in PDC 123, *Recognition, Evaluation, and Control of Dermal Exposures in the Workplace*, American Industrial Hygiene Conference and Exposition, Dallas, TX, May 10 2003. Topic: "Types of Sampling Approaches".
2. Instructor in PDC 115, *Recognition, Evaluation, and Control of Dermal Exposures in the Workplace*, American Industrial Hygiene Conference and Exposition, Anaheim, CA, May 21, 2005. Topic: "Biological Monitoring and Skin Exposure".
3. Instructor in PDC 411, *Recognition, Evaluation, and Control of Dermal Exposures in the Workplace*, American Industrial Hygiene Conference and Exposition, Chicago, CA, May 14, 2006. Topic: "Biological Monitoring and Skin Exposure".

## **NEWS MEDIA:**

1. "Foundry Looks at Lead Safety," *Our People's WOPWrd*, July 1982, p4.
2. Jane Heimlich, "Hair May Offer Clues to Body Deficiencies," *Cincinnati Enquirer*, September 28, 1983, E-5.
3. Anne Brataas, "Acid Rain Sources Puzzle Scientists," *Cincinnati Enquirer*, May 20, 1987, B-1.
4. Press Conference for Symposium "AIDS: Chemicals, Workplace Issues and Testing" for presenting "Biological Monitoring for HIV and the Possible Influences of Workplace/Ambient Chemicals", Am. Chem. Soc., Toronto, Ontario, Canada, June 8, 1988, 1988.
5. "Teaching Macho Researchers Some Respect: Handling "hot" chemicals was one thing, but now comes the AIDS virus." *The Scientist* 2(10), May 30, p1, 1988.
6. Scott Burgins, "Residents Plan Own Health Questionnaire", *Cincinnati Enquirer*, July 1, 1988, L-2.
7. "Tidings from Toronto." Chemical Health And Safety (CHAS) Notes, 6(3), July-Sept, 1988, p2.
8. Gina M. Gentry, "Findings Irritate Residents: Methane Detected in Winton Place," *Cincinnati Enquirer Extra*, February 21, 1989, E1.
9. Scott Burgins, "Chemicals a Problem in Winton: Recent Study Reveals Symptoms of Residents", *Cincinnati Enquirer*, October 31, 1989, A-9.
10. T.F. Ewing, "Newswire," *Cincinnati Environment*, November, 1989, p2.
11. Frank Manning, "Water Study Takes Some Heat Off Tapia," *Los Angeles Times*, April 19, 1995, B2.
12. Tony Knight, "Creek Study Absolves Tapia Plant", Los Angeles Daily News, April 19, 1995.
13. "Chromium Pollution Exposure." Interviewed by Ingrid Lobet for National Public Radio's *Living on Earth* for March 7 2003 broadcast. <http://www.loe.org>.
14. Steve Down, in *Separations Now*, May 1 2006, comment on Zainal and Que Hee, *J Appl Polym Sci* 100: 18, 2006 "Permeation of Telone C-35 EC and chloropicrin through protective gloves".
15. *Inside OSHA* 14 (13): 2007 p1,2: Interview on Biological Environmental Exposure Level concept.
16. *Synergist* August 2007 p46: Comment on AIHCE podium presentations in my Abstracts 123 through 125 in the last section of this CV.
17. Quoted in *Daily Bruin* January 30 2008 p3 on *Green Chemistry*  
<http://dailybruin.com/news/2008/jan/30/new-uc-study-provides-insight-possible-effects-haz/>
18. Quoted in the July 3 2008 *Baltimore Sun* about the safety of amalgam fillings. *Fighting Tooth and Nail*  
<http://www.baltimoresun.com/news/health/balto.hs.fillings03jul03,0,1066051.story>
- 19.

## **FEDERAL AGENCY REVIEWER REVIEWER ACTIVITIES**

### **A. USEPA Review Committee Memberships:**

#### **Member, Review Committee, Water Quality Criteria Documents of:**

The Aroclors; Chlordane; Dioxins (also Air Quality); Endrin; Heptachlor; Heptachlor Epoxide; Hexachlorobutadiene; Hexachlorocyclopentadiene; PCBs; TCDD

#### **Reviewer of Water Criteria Document/Summaries Before Public Comment:**

Chlordane; DDD; DDE; DDT; Endosulfan; Endrin; Heptachlor; Heptachlor Epoxide; Hexachlorocyclohexanes; Lindane

#### **Reviewer of Other EPA Documents:**

p-Chlorotoluene (Health Effects Research Laboratory); E-FAST Model; Provisional Oral Cancer Assessment for 2,4-Dichlorophenoxyacetic Acid (2,4-D); TCDD(Health Effects Research Laboratory)

#### **Reviewer for Risk Assessment:**

Acrylonitrile; Benzyl chloride; Carbon Disulfide; Dimethyl Methylphosphonate; Dimethylphenethylamine; alpha- and beta-Hexachlorocyclohexane (Lindane); Nitroglycerine; TCDD and related compounds; 1,2,3-Trichlorochloropropane; Vinyl chloride

### **B. Agency for Toxic Substances and Disease Registry (ATSDR) Review Committee Memberships:**

#### **Reviewer of Toxicological Profiles for:**

Acrolein; Aluminum; Benz[a]anthracene; Benzo[b]fluoranthene; Carbon disulfide; Chlorodibenzofurans; Chloroethane; p-Chlorotoluene; Chrysene; Dibenz[a,h]anthracene; 1,2-Dichloroethane; 2,4-Dichlorotoluene; Dioxin; Endosulfan; Endrin; Hexachlorobutadiene; Lead; Mercury; Methyl Parathion; Methyl mercaptan; PCBs; Oak Ridge Screening-Level Report; Sulfur Mustard; Tetrachloroethylene; 1,2,3-Trichloropropane; Vinyl Acetate; Xylenes.

#### **Reviewer of Public Health Assessment for:**

Bunker Hill Mining and Metallurgical Complex Operable Unit 3 (a.k.a. Coeur D'Alene River Basin Site); Lawrence Livermore Laboratory (DOE), Main Site, Alameda County, CA.

#### **ATSDR Symposium Peer Reviewer:**

Bioavailability of Mercury Symposium, Atlanta, 1996.

#### **Final Reports:**

1. An Assessment of the Chronic Toxicity and Oncogenicity of Aroclor 1016, Aroclor 1242, Aroclor 1254, and Aroclor 1260 Administered to Diet Rats. Chronic Toxicity and Oncogenicity, Volumes I and Final Neurotoxicity and Neuropathology Report, Volumes I and II.
2. Characterization of PCB Composition, Tissue Accumulation, and Correlations with Tumorigenicity in Chronically dosed Male and Female Sprague-Dawley Rats.
3. PCB Congener Profile in the Serum of Humans Consuming Great Lakes Fish
4. Rutland, VA Municipal Waste Combustor Study



5. The Effects Exerted upon Beagle Dogs during a Period of Two Years by the Introduction of 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,endo-5,8-dimethanonaphthalene into their Daily Diets
6. Intellectual and Behavioral Effects of Lead Poisoning in Children.
7. Housatonec River Area PCB Exposure Assessment Study.
8. Cancer Incidence in Populations Living near Radiologically Contaminated Superfund Sites in New Jersey
9. The Great Lakes Human Health Effects Research Program.
10. Evaluation of the Boston Study of the Effectiveness of Soil Abatement in Reducing Children's Blood Lead Level.
11. IQ, Lead Level, and Inferences from Research Studies.
12. Portable Instruments for Measuring Airborne Metals.
13. Oak Ridge Screening Level Report
14. Child and Adult Urinary Creatinine Concentrations from Three Washington State Study Data Sets: Comparison with the World Health Organization (WHO) Guidelines for Acceptable Specimen Limits and Effects of Age, Gender, and Ethnicity
15. Cohort Mortality Study of Capacitor Manufacturing Workers, 1944-2000.
16. Evaluating the Associations between Air Quality and Adverse Health Effects: an Ecological Approach to Hypothesis Identification and Prioritization
17. Linking National Ground Water Data on the Occurrence of Chemical Contamination with Adverse Health Outcomes: a County-level, Ecological Study.
18. Cancer Incidence and Residence Near Landfills with Soil Gas Migration Conditions: New York State Follow-up Study, 1980-97.
19. A Review of Lead Exposure Risk Areas and Community Interest in Further Health Studies in Herculaneum, Missouri
20. Simultaneous Quantification of Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), and Pharmaceuticals and Personal Care Products (PPCPs) in Mississippi River Water, in New Orleans, Louisiana, USA.
21. New Orleans Soil Lead (Pb) Cleanup using Mississippi River Alluvium: Need, Feasibility, and Cost.
22. Potential Lead on Play Surfaces: Evaluation of the "PLOPS" Sampler as a NEW Tool for Primary Lead Prevention.
23. Love Canal Follow-up Health Study-Mortality.
24. Oral Cleft Defects and Maternal Exposure to Ambient Air Pollutants in New Jersey.

**C. National Institute for Occupational Safety & Health Reviewer:**

1. Intramural Research Reviewer, Direct Reading Techniques for Metals, 2005
2. Prime Reviewer for *Analytical Chemistry Section Sampling and Analytical Method Development for Diacetyl and other Flavor Compounds in Research on Diacetyl and Food Flavorings: A Study Protocol* at the Public Meeting, 5555 Ridge Avenue, Cincinnati, Ohio, April 2, 2008.
3. Reviewer for Direct Reading Methods Initiative intramural grant applications 2009
4. University of Massachusetts Lowell Site Review Team, Center Grant on the Department of Work Environment, 2009

**D. National Toxicology Program Research on Carcinogens**

Captafol/o-Nitrotoluene, Oct 15/17, 2007

Styrene, July 21/22, 2008

**E. National Institutes of Health**

Site Program Project Reviewer, PCBs in Upstate New York, University of New York at Albany, 1999

**F. U.S. Agency Grant Reviewer Timelines**

USEPA, 1982+

National Science Foundation, 1988+

National Institutes of Health

Ad-hoc Member, Epidemiology and Disease Control Section, 1996-99

ATSDR, 1997+

Health Effects Institute, 1998+

Housing and Urban Development, 1998+

National Institute for Occupational Safety and Health, 1999+

US Army Research Office, 2005+

**G. World Health Organization Environmental Health Criteria Document Reviewer:**

Aluminosilicates; Xylenes

**H. Advisory Board Membership**

State of the Art Series in Laboratory Methodology in Biochemistry, CRC Press, 2000 Corporate Blvd. NW, Boca Raton, FL 33431, 1987+

Gay Histories and Cultures: An Encyclopedia, Ed G Haggerty, Garland Publishing, New York, 1995+.

**I. Editorial Board Memberships:**

Biological Monitoring, CRC Press, 2000 Corporate Blvd. NW, Boca Raton, FL 33431, 1988-90

## UNIVERSITY COMMITTEES:

### University of Cincinnati 1978-1989

#### **Department of Environmental Health**

Member, Instrumentation Committee, 1979-1986  
Chair, Instrumentation Committee, 1982-1986  
Member, Search Committee for Selection of the Analytical  
Section Head, 1982-1983  
Chair, Ad-Hoc Departmental Poster Committee 1984-1985

#### **Division of Environmental Science, Safety, and Engineering**

Member, Curriculum Committee, 1980-1984  
Member, Admissions Committee, 1984-1989  
Member, Outreach Committee, 1985-1989

### University of California 1989+

Member, Affirmative Action Committee, 1993-1995

### University of California at Los Angeles

#### **UCLA Academic Senate**

##### **Chairperson**

Equal Opportunity and Affirmative Action, 1993-94  
Diversity and Equal Opportunity, 1994-95

##### **Member**

Graduate Opportunity Fund Program Subcommittee, 1991 (E. Keller, Chair)  
Equal Opportunity and Affirmative Action, 1992-93 (A. Tymchuk, Chair)  
Council on Diversity, 1993-95 (R. Paredes, Chair)  
Diversity and Equal Opportunity (Immediate Past Chair Guest), 1995-96

**Note: As Chairperson and Member of the Academic Senate Committees on Affirmative Action and Equal Opportunity (1993-94) and Diversity and Equal Opportunity (1994-95) developed: brochure for the Targets of Opportunity Program; Faculty Affirmative Action Plan(1995); UCLA Faculty Mentorship Plan; requirements for a UCLA Diversity Award; and a UCLA Diversity Plan. Urged adoption of a Gay/Lesbian Studies Program Undergraduate Minor and of a U.C. Domestic Partners Benefits Plan**

#### **Coordinating Council of the Chancellor's Task Force on Lesbian, Gay and Bisexual Studies.**

Representative for the Department of Environmental Health Sciences, and the Interdepartmental Environmental Science & Engineering Program, 1994

### **UCLA Administrative Board**

Member Safety Programs Board, 1998-99, (Asst. Vice Chancellor Naples, Chair)  
Advised on the scope and performance of UCLA service advisory boards and safety programs

### **ASUCLA Communications Board**

Faculty Advisor, 2001+

### **School of Public Health**

#### **Chairperson**

SubCommittee on Student Affairs, 1991-92, 1994-1995, 1996-97

**1991-1992:** Revamped Travel Awards procedures and documentation;

**1994-1995:** Developed strategic plan for APHA site visit relative to student issues

**1996-1997:** Developed classroom scheduling guidelines

Educational Policy and Curriculum Committee, 1992-93:

Abolished the SPH Comprehensive Examination for MPH students

Committee on Laboratory and Equipment, 2001-2006

Made the Subcommittee responsive to all SPH Departments

Wrote a grant application for an ICP-MS that was funded

Made a successful request to the Dean for instrumentation funds of \$50,000 for a REAL Time Polymerase Chain Reaction instrument worth \$85,000.

Made a successful request to the Dean for instrumental funds of \$40,000 for an automatic sampler for a PCR.

#### **Vice-Chairperson**

Student Issues Committee, Strategic Planning Committee, 1993

#### **Member**

Research Committee (J. Blake, Chair, 1989/90; H. Morgenstern, Chair, 1990/91), 1989-91

Laboratory Committee, 1989-90 (W. Hinds, Chair);

Health Careers Opportunities Program Summer Opportunities Program,

(W. Cumberland, 1990, Chair; H. Morgenstern, Chair, 1991, Chair), 1990-91

Equipment and Laboratory Committee: 1990-91 (C. Eckhert, Chair);1997-98 (Scott Layne, Chair); 2006-8 (Sin Min Liu, Chair)

Ad-hoc Committee on Alumni Relations (S. Sofaer, Chair), 1991.

Educational Policy and Curriculum Committee (H. Morgenstern, Chair),

1991/1992;(W Winer, Chair), 1994-96;(J. Kraus, Chair), 1996-1997;2008+ (G.Kominski, Chair)

Ad Hoc Strategy Committee relative to the Professional Schools Restructuring Initiative, 1993

Ad-hoc Committee for Faculty Promotion for Michael Collins,1994.

Ad-hoc Committee, Health Careers Opportunity Program (A. Afifi, Chairperson), 1994-1995

Ad-hoc Committee, UCLA Community Health Promotion Program, S. Wallace (Chair), 1999+.

Ad-hoc Committee on Public Health Practice, 2005-6 (R Bastani, Chair).

## **Department of Environmental Health Sciences**

### **Chairperson**

Recruitment and Alumni Relations Committee 1990-1995.

Produced above quota student applications and admissions from below quota;

Issued first Alumni Newsletter for the Department;

Issued first Department brochure;

Developed an Exit Questionnaire for graduates of the Department;

Search Committee for Environmental Toxicologist, 1992-93.

Successful recruitment of Dr. Michael Collins as Assistant Professor, 1993

Academic Policy and Procedures 1997-1999

Designed Department guidelines for doctoral and master's students

Admissions and Financial Aid Committee, 2000-2007

Developed formal written guidelines for Department student admissions and funding

Developed EHS Guidelines for Ph.D. students of the Department

Developed Funding Guidelines for Students

Developed Application Forms for Student Financial Aid

Developed Prospective Student Recruitment Day Optimization

Developed Guidelines for Student Prizes and Awards

Developed revised criteria for the ARCO Fellowship relative to student funding

Developed written standard procedures for the Committee;

Evaluated all Masters applications

Ad-hoc Committee on Faculty Overdrafts, 2003

Resolved an overdraft involving a specific professor

As a result of this case, I developed Department Guidelines on Faculty Financial Responsibilities (Dec 9 2003 final)

Developed Forms acceptable to both Faculty and the Department Financial office

### Member of Other EHS Committees:

Outreach Committee 1989-91

Seminar Committee, 1989-91, 1995-1996

Admissions and Financial Aid Committee 1989-1995; 1999-2000

Academic Policy and Procedures Committee 1990-93

Search Committee for Biologist/Ecologist, 1990

Ad-hoc Committee on Faculty Peer Review, 1991.

Search Committee for Toxicologist, 1991

Ad-hoc Promotion Evaluation Committee for Dr. Diane Perry, 1993/94  
Recruitment and Alumni Relations Committee 1995-99  
Ad-hoc Committee on EHS Space, 1996.  
Admissions and Financial Aid, 1999+

**UCLA Center for Occupational & Environmental Health**  
Co-Coordinator UCLA COEH Student Awards, 1996-1998

## TEACHING

### University of Cincinnati (1978-89)

#### *In Charge*

Instrumental Methods of Analysis of Pollutants II 26-904-902

Instrumental Methods of Analysis of Pollutants III 26-904-903 Spectroscopy - Sole lecturer

Direct Reading Instruments - Sole lecturer/sole laboratory instructor

1979 to 1982: Environmental Hygiene and Safety Seminar 26-904-819, 820, 821

Human Biological Monitoring and Biological Markers 26-904-843- **second such course taught in the United States**

Hazardous Waste Analysis 26-904-880- first such course in the United States

Suggested, originated, and developed these last three courses

#### *Contributory Lectures:*

Environmental Hygiene and Safety Technology I 26-904-707

Air Sampling and Analysis II 26-904-708

X-Ray Diffraction

Gas Chromatography/Mass Spectroscopy

Specific Ion Electrodes/Voltammetry

Environmental Hygiene and Safety Technology 26-904-709

Pesticides

Instrumental Methods of Analysis of Pollutants I 26-904-901

Libraries and Chemical Information

Gas Chromatography/Mass Spectroscopy

Metals in the Biological System 26-904-884

Physical and Chemical Properties of Inorganics  
and Inorganic Complexes

Analytical Methods for Metals

Analytical Toxicology 26-904-881

Atomic Absorption and ICP-AES Analysis

People and the Environment I (Geography Department) 15-041-361

Pesticides (2 lectures)

#### *Laboratory Supervision:*

Air Sampling and Analysis

SO<sub>2</sub> Experiment: 26-904-707

NO<sub>2</sub> Experiment: 26-904-707

Radioactivity Experiment: 26-904-708

Toxicology Laboratory and Instrumentation 26-904-842

## Atomic Absorption Spectroscopy

### *Other Teaching Activity:*

1. Prepared "How to Find Chemical Information in the Libraries at UC," housed in the Kettering Library
2. Lecturer in Continuing Education Short Courses given in the Department 1978-89:

Industrial Hygiene Chemistry: NIOSH 590 (GC/MS Spectrometry): Supervised two labs (Spectrophotometry; Century OVA)

Industrial Hygiene Measurements: NIOSH 550:

Adsorption

Biological Monitoring:

**Conceived and developed this course, the first of its kind in the United States (1986).**

### **UCLA Teaching:**

*In Charge (Since 1989 unless stated otherwise)*

Biological Monitoring In Occupational/Environmental Health (4) EHS 256

Identification and Measurement of Gases & Vapors (4) EHS 252E [pre-1989 course]

Identification and Analysis of Hazardous Waste (4) EHS 258

Instrumental Methods in Environmental Sciences (Suffet also) (4) EHS 410A

Instrumental Methods in Environmental Sciences Laboratory (4) EHS 410B

Industrial Hygiene Measurements Laboratory (Hinds, Kennedy also) EHS 252F [pre-1989 course]

Industrial and Environmental Hygiene Assessment (Hinds, Kennedy also) 1995+ (4)

EHS 252G

Environmental Chemistry Seminar (2) 1994+ EHS 202

Environmental Health Sciences Doctoral Seminar (2) 1998,2004 EHS 205

### *Contributory Lectures:*

Health Hazards Manufacturing Processes (Hinds, Kennedy) EHS 254 (Hinds-Liu)/454  
1989+

Fundamentals of Environmental Health Sciences (Froines, Davos, Colome) EHS 200A  
Chemicals in the Environment 1998-2003, 2009+

Fundamentals of Environmental Health Sciences (Davos, Eckhert) EHS 200B Hazardous  
Waste 2003-2005

### *Guest Lectures:*

Occupational Diseases 1989 (Harber, Froines) EHS 251

Ethnic, Cultural, and Gender Issues in America's Health Care System (Kominski) , 1997-9  
HS 110

Health Assessment, Research, and Health Promotion in Occupational Health (Robbins) Gloves  
Nursing 213B, 2008



*Environmental Chemistry Master of Science Academic Track Director 1992-2009*

18 Master of Science students graduated, mostly in the period 1992-1995 when the track students were supported with funds from UCLA COEH.

Water Quality became a separate track in 1996 and Air Quality in 1997 until all academic Master of Science tracks were terminated in 2009. The other functions of the track (research and administration) were supported by UCLA COEH until 2005.

**2008 Sabbatical Teaching, Institute of Environmental Health, National Taiwan University, Taipei, Taiwan:**

**a. Taught a 3-hour/week course for 12 weeks September 22-December 15 2008:**

*“Identification and Analysis of Gases & Vapors”* Course 844 U1320 for 10 weeks on every Monday in English in the Institute of Environmental Health. This course also featured 4 assignments, a midterm, an oral final, and a written final.

**b. Guest Class Lectures at NTU:**

November 5, 2008: *Hazardous Waste:* 3- hour lecture in course 844 M1180 *Environmental Health.*

December 3, 2008: *Inductively Coupled Plasma Techniques for Multielemental Analysis* in Course 844D1020 *Consultation in Industrial Hygiene*

**c. Guest Class Lecture at Department of Environmental & Occupational Health, Fu-Jen Catholic University, Shin-Chuang.**

November 18, 2008: Biological Monitoring.

## **STUDENTS**

### **Visiting Scholar:**

**Mansur Azari**, B.S., M.S., Ph.D., College of Public Health, Shahid Behashti Medical University, Tehran, Iran, October 2001-March 2002 (1 publication)

### **Postdoctoral Research Associates:**

1. **Dr. Ashok Kumar Giri, 1984** (Center for Advanced Studies in Cell & Chromosomal Research, Department Botany, University Calcutta, Calcutta, India, 700-019). 1988 Post-Doc. (1 publication).
2. **Dr. Chin-Cheng Chou, 1993/1994** (National Taiwan University) (1 publication)
3. **Dr. Yu-Wen Lin, 1997-98** (National Taiwan University) (1 publication)
4. **Dr. Shih-Wei Tsai, 1998** (National Taiwan University) (1 publication)
5. **Dr. Weiguang Zhong, 2003** (First Military University, Guangzhou, China) (1 publication)

## **STUDENT THESES**

The period from 1980 through 1989 applies to the University of Cincinnati, and 1990 onwards to UCLA except where noted otherwise

### **Doctor of Philosophy (15 since 1984)**

1. James Gideon. 1984. The sorption of selected structural organic isomers and homologs on charcoal under industrial hygiene sampling conditions.  
Section Chief, NIOSH, Cincinnati. Presently practising physician, Cincinnati, OH.
2. Orisa John Igwe. 1985. Interaction of 1,2-dichloroethane and disulfiram  
Assistant/Associate Professor of Pharmacology, Univ. Missouri in Kansas City.  
Presently, Professor
3. Jia Ming Lin. 1986. Volatilization and perchlorination of polychlorinated biphenyls.  
Professor of Public Health, National Taiwan University. Became Department Chairperson.  
Presently, Emeritus.
4. Mary Ann Newman. 1986. Biological monitoring for antineoplastic drugs.  
Presently Head of her own company, *Healthcare Environments*, Cincinnati OH
5. Devon Anthony Cancilla. 1991. The development of analytical methods for aldehyde byproducts in ozone treated waters.  
Section Chief, Canadian Inland Waters, Burlington ONT; Assistant Professor in Residence, Huxley College of Environmental Studies, Western Washington University, Bellingham WA  
Presently: Director of Scientific Technical Services, Western Washington University, Bellingham WA.

6. Chin-Cheng Chou. 1993. The Microtox bioassay: its application to chewing tobacco toxicity and biological monitoring  
Assistant/Associate Professor of Veterinary Medicine, National Taiwan University.  
Presently, Professor
7. Clinton Cox. 1995. Urinary 2-thiothiazolidine-4-carboxylic acid, thioethers, and compounds responsive to the iodine-azide test as biomarkers for carbon disulfide exposure of rats and humans.(University of Cincinnati)  
Section Chief in NIOSH, Cincinnati and US EPA, Montgomery, AL.  
Health and Safety Officer, Stanford University CA.  
Presently, Environmental Consultant, Montgomery, Ala.
8. Yu-Wen Lin. 1997. Permeation of malathion and 2,4-D formulations through different protective glove materials.  
Consulting computer specialist, Los Angeles CA 1997-2002.  
Assistant Professor, Department of Industrial Safety and Hygiene, Fooyin University, Taiwan.  
Presently, Associate Professor
9. Chi-Yu Huang. 1997. The anaerobic biodegradation of the high explosive octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) by an extremely thermophilic anaerobe *Caldicellulosiruptor owenensis*, sp.nov.  
Assistant Professor of Environmental Science, Tunghai University, Taichung, Taiwan.  
Presently, Associate Professor.
10. Shih-Wei Tsai. 1998. A new passive sampler for aldehydes in air based on PFBHA-coated Tenax.  
Assistant/Associate Professor of Occupational Safety and Health, China Medical College, Taichung, Taiwan  
Presently, Associate Professor, Dept Environmental and Public Health Sciences, Taiwan National University.
11. Sun-Hee Yim. 1999. Interactions of nicotine and its metabolites in mutagenic bacterial bioassays.  
Post-doctoral Fellow, National Cancer Institute, Bethesda, MD, 2000-2005  
Presently, resident in Korea.
12. Ju-Chien Tso. 2002. Determination of Aldehydes in Air and Water by the PFBHA Solid Sorbent Method.  
Presently Analytical Laboratory Director in Albany, New York.
13. Weiguang Zhong. 2003. DNA Adducts of Formaldehyde as a Biological Monitoring Marker.  
Postdoctoral fellow, Dept Dentistry, University of California at Los Angeles 2003/4; Dept. of Medicine and Physiology 2004/6.  
Presently, passed MDlicensing examination.

14. Robert Phalen. 2006. Field and Laboratory Methods for Evaluating Glove Permeation of Pesticides.

Presently, Assistant Professor, California State University, San Bernadino.

15. Wenhai Xu. 2007. Glove Permeation Studies with Cutting Oils.

Presently: Occupational Health Company, Health Sciences Associates.

16. Sayaka Takaku. In Progress. Air Sampling Methods for Diacetyl and Acetoin.

### **Master of Science**

#### **University of Cincinnati**

1. Walter H Mengel. 1980. Computer evaluation of optical radiation hazards.

2. H Coleman Robinson. 1980. The role of synergism in chemical and physical agents as reported in NIOSH criteria documents

3. Joseph Russo. 1981. The evaluation and development of a solid sorbent sampling method for 2-ethylhexanol

4. Ralph Zumwalde. 1981. Industrial hygiene characterization of a hard rock gold mine.

5. R Ken Wallingford. 1982. Occupational exposure to benzo[a]pyrene

6. Colin Brownlow. 1983. The evaluation and development of solid sorbent sampling techniques for Aroclor 1254

7. Mary A Newman. 1984. Comparison of three methods for cholinesterase activity in blood serum

8. Scott A Knox. 1984. Evaluation of several techniques for formaldehyde vapor quantitation

9. Don Cagle. 1984. Occupational exposures to chlorinated dibenzofurans

10. Glenn Soyer. 1984. Humidity effects on chlorinated hydrocarbon sampling

11. Mary C Gawenda. 1985. Optical radiation transmission curves of transparent welding curtains.

12. Joseph Schirmer. 1985. Chemical hazards associated with sand-binder systems in foundries.

13. I Nong Lee. 1986. Additivity of photoionization and flame ionization detector portable instruments for multicomponent mixtures of organics.

14. Jerome Harville. 1988. Permeation of a 2,4-dichlorophenoxyacetic acid ester formulation through neoprene, nitrile, and teflon gloves.

15. Raymond W Boucher. 1989. Micronucleus bioassay for urine.

16. Manori Silva. 1989. Chemiluminescent photographic badge detection method for ozone

17. Debbie Hurst. 1996. Photochemically-initiated events in selected classes of compounds

### **UCLA**

1. Jui Hsu. 1991. Direct reading passive sampling for aromatic hydrocarbons.

2. Li-Jue Wu. 1992. Developing a new aldehyde solid sorbent sampling tube.

3. Diana Elaine Cosgrove. 1992. Certification of industrial hygienists: a questionnaire.

4. Alexander Jehlar. 1993. O-(2,3,4,5,6-pentafluorobenzyl)hydroxylamine hydrochloride reaction with selected carbonyl compounds.

5. Yu-Wen Lin. 1993. Permeation of two malathion formulations through protective materials

6. Xuesong Lu. 1993. Permeation of methomyl through gloves

7. Anthony L. Moeller. 1994. A comparison of methods for the detection of elements in fish fillet.
8. Hsing-Feng Chen. 1995. Microtox test toxicity for ketones
9. Chin-Hsiang Tsai. 1995. Permeation of trimethylbenzenes through protective materials.
10. Xiaoxing Chen. 1996. Endosulfan permeation through nitrile gloves.
11. Arslan A Khan. 1996. Permeation of chlorpyrifos formulation through protective materials.
12. Soo Young Kim. 1997. Optimized portable cordless vacuum method for sampling dry, hard, surfaces for dusts.
13. Karina Wiesenthal(Mnatsakanova). 1997. Determination of low molecular weight aldehydes and ketones by high performance liquid chromatography of their PFBHA O-oxime derivatives.
14. Keummi Park. 1999. Microtox test as a validation method for surface sampling of bacteria in dust.
15. Douglas Chapin. In Progress. The Effect of Hydrogen Peroxide and Ultraviolet Light as an Advanced Oxidation Treatment Method for TCE and PCE Contaminated Groundwater

**UCLA Ph.D. Committee Memberships:**

Felipe Alariste-Mondragon; Derrick Benn (Chemistry); Pen-Yuan Chen (Environmental and Civil Engineering); Robert C. Cheng (Civil Engineering); Danny Kim; David Kimbrough; David K La; James Noblet; Peng-Cheng Sung; Patrick Wilson; Karen E. Young

**UCLA Environmental Science and Engineering D. Env.Student Committees Memberships:**

Marijke Lynne Bekken; Gino Cesar Bianchi; Eric Fugita; Gerald Edwin Greene; Cynthia Ha; Khashaiar Lashgaribroojerdi; Xavier Swamikannu;

**UCLA EHS Master's of Science Student Committee Memberships:**

Myranda Austin; Tammy Cohen; Diana Elaine Cosgrove; Catherine Mary Crespi; Eric Jeffrey Duell; Danny Kim; Karen Ko; Ann M. Lesperance; Elad Marish; Airek Mathews; Robert Phalen; Tammy Marie Riggs; Rose Siegensubcharti; Sayaka Takaku; Samantha Yaussy-Chua; Karen Young.

**UCLA Master of Public Health Student Advisorships:**

Joyce A. Brown; Austin Chan; Kabir Chopra; Sulagna De; Chin Pong Peter Diu; George Hsu-Hung Hsieh; Laura L. Kiobassa; Young J Kim; Jean Kuo; Calvin Kwan; Marcel Estrella Mendoza; Chi Chi Deborah Oguine; Bradley Walker; Timothy White

## **OTHER SERVICE**

**UCLA:** Director,-UCLA--ICP-MS--Facility,2004+; <http://www.ph.ucla.edu/ehs/icp.htm>

### The UCLA Inductively Coupled Plasma Mass Spectrometry Facility

**DIRECTOR: Professor Shane S. Que Hee CHS 56-085**

Phone: (310)206-7388 Fax: (310)794-2106 E Mail (Preferred):  
[squehee@ucla.edu](mailto:squehee@ucla.edu)

#### **ICP-MS FACILITY AT UCLA**

The UCLA inductively coupled plasma-mass spectrometer (ICP-MS) facility was created when a Shared Instrumentation Grant submitted by the Facility Director to the National Institutes of Environmental Health Sciences (NIEHS) was funded in 2003 for \$284,867 to further the research of NIH and other federal agency research grantees at UCLA, the University of California, and other interested Universities, companies, and research organizations. Generous support from Dean Linda Rosenstock also was essential.

The award resulted in the acquisition of:

- An Agilent 7500c quadrupole ICP-MS with hydrogen/helium octopole collision cell to minimize argon and oxygen isobaric interferences, and equipped with automatic sampler introduction and with concentric and microflow nebulization. Isotope and isotope dilution techniques are also facilitated.
- An Agilent 1100 Liquid Chromatograph equipped with autosampler and LC-MS interface (atmospheric ionization/electrospray)
- An Agilent 6890N gas chromatograph equipped with a parallel flame ionization detector and GC-MS interface
- An Agilent G1602A Capillary Electrophoresis system equipped with autosampler, variable wavelength ultraviolet-visible detector, and MS interface

Thus liquids can be analyzed via the 2 nebulization modes to obtain elemental content in a multielemental manner at parts per trillion concentrations for each sample. Chemical and biological speciation is also possible via the chromatographic introduction systems.

## WHAT CAN BE ANALYZED?

- | <b>ENVIRONMENTAL SAMPLES •</b>   | <b>ELEMENTS ANALYZABLE</b>  |
|--|---|
| <ul style="list-style-type: none"> <li>Drinking, ground, sea, lake, and river waters • Soils, dusts, and rocks • Dust wipe samples • Aerosol samples • Turbid liquids • Air samples (midjet impinger or solid sorbent) • Hazardous and solid wastes</li> </ul> | <p><b>GENERAL QUANTIFIABLE LIMITS</b></p> <p>≤0.05 ppb (ng/mL)</p> <p>Ag, Bi, Ce, Cs, Eu, Gd, Ho, In, La, Lu, Nb, Nd, Pr, Rb, Rh, Sm, Sr, Ta, Tb, Th, Tl, Tm, U, Y, Zr</p>  |
| <ul style="list-style-type: none"> <li><b>BIOLOGICAL SAMPLES •</b> Blood, plasma, saliva, and urine • Tissues like organs • Plant materials (vegetables/crops) • Hair, skin, nails, teeth</li> </ul>   | <p>0.05-0.1 ppb</p> <p>Au, Ba, Be, Cd, Co, Cr, Dy, Er, Ga, Ge, Hf, Hg, I, Ir, Li, Mg, Mn, Mo, Pb, Pd, Pt, Re, Ru, Sb, Sn, Te, V, W, Yb, Zn</p>  |
| <ul style="list-style-type: none"> <li><b>FOODS •</b> Liquids like beverages (sodas, wine, beer, supermarket drinking water) • Solids like tea, coffee, fish, meats, market vegetables, food containers</li> </ul>   | <p>0.1-1 ppb As, B, Cu, Ni, Sc, Ti</p> <p>1-10 ppb Al, Br, Na, P, Se</p> <p>10-100 ppb Ca, Fe, K, S, Si</p>   |
| <ul style="list-style-type: none"> <li><b>RESEARCH &amp; DEVELOPMENT MATERIALS •</b> Semiconductor materials • Nanotechnology solid substrates • Engineering materials • Metal alloys • Organometallics • Metallic parts</li> </ul>                            | <p>&gt;100 ppb Cl, N, O, Xe</p> <p>F, He, Ne, Ar, and Kr cannot be analyzed.</p> <p>Lower limits are achievable if sampling, handling, and processing are done entirely in clean Teflonware/plasticware (NO GLASS!), and in Class 1000 or better clean rooms.</p> |

Collaboration and Chromatographic Analyses:  
Contact the Director

## WHAT WE CAN DO FOR YOU?

We can:

- Write the analytical sections of your grant application if you wish to collaborate directly, and do a budget for that section. In that case, support for the ICP-Facility Director will be requested as well as ICP-MS Operator support, as negotiated. In return, lower grant costs will occur because of bulk costs of supplies.
- Allow graduate students/staff to be trained. ICP-MS Operator time for the training must be supported.
- Give you advice on how to handle, process, and transport your samples.

You can:

- Order samples analyzed machine-ready in 5% (v/v) nitric acid or provide them to be digested. Please fill in the order form.
- Write in ICP-MS operator salary into your grant applications (a minimum of 5%) and get reduced analysis prices according to the proportion of operator support.

## ORDERING INFORMATION AND PRICES

Elements to be Analyzed (Insert below or circle) \_\_\_\_\_

Elemental Sensitivity Desired (Please indicate elements or ppt,ppb,ppm overleaf near circled element) \_\_\_\_\_ppt (pg/mL); \_\_\_\_\_ppb (ng/mL) \_\_\_\_\_ppm ( $\mu\text{g/mL}$ ); All: \_ppt \_ppb\_ppm Report (please tick) as gram per \_\_\_mL; \_\_\_g (wet weight); \_\_\_g(dry weight)

Payment: Please complete a P39 form with the Full Accounting Unit (FAU) if UC

Payment Address: Please Provide Full details including E mail, Fax, Phone, Zip, Contact Person.

Fee for Service Prices ( Nebulized Liquids)

Standard: \$30 per element per sample for 1-5 elements (not machine ready); \$15/element for 6-10 elements/sample; \$10/element for 11-20 elements/sample; \$8.50/element for 21-30 elements/sample. If machine-ready, multiply by 0.7.

Bulk Rates Per Element Per Sample For Many Samples Submitted At One Time: half-price for 100-500; one-third price for 500-999; quarter-price for 1000-1,500.

Turnaround Rates Per Element/Sample: Above, 10-day standard; 5-day, twice standard; 1 day, 4 times standard.

Chromatographic Analyses: \$160/sample with the above bulk, multielement rates.

Terms are 50% when placing an order, the rest is due after results received.



## **RESEARCH**

### **A. Awarded Grants and Contracts**

#### **As Principal Investigator or Co-Principal Investigator**

1. Dover Foundry, Cincinnati, OH, *Industrial Hygiene Studies*, 1978-1982, \$25,000.
2. NIOSH Contract No. 211-80-0036 (Co-PI, Finelli), *The Effect of Aluminum Inhalation on Animals*, 1980, \$20,000.
3. U.S. EPA Contract No. 68-03-2929 (Co-PI, Finelli) through Tech Data Inc., Preparation of Criteria Documents for Dibenzofurans and Iron and its Compounds, 1980, \$19,500.
4. Mabbett and Company, *PCB and Dibenzofuran Sampling*, Boston, MA, 1982, \$10,000.
5. U.S. EPA Contract for ECAO-CIN-423/426, *Preparation of Chemical Assessment Documents for Endrin and Toxaphene*, 1983, \$49,000.
6. U.S. EPA Subcontract for ECAO-CIN-440, *Preparation of Research and Development Drinking Water Criteria Document for Polychlorinated Biphenyls*, 1986, \$15,000.
7. Microbics Corporation Grant LS071790, *Aldehyde Ozonolysis Byproducts Toxicity*, 1989, \$10,000.
8. UCLA School of Public Health Biomedical Research Grant 4-528103-29776, *Chemiluminescence from Model Biological Systems*, 7/1/90-6/30/91, \$2,973.
9. University of California Toxic Substances Research and Teaching Program, *Ozonolysis Byproducts and Microtox Toxicity*, 7/1/90-6/30/91, \$45,616.
10. UCLA Academic Research Grant 4-595954-19900-07, *Direct-reading Passive Samplers for Hydrocarbon Vapors*, 7/1/90-6/30/91, \$3,500.
11. UCLA School of Public Health Biomedical Research Grant 4-528103-29776, *Direct Passive Monitoring for Hydrocarbons*, 7/1/91-6/30/92, \$3,800.
12. UCLA School of Public Health Biomedical Research Grant 4-528103-29776, *Permeation of Malathion through Protective Materials*, 7/1/91-3/31/92, \$3,437.
13. Metropolitan Water District of Southern California Agreement No. 3399, *Ozonolysis Byproducts Research*, 9/30/91-6/30/93, \$41,203.
14. UCLA Center for Occupational and Environmental Health Grant No. 4-437160-19900, *Development of an Air Sampling Method for Aldehydes*, 2/1/92-6/30/92, \$9,996.06.
15. UCLA Academic Senate Research Grant No. 4-595954-19900-07, *Differential Solubilization of PCB Congeners in Water*, 7/1/92-6/30/93, \$3,894.
16. NIOSH/CDC RO1 OH02951, *Permeation Mechanisms of Pesticides through Materials*, 9/30/92-11/30/95, \$269,507.
17. UCLA Graduate Division, *Funds for Recruitment of Graduate Students*, October 2, 1992, \$750.
18. Las Virgenes Municipal Water District Agreement No. 4-4445946, *Enhanced Monitoring Program for Malibu Creek and Malibu Lagoon*, 3/1/93-5/31/94, \$14,038. Co-PI with R. Ambrose and I.M. Suffet with total grant value \$97,988.
19. UCLA Graduate Division, *Funds for the Recruitment of Graduate Students*, October 15, 1993, \$750.

20. UCLA Graduate Division, *Funds for the Recruitment of Graduate Students*, October 15, 1993, \$750.
21. NIOSH/CDC RO1 OH03120, *Carbonyl Compounds Air Sampling Method*, 09/01/95-08/31/99, \$515,000.
22. UCLA Academic Senate Research Grant No. 4-595954-19900-07, *Genotoxicity of Tobacco Compounds*, 9/1/95-3/1/96, \$3,500.
23. University of California Coastal Toxics Grant No. 4-155952-19909, *Metals in Plants at Mugu Lagoon*, (Co-PI, R. Ambrose), 7/1/96-6/30/97, \$15,000.
24. NIOSH/CDC per University of Southern California Award H16900, *DNA Adducts of Formaldehyde in-vitro and in-vivo: Biological Monitoring of Dose and Effect*, 11/22/99-06/30/2000, \$15,000. (Weiguang Zhong, Student).
25. NIOSH/CDC RO1 OH03911, *Permeation of Irritant Mixtures through Protective Materials*, 06/01/00-05/31/04, \$706,046.
26. UCLA Academic Senate Research Grant No. 4-565950-19914, *Air Sampling Method Development for Ketones*, 07/01/00-06/30/01, \$1,800.
27. NIOSH/CDC ERC Pilot Research Grant, *Detection of Aldehydes and Ketones in Water by PFBHA Solid Phase Extraction Method*, 11/22/00-12/31/01, \$13,000. (Ju-Chien Tso, student)
28. University of California Toxic Substances Research and Teaching Program, *DNA Adducts of Formaldehyde as a Biological Monitoring Marker of Dose and Effect*, Award No. 01082573, 07/01/2001-06/30/2003, \$50,000. (Weiguang Zhong, student).
29. Association of Schools of Public Health/NIOSH/CDC, *Field Glove Permeation Instrumental Methods Development*, Award No. S1891-21/21, 10/01/01-09/30/02, \$100,000.
30. NIOSH/CDC ERC Pilot Research Grant, *Permeation of Captan through Glove Materials using ASTM Method F739 with Comparison to a New FT-IR Method for Validation of Personal Protection*, 02/01/2002- 06/30/2002, \$1,700. (Robert Phalen, Student).
31. Association of Schools of Public Health/NIOSH/CDC, *Field Glove Permeation Instrumental Methods Development*, Award No. S1891-21/22, 10/01/02-09/30/04, \$150,104.
32. National Institutes of Environmental Health Sciences, 1S10 RR017770, *Inductively Coupled Plasma-Mass Spectrometer*, 07/01/03-06/30/04, \$284,866.
33. NIOSH/CDC NORA, *Permeation of Captan through Glove Materials by a New FT-IR Method for Validation of Personal Protection*, Pilot Research Grant 785950-V6-29866, 01/01/04- 06/30/04, \$15,910.
34. CEM Corporation, *Microwave Digestions and Derivatizations for ICP-MS Applications*, CEM Grant Program Spring/Summer 2004 Discount Towards Purchase of a Reconditioned Microwave Accelerated Reaction System, \$3,000.
35. UCLA Academic Senate Council on Research, *Metal Working Fluids Hazards in the Environment and Workplace*, July 1 2005-June 30 2006, \$3,000.
36. Southern California NIOSH Education and Research Center, *Influence of Biomechanical Work Factors on the Permeation of Captan Through Gloves*, November 1, 2005-June 30, 2006, \$20,520. With Student R. Phalen.
37. Southern California NIOSH Education and Research Center, *Permeation of Metal Working Fluids Through Disposable Gloves*, November 1, 2005-June 30, 2006, \$20,520. With Student W. Xu.

38. UCLA Graduate Division, Quality of Education Supplement, *Community Environmental Health Stars Research Program*, 2006, \$20,000.
39. UCLA Graduate Division, *Field Studies with Metal Working Fluids*, Quality of Education Supplement, Community Environmental Health Stars Research Program, 2006, \$5,000.
40. Southern California NIOSH Education and Research Center, *Air Sampling Methods for Diacetyl and Acetoin*, November 1 2008-June 30, 2009, \$19,000. With Student Sayaka Takaku.
41. NIOSH/CDC RO1 OH009250, *Whole Glove Permeation/Penetration of Organic Liquids with a Dextrous Robot Hand*, 09/01/09-08/31/12, \$1,060,110.

### **As Co-Investigator**

1. National Institutes of Environmental Health Sciences ES 00159, *Center for the Study of the Human Environment* (PI, Suskind). Justification for Jarrell-Ash 9000 Inductively Coupled Plasma Atomic Emission Spectrometer, 1979, \$131,890.
2. National Institutes of Environmental Health Sciences ES 00159, *Center for the Study of the Human Environment* (PI, Suskind, Albert), 1979-89. Various but above \$1,000,000/year.
3. Research Institute for Fragrance Materials (PI, Tabor), *Development of Analytical Methods for the Measurement and Quantitation of Nitro Musks*, 1982, \$20,000.
4. National Institutes of Environmental Health Sciences, *Behavioral Effects of Lead Exposure in Children/Animals* (PI, Hammond), 1982-89, \$745,300/year.
5. NIOSH/CDC 1T15OH07214, *Industrial Hygiene Training Program* (UCLA PI, Hinds), 7/1/89-6/30/94, \$1,168,081.92.
6. NIOSH/CDC 1T15OH07214, *Industrial Hygiene Training Program* (UCLA PI, Hinds), 7/1/94-06/30/99, \$2,299,114.
7. NIOSH/DOE RO1 CCR912034, *Worker Exposure Assessment and Hazard and Medical Surveillance Program* (PI, Froines), 9/30/95-9/29/99, \$1,135,905.
8. NIH/Fogarty International Center 3D43TWO0623-01, *UCLA-Mexico Collaborative Training and Research Program* (PI, Froines), 9/30/95-9/29/00, \$555,115.
9. NIEHS Announcement 533, *Cooperative Agreement for Model Program for Occupational Respiratory Disease Evaluation and Rehabilitation* (PI, Harber), 9/30/95-8/29/00, \$888,670.
10. NIOSH T42CCT910430, *UCLA Industrial Hygiene Program* (PI, Hinds), 07/01/96-06/30/00, \$501,200.
11. NIOSH T42CCT910430, *UCLA Hazardous Substances Academic Training Center* (PI, Hinds), 7/01/96-6/30/00, \$227,056.
12. NIOSH T42CCT918726, *UCLA Industrial Hygiene Program* (PI, Hinds), 07/01/99-06/30/04, \$501,200
13. NIOSH T42CCT918726, *UCLA Hazardous Substances Academic Training Center* (PI, Hinds), 07/01/99-06/30/04, \$227,056
14. NIOSH T42 OH009412, *UCLA Education Research Center* (PI, Hinds), 07/01/05-06/30/09, \$6,488,150

## **Research Interests:**

Detection and quantitative analysis of organic and inorganic pollutants and carcinogens in industrial and agricultural industries, and in the environment at the ng and pg level;

Development of sensitive personal monitoring methods in industry, and workplace protection factors.

Direct reading instruments, and direct-indicating sensors.

Detection and quantitation of active materials in biological tissues which cause cancer or produce unwanted biological effects.

Liquid chromatography-mass spectroscopy

Gas chromatography-mass spectroscopy

Developmental analytical chemistry dealing with organic, inorganic and organometallic species in-vivo and in-vitro.

Photodecomposition and photosensitization.

Chemiluminescent and bioluminescent analysis.

Multielemental analyses and receptor analyses.

Biological monitoring -screening and specific tests.

Hazardous Waste -field and laboratory methods.

Inductively coupled plasma-mass spectrometry and atomic emission spectroscopy

Organometallic biological compounds

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### **Peer Reviewed Journals (125 from 1971)**

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2. Que Hee, S.S. and Sutherland, R.G. "Penetration of Amine Salt Formulations of 2,4-D into Sunflower," *Weed Sci.* 21:115-118, 1973.
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8. Que Hee, S.S., Sutherland, R.G. and Vetter, M. "The Determination of 2,4-D Concentrations in Air Samples from Central Saskatchewan in 1972, using GLC Analysis," *Environ. Sci. Technol.* 9:62-66, 1975.
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13. Quickenden, T.I. and Que Hee, S.S. "The Spectral Distribution of the Luminescence Emitted During Growth of the Yeast *Saccharomyces cerevisiae* and its Relationship to Mitogenetic Radiation", *Photochem. Photobiol.* 23: 201-204, 1976.
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5. Metabolism pp 103-123
6. Excretion and the Media for Biological Monitoring pp 124-186
7. Medical Surveillance pp 189-202
8. Medical Markers and the Factors that Affect Them pp 203-229
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Chapter 7: Using Results pp. 24-32

Chapter 8: Ethical and Legal Aspects of Biological Monitoring pp. 32-35

Chapter 9: Normative References pp. 35-37

Appendix I: Introduction to Biological Monitoring and Question and Answer pp. 39-61.

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44. Harville, J., Que Hee, S.S., "Influence of Formulation Components on Permeation of a 2,4-D Ester Formulation Through Protective Material", Am. Ind. Hyg. Conf., Montreal, Quebec, Canada, May 31-June 5, 1987. Abstract 271.

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47. Que Hee, S.S., Clark, S.C., Lin, W., "The Performance of the Toxalarm™ Direct-Reading Passive Monitor for Carbon Monoxide", Am. Ind. Hyg. Conf., San Francisco, May 29-June 3, 1988. Abstract 111.
48. Ruuskanen, J., Willeke, K., Que Hee, S.S., Ayer, H., Webster, S., Boyle, J., "Effluent Measurements in a Plasma Processing Reactor", 34th Ann. Tech. Mtg. Institute of Environ. Sciences, King of Prussia, Pennsylvania, May 2-6, 1988. Abstract 490.
49. Sweeney, T., Que Hee, S.S., "Impact of AIDS on the Lesbian/Gay and Heterosexual Communities", Am. Chem. Soc., Toronto, Ontario, Canada, June 5-10, 1988. CHAS 25.
50. Que Hee, S.S., "Biological Monitoring for HIV and the Possible Influences of Workplace/Ambient Chemicals", Am. Chem. Soc., Toronto, Ontario, Canada, June 5-10, 1988. CHAS 33.
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52. Que Hee, S.S., "Permeation of Pesticide Formulations through Glove Materials", Int. Sym. Prot. Clothing: Chemical Protective Clothing Performance in Chemical Emergence Response, Jan. 16-17, 1989, Town and Country Hotel, San Diego, California.
53. Que Hee, S.S., Clark, C.S., Bornschein, R.B., Centers, J., Peace, B., Kuettner, C. "Development of an Efficient Sampling Method for Sampling Street and Sidewalk Dust for Abatement Purposes and to Evaluate Street/Sidewalk Cleaning Techniques", Am. Ind. Hyg. Conf., May 21-26, 1989, St. Louis, Missouri. Abstract 11.
54. Silva, M., Haughey, S. N., Que Hee, S.S., "A Chemiluminescence Method to Detect Gaseous Oxidants", Am. Ind. Hyg. Conf., May 21-26, 1989, St. Louis, Missouri. Abstract 80.
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58. Que Hee, S.S., Boyle, J.R., "Source Apportionment/Tessier Analysis and Availability of Metals by ICP-AES", 7th Internat. Conf. Heavy Metals in the Environment, Sept. 12-15, 1989, Geneva, Switzerland. Session 24.
59. Que Hee, S.S., Willeke, K., Boyle, J.R., Ruuskanen, J., Mantei, T., Jbara, J., "Contamination within a Laboratory Gallium Arsenide Etching System", Am. Chem. Soc., 199th National Meeting, April 22-27, 1990, Boston, Massachusetts. CHAS 37.
60. Cancilla, D.A., Chou, C.C., Que Hee, S.S., "GC/MS of a Homologous Series of Aldehydes after Derivatization". Am. Ind. Hyg. Conf. Expos., May 18-24, 1991, Salt Lake City, Utah. Abstract 334.
61. Que Hee, S.S., "Availability of Lead Found in Paints, Automobile Exhausts and Dusts", Am. Ind. Hyg. Conf. Expos., May 30-June 5, 1992, Boston, MA. Abstract 437.
62. Boucher, R., Livingston, G. K., Que Hee, S.S., "In-vitro Micronucleus Assay with Peripheral Lymphocytes for Detection of Antineoplastic Agents", Am. Ind. Hyg. Conf. Expos., May 30-June 5, 1992, Boston, MA. Abstract 147.
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65. Que Hee, S.S., Lin, Y.W., "Permeation of Malathion Formulations through Nitrile Gloves," Am. Ind. Hyg. Conf. Expos., May 15-21, 1993, New Orleans, LA. Abstract 5.
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82. Yim, S.H., Que Hee, S.S., “Synthesis of *trans*-3'-Hydroxycotinine, a Major Urinary Metabolite of Nicotine”, Am. Ind. Hyg. Conf. Expos., May 18-24, 1996, Washington D.C. Abstract 271.
83. Khan, A., Que Hee, S.S., “Permeation of a Chlorpyrifos Formulation Through Butyl Gloves”, Am. Ind. Hyg. Conf. and Expos., May 18-24, 1996, Washington D.C. Abstract 261.
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96. Tsai, S.W., Que Hee, S.S., "Validation of a Passive Sampler for Aldehydes", Am. Ind. Hyg. Conf. Expos., May 11-15, 1998, Atlanta, GA. Abstract 217.
97. Shen, Y., Que Hee, S.S., "Validation and Optimization of a Solid Sorbent Dynamic Personal Air Sampling Method for Aldehyde", Am. Ind. Hyg. Conf. Expos., May 11-15, 1998, Atlanta, GA. Abstract 211.
98. Shen, Y., Que Hee, S.S., "Sampling and Analysis of Airborne Environmental Aldehydes and Ketones", Am. Ind. Hyg. Conf. Expos., Toronto, Ontario, Canada, June 5-11, 1999. Abstract 15.
99. Tso, J.-C., Que Hee, S.S., "New Analytical Method for Determining Aldehydes in Aqueous Samples", Am. Ind. Hyg. Conf. Expos., Toronto, Ontario, Canada, June 5-11, 1999. Abstract 16.
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102. Shen, Y., Que Hee, S.S., Froines, J.R., "A Surface Sampling Portable Cordless Vacuum Method for Rhodamine 6G," Am. Ind. Hyg. Conf. Expos., Orlando, Florida, May 20-25, 2000. Abstract 340.
103. Tso, J.-C., Que Hee, S.S., Froines, J.R., "Surface Sampling for Soil Impregnated with Chlorpyrifos Formulation," Am. Ind. Hyg. Conf. Expos., Orlando, Florida, May 20-25, 2000. Abstract 328.
104. Zhong, W., Que Hee, S.S., "Isolation and Quantitation of Biological Markers: Formaldehyde-Induced DNA Adducts," Am. Ind. Hyg. Conf. Expos., Orlando, Florida, May 20-25, 2000. Abstract 179.
105. Tso, J.-C., Que Hee, S.S., "Determination of Formaldehyde in Water by Anion Exchange Solid Sorbent Methods with Gas Chromatography/Electron Capture Detection and Gas

Chromatography/Mass Spectrometry,” Am. Ind. Hyg. Conf. Expos., New Orleans, LA, June 2-7, 2001. Abstract 156.

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107. Zhong, W., Que Hee, S.S., “DNA Adducts of Formaldehyde as Biological Monitoring Markers of Dose and Effect,” University of California Toxic Substances Research and Teaching Program, 15<sup>th</sup> Annual Research Symposium, Long Beach, April 5-6, 2002, Poster 107.

108. Zhong, W., Que Hee, S.S., “Comparison of UV, Fluorescence, and Electrochemical Detectors for the Analysis of Formaldehyde-Induced DNA Adducts,” American Industrial Hygiene Conference and Exposition, San Diego, June 1-6, 2002. Abstract 58.

109. Phalen, R., Que Hee, S.S., “Permeation of Captan Formulation Through Nitrile Protective Glove Material”, American Industrial Hygiene Conference and Exposition, San Diego, June 1-6, 2002. Abstract 136.

110. Zainal, H., Que Hee, S.S., “Glove Permeation and Determination of Benomyl in Benlate 50% WP Pesticide Formulation by GC-MS and GC-EC”, American Industrial Hygiene Conference and Exposition, San Diego, June 1-6, 2002. Abstract 137.

111. Tso, J.C., Que Hee, S.S., “Determination of Aqueous Aldehydes and Ketones by Solid Phase Extraction with Gas Chromatography/Electron Capture Detector and Gas Chromatography/Mass Spectrometry,” American Industrial Hygiene Conference and Exposition, San Diego, June 1-6, 2002. Abstract 364.

112. Que Hee, S.S., “Biologically-Based Environmental Exposure Levels (BEELs): The Case for 4,4'-Methylene Dianiline (MDA),” International Conference on Occupational and Environmental Exposures of Skin to Chemicals: Science and Policy, Crystal City, September 8-11, 2002. Poster Abstract 2.9.

113. Zainal, H., Que Hee, S.S., “Folpet Permeation Through Nitrile Gloves”, American Industrial Hygiene Conference and Exposition, Dallas, TX, May 10-15, 2003. Abstract 138.

114. Phalen, R., Que Hee, S.S., “Quantitative Analysis of Captan on the Outer and Inner Surfaces of a Nitrile Protective Glove Material Using a Field portable ATR-FTIR”, American Industrial Hygiene Conference and Exposition, Dallas, TX, May 10-15, 2003. Abstract 139.

115. Zhong, W., Que Hee, S.S., “Stability of Formaldehyde-induced DNA Adduct Biomarkers using HPLC/UV”, American Industrial Hygiene Conference and Exposition, Dallas, TX, May 10-15, 2003. Abstract 172.

116. Boeniger, M., Stull, J., Que Hee, S.S., Phalen, R., Buckley, T., Anna, D., Lui, Y., Vo, E., Gao, P., "Recent Methods Developments and Informational Needs for Chemical Protective Clothing (CPC) Being Supported by the National Institute for Occupational Safety and Health, 8<sup>th</sup> Symposium on Performance of Protective Clothing: Global Needs and Emerging Markets, Philadelphia, PA, 2004.
117. Phalen, R., Que Hee, S.S., "Are All Gloves Created Equal?: Through the Eyes of Surface Infrared Reflectance," American Industrial Hygiene Conference and Exposition, Atlanta, GA, May 8-13, 2004. Abstract 174.
118. Xu, W., Que Hee, S.S., "Permeation of Metalworking Fluids Through Disposable Nitrile Gloves," American Industrial Hygiene Conference and Exposition, Atlanta, GA, May 8-13, 2004. Abstract 24.
119. Phalen, R., Que Hee, S.S., "Acrylonitrile Content as a Predictor of Captan Permeation Resistance for Disposable Nitrile Gloves," American Industrial Hygiene Conference and Exposition, Anaheim, CA, May 21-26, 2005. Abstract 167.
120. Xu, W., Que Hee, S.S., "Permeation of a Straight Oil Metalworking Fluid Through Nitrile Gloves," American Industrial Hygiene Conference and Exposition, Anaheim, CA, May 21-26, 2005. Abstract 171.
121. Phalen, R., Que Hee, S.S., "Development of a Robotic Hand Exposure System to Test Captan Permeation Through a Nitrile Glove and To Assess the Influence of Hand Movement," American Industrial Hygiene Conference and Exposition, Chicago, IL, May 14-16, 2006. Abstract 139.
122. Xu, W., Que Hee, S.S., "Gas Chromatography-Mass Spectrometry Analysis of Di-n-Octyl Disulfide in a Straight Oil Metalworking Fluid. Application of Differential Permeation and Box-Cox Transformation", American Industrial Hygiene Conference and Exposition, Chicago, IL, May 14-16, 2006. Abstract 84.
123. Xu, W., Que Hee, S.S. Permeation of a Straight Oil Metalworking Fluid Through Disposable Nitrile, Chloroprene, Vinyl, and Latex Gloves. American Industrial Hygiene Conference and Exposition, June 2-7, 2007, Philadelphia PA, Abstract 1.
124. Xu, W., Que Hee, S.S. Swelling of Four Glove Materials Challenged by Six Metalworking Fluids. American Industrial Hygiene Conference and Exposition, June 2-7, 2007, Philadelphia PA, Abstract 2.
125. Phalen, R., Que Hee, S.S. The influence of hand movement on the permeation and penetration of Captan through disposable nitrile rubber gloves. American Industrial Hygiene Conference and Exposition, June 2-7, 2007, Philadelphia PA, Abstract 3.
126. Que Hee, S.S. The Skin Absorption Entity of the American Industrial Hygiene Association-the Biological Environmental Exposure Levels (BEEL) Project Team. 3<sup>rd</sup> International Conf. for Occupational Environmental Exposures of Skin to Chemicals, June 17-20, 2007, Golden, Colorado.



P21.

127. Xu, W., Que Hee, S. S. Performance of Four Disposable Gloves against Six Metalworking Fluids. In: *3<sup>rd</sup> International Conference for Occupational and Environmental Exposures of Skin to Chemicals*, June 17-20, 2007, Golden, Colorado. P44.

128. Takaku, S., Que Hee, S.S., Dynamic Sampling Method for Diacetyl and Acetoin Using Tenax TA Solid Sorbent and (2,3,4,5,6-Pentafluorobenzyl)hydroxylamine Hydrochloride (PFBHA). In: American Industrial Hygiene Conference and Exposition, May 30-June 4, 2009, Toronto, Ontario, Canada, Abstract 48.

129. Que Hee,S.S., “Biological Monitoring- One Scientist’s Perspective”. In: International Conference on Healthy City and Environmental Health, Imperial Palace Hotel, Seoul, Korea, October 29, 2009.

130. Que Hee,S.S., “Sampling, Quality Assurance/Quality Control, and Biomarker Analysis in Biological Monitoring.” In: International Conference on Healthy City and Environmental Health, Imperial Palace Hotel, Seoul, Korea, October 30, 2009.

## CURRICULUM VITAE

January 2009

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Born 03/26/59 in Germany  
Married, two children ages 16 and 18

### EDUCATION

1995 Ph.D. in Epidemiology, School of Public Health, UCLA  
1993 M.P.H. in Epidemiology, School of Public Health, UCLA  
1987 Doctoral Degree in Medical Sociology, University of Hamburg.  
1983 Medical Examination Certificate, Registration as a Physician (M.D.),  
Board of Health in Hamburg  
1977-1983 Medical School, University of Hamburg, Germany

### PROFESSIONAL POSITIONS AND APPOINTMENTS

2006-current Professor, Departments of Epidemiology, Environmental Health, and Center for Occupational and Environmental Health, School of Public Health, and Neurology, School of Medicine, UCLA  
2005-current Vice Chair, Department of Epidemiology, School of Public Health, University of California Los Angeles (UCLA)  
2004-current Appointment in the Department of Neurology, School of Medicine, UCLA  
2002-current Co-director of the UCLA-CGEP (UCLA center for Parkinson's Disease Environmental Research (CCPDER- CNS)  
2001 -2006 Associate Professor, Department of Epidemiology, Department of Environmental Health, and Center for Occupational and Environmental Health, School of Public Health, UCLA  
1995-2001 Assistant Professor, Department of Epidemiology and Center for Occupational and Environmental Health, School of Public Health, UCLA  
1993-1995 Assistant Researcher, Department of Epidemiology, School of Public Health, UCLA  
1989-1991 Hochschulassistentin (Assistant Professor), Institute of Medical-Sociology, University of Hamburg, Germany.  
1987-1988 Research Fellow and Resident, Psychiatric University-Hospital Eppendorf, Hamburg, Germany  
1984-1986 Research Fellow, Institute of Medical Sociology, University Hospital Eppendorf, Hamburg, Germany

### OTHER HONORARY PROFESSIONAL APPOINTMENTS (IN THE PAST 5 YEARS)

2002-2008 Editorial Board: EPIDEMIOLOGY  
2004-current Editorial Board: Epidemiologic Perspectives & Innovations  
2007-current Editorial Board: Environmental Health  
2001-current Chair (since 2005) and Member (since 2001) of the external advisory committee for the NCI/NIEHS Agricultural Health Cohort Study of 56,000 pesticide applicators and spouses

2001-current	Board of Directors for the 'R. Lemelson Foundation for Psychocultural Research.' Annual awards of \$800,000 for research and training including a UCLA training grant for cross-disciplinary studies in anthropology, psychology and neuroscience
2001-2002	Member of the external advisory committee for the California Biomonitoring Planning Project conducted by the Environmental Health Laboratory's Biomonitoring Project (CDHS)
2002	Member of the EPA Science Advisory Board for Human Health Research Strategy (HHR)
2002-2004	Member of the external advisory committee for the California Environmental Health Surveillance System (Governor Davis appointee to expert working group for SB 702)
2003-2006	Member of the Ethic Committee for the International Society for Environmental Epidemiology
2003-2004	Member of NAS, IOM Committee on Gulf War and Health, Phase 3: Literature Review of Selected Environmental Particulates, Pollutants, and Synthetic Chemical Compounds
2002-2004	Member of the external advisory committee for the California Environmental Health Surveillance System (Governor Davis appointee to expert working group for SB 702)
2006	Member of NAS, IOM Committee on Gulf War and Amyotrophic Lateral Sclerosis
2006	Member of the Scientific Steering Committee for Pediatric BioBank in California
2007	Appointed as a Collegium Rammazini Fellow
2007	Scientific Organizing committee for the PPTOX conference in Faroe Island
2008	Scientific Organizing committee for the ISEE conference in Pasadena
2008	Member of the Environmental Exposures Working Group conducted by RTI International for the PhenX project of GWA research at NIH
2009	Member of NAS, IOM Committee on Gulf War and Health, Phase 4
2008-09	Member of the U.S. EPA CO standard setting panel for (CASAC: <i>Carbon Monoxide National Ambient Air Quality Standards</i> )

## FUNDED RESEARCH (ONGOING)

### Registry of Parkinson's Disease Study In Denmark

Principal Investigator: Ritz  
NIEHS

09/01/06-08/31/11

Total Direct Costs: \$5,600,000

We conduct 1) a case-control study of ~13,000 PD cases and age-gender matched controls from the Danish population via passive record linkage by unique ID between the National Patient Register, Pharmacy Database, and National Pension fund to identify risk factor information contained in these records (e.g. occupations, medication use, diseases prior to PD onset); and 2) recruit actively ~2500 of the most recently registered PD patients and population controls to collect additional risk factor information per interview and biological materials for gene-environment interaction analyses and to characterize PD patients phenotypically.

### UCLA UDALL Parkinson's Disease center

Principal Investigator: Chesselet, UCLA  
NINDS Type: P50 NS38367

04/01/06-03/31/11

Total Direct Costs: \$7,500,000

#### Project 6 within the center (budget of \$ 500,000 annual direct costs): Progression and Health Impacts of PD Motor and Non-Motor Manifestations (C-PI Ritz)

Research goals are to assess whether development and progression of PD motor and non-motor manifestations in 300 PD patients ascertained in the PEG study (PI: Ritz see below) are influenced by environmental, behavioral, and social factors and by genetic variants of ApoE and serotonin transporter alleles; and to determine the relative contributions of progression of motor and non-motor manifestations of PD to changes in HRQOL over time.

### UCLA Center for Centers for Neurodegeneration Science (CNS; former CGEP)

Director: Chesselet, UCLA; Co-director: Ritz  
NIEHS

09/15/08-08/31/13

Total Direct Costs: \$5,000,000

We have previously shown associations between high levels of exposure to specific environmental pesticides and Parkinson's disease and will build on this knowledge to determine the mechanisms of action that may be causing this association. We will use an integrated, multidisciplinary approach to identify additional agricultural pesticides that are disrupting similar molecular pathways, and determine whether these also increase the risk of Parkinson's. This work is expected to shed light on the pathological processes involved in sporadic Parkinson's disease, the most frequent form of the disorder, and could have public health implications for precautions in the use of some pesticides.

#### **Project 4: Pesticides and Genes in PD: Studies in Humans**

Principal Investigator: Ritz  
NIEHS

09/15/08-08/31/13

Total Direct Costs: \$1,250,000

This project will use the existing PEG data to test biological candidate genes and newly identified putative environmental toxicants for association with PD. We will recruit and collect biological (DNA) samples from and construct exposures estimates for 400 additional population controls. This will enable us to test new hypotheses for rarer exposures to specific toxins and will allow us to investigate gene-gene (GxG) and gene-environment (GxE) interactions with sufficient power. Targeted toxins are either (a) interfering with the ubiquitin proteasomal system (UPS), (b) altering microtubule integrity, and/or (c) inhibiting the aldehyde/alcohol dehydrogenase. Targeted genes include UBE1 and UBE1L2; PSMC2, 3, 4, and 5; HIP2; SKP1A; GSK3B; CDK5; MAPT, Sirt2, and ALDH and ADH gene clusters.

#### **California Parkinson's Disease Registry Pilot Feasibility Study**

Principal Investigator: Ritz  
DOD

09/01/07-08/31/10

Total Direct Costs: \$390,000

The primary goal is to conduct a pilot study for the legally mandated statewide population-based PD registry. We will identify PD cases in Kern, Tulare and Fresno counties from legally mandated sources (pharmacists, health care institutions, physicians and other providers). A secure prototype database will be established, and associations between PD and toxicant chemical exposure will be determined by linking to a database of toxicant chemicals established previously by UCLA based on California state data (e.g. the pesticide use databases).

#### **Traffic-Related Air Pollution and Asthma in Economically Disadvantaged and High Traffic Density Neighborhoods in Los Angeles County, California (with LA F.A.N.S.)**

Principal Investigator: Ritz  
California Air Resources Board

01/06/05-09/30/09

Total Direct Costs: \$420,000

The objectives of this research are: (1) to conduct NO<sub>x</sub> and NO<sub>2</sub> monitoring at 200 locations within LA County neighborhoods with varying levels of economic disadvantage and varying exposures to air pollution originating from vehicular sources; (2) to use these monitoring data to help inform land use-based regression (LUR) models developed to predict traffic pollutant exposures; (3) to use geostatistical models to estimate regional background concentrations of O<sub>3</sub> and PM<sub>2.5</sub>; (4) to evaluate associations between exposure to NO<sub>x</sub>, NO and NO<sub>2</sub> and measures of lung function and asthma prevalence, exacerbation and possibly incidence in children ages 0-17 years in conjunction with the Los Angeles Family and Neighborhood Survey (L.A. FANS) study; and (5) to evaluate whether concentrations of the more regionally distributed background pollutants (O<sub>3</sub> and PM<sub>2.5</sub>) confound or modify the effects of exposure to the more heterogeneously distributed traffic-related pollutants (NO<sub>x</sub>, NO and NO<sub>2</sub>) on lung function and asthma.

#### **Aggregate Exposure Assessment: Longitudinal Surveys of Human Exposure-Related Behavior**

Principal Investigator: Irva Hertz-Picciotto, UC Davis  
EPA

01/12/04-11/30/09

Direct Direct Costs: \$388,111

This project develops data collection platforms for longitudinal assessment of exposure-related behavior. The data characterize short-term, seasonal, and long-term changes in time-activities, food consumption habits, and use of household and personal care products. We assess exposure-related behaviors at multiple collection points over time, and evaluate a number of data collection methods for validity (accuracy), precision, completion rates, cost, feasibility, and user acceptability.

**Disparity in asthma among Californians from pollutant exposures.**

Principal Investigator: Meng, UCLA

California Air Resources Board

04/22/08- 4/21/10

Direct Direct Costs: \$270,000

The goal of the research is to conduct a population-based study to examine the effects of long-term air pollution exposure near residence on chronic severe asthma and asthma-like symptoms in vulnerable populations.

**Development of Exposure and Health Outcome Indicators for Those with Asthma or Other Respiratory Problems**

Principal Investigator: Meng, UCLA

EPA- R833629

09/01/07-8/31/10

Direct Direct Costs: \$410,000

The goal of this research is to investigate the feasibility of combining existing environmental monitoring and health survey data to develop indicators that signal trends in exposures and health for those with asthma or other respiratory problems

**Neighborhood Effects on Children's Health & Access to Care**

Principal Investigator: A. Pebley, UCLA

HRSA

09/01/07- 8/31/10

Total Direct Costs: \$500,000

The goal of this study is to significantly advance our knowledge about the relative importance of specific family and neighborhood characteristics in the development of major child health problems. This project is based on the Los Angeles Family and Neighborhood Survey (L.A.FANS), a longitudinal study of neighborhoods, families, adults, and children in Los Angeles County.

**COMPLETED RESEARCH**

**UCLA Center for Gene-Environment Studies in Parkinson's Disease (CGEP-part of the NIEHS CCPDER)**

Director: Chesselet, UCLA; Co-director: Ritz

NIEHS

09/01/02-08/31/09

Total Direct Costs: \$7,000,000

The overall objective of this Center is to understand how the detrimental effects of pesticides, a suspected environmental risk factor for Parkinson's disease, are modulated by genetic variations that impact dopamine homeostasis in nigrostriatal neurons. The center integrates 3 RO1 research projects that investigate these questions in fly, mouse, cell culture models and applies the results also to human genetics (project 1: PI Ritz)

**Research Project I within the CGEP center "Environmental toxins and genes that influence dopamine in Drosophila and humans"**

Principal Investigator: Ritz

NIEHS

09/01/02-08/31/09

Total Direct Costs: \$1,000,000

This project examines interindividual variability of dopamine vesicular transporter (VMAT) expression due to promoter variants in two human populations in parallel with a reporter gene assay. These populations will be genotyped for functional VMAT2 variants and association analyses of gene-environment interactions and pesticide exposures collected in the parent grant will be conducted. In addition, Drosophila genetics will be used to determine how the expression of VMAT affects dopamine-mediated toxicity and identify genes that modulate VMAT function, which will then be examined in the human population for their relevance to increase risk of PD.

**Parkinson's Susceptibility Genes and Pesticides (PEG)**

Principal Investigator: Ritz

NIEHS/NINDS

10/01/00-09/30/07

Total Direct Cost: \$2,653,852

We are testing the gene-environment interaction hypothesis for Parkinson's disease by conducting an epidemiologic population-based case-control study of 400 newly diagnosed PD patients from three rural California counties matched to population controls; in addition we are collecting data for unaffected sibling controls. Environmental and occupational pesticide exposure estimate are derived from California pesticide-use reporting (PUR) and other data. We are examining the effects of gene-environment interactions by testing for associations of PD using multiallelic repeat markers and genotyping intragenic single nucleotide polymorphisms (SNPs) and/or deletions in 50 candidate genes.

#### **PD Consortium: Genetic and Environmental Factors in Parkinson's Disease**

Principal Investigator: L. Nelson, Stanford

MJ Fox Foundation

10/01/04-09/30/07

Total Direct Costs \$50,000

We established the Consortium for the Study of Genetic and Environmental Factors in Parkinson's disease, with the goal of organizing the collaborative efforts of five investigative groups that have who have conducted (or are conducting) seven case-control studies of PD. For approximately 1700 PD cases and 2100 gender- and age-matched control subjects, we investigate how the risk of developing PD varies according to tobacco and caffeine intake, as well as variants in ten candidate genes that code for proteins that may be involved in conferring the protective effect of these agents.

#### **Alpha Synuclein and Environmental Exposures: A Study in Humans**

Principal Investigator: Langston, The Parkinson's Institute

MJ Fox Foundation

01/01/05-12/31/07

Total Direct Costs \$100,000

We are investigating the joint effects of: (1) consequences of alpha-synuclein over-production and enhanced mapping of the SNCA promoter region and (2) the biologic effects specific toxicants (e.g., rotenone, paraquat, organochlorine pesticides). We take advantage of two unique cohorts at high risk for pesticide exposure currently evaluated by members of the NIEHS-funded Collaborative Centers for Parkinson's Disease Environmental Research (CCPDER) at the Parkinson's Institute (PI) and UCLA, the Agricultural Health Study cohort and a population-based study of PD and pesticide exposure in rural Central California (the PEG study).

#### **Prostate Cancer and Pesticide Exposure in Diverse Populations in California's Central Valley**

Principal Investigator: Cockburn, USC

DOD

05/01/06-12/31/07

Total Direct Costs: 250,000\$

This is a pilot study bringing an innovative collaborative approach to prostate cancer research. Specifically, this study will apply novel methods of pesticide exposure assessment using Geographical Information Systems (GIS), examine whether our proposed method of recruiting and approaching cases and controls for a large population-based case-control study will result in acceptable response rates, or whether our sample will be biased with respect to socioeconomic status, race, and disease characteristics, and whether we will be able to obtain sufficient DNA from mailed (Oragene) spit collection kits to assess effect modification by known relevant genes, and have sufficient stored DNA to assess the impact of genes that may be discovered in future.

#### **Traffic-related Air Pollution and Adverse Birth Outcomes**

Principal Investigator: Ritz

NIEHS

07/15/01-06/14/07

Total Direct Costs: \$641,612

The objectives of this project are to determine whether exposures to elevated and traffic-related ambient air pollution during pregnancy result in low birth weight, preterm birth, intrauterine and postneonatal mortality, or cardiac defects in infants born to women living in the South Coast Air Basin (SoCAB). We performed a cohort study of all births (between 1995 and 1999), fetal and infant deaths (between 1989 and 1997), and conducted a nested case-control study of 2600 women who delivered children in LA in 2003 to collect additional exposure, confounder, and effects modifier data.

#### **Ergonomic Interventions for Sewing Machine Operators**

Principal Investigator: Ritz

CDC/NIOSH

10/01/02-09/31/06

Total Direct Costs: \$868,262

We are conducting a randomized trial of a newly developed ergonomic intervention in sewing machine operators working in LA garment shops. The ergonomic intervention package includes changes in work-station design, training of employees, and suggestions of improvement in work procedures. We are examining whether interventions can reduce rates of upper extremity, neck (and lower back) musculoskeletal disorders, severity of pain and impairment, and lost-time compared to 'placebo' (control) interventions. This study will provide employers, employees and public agencies with evidence of the effectiveness of ergonomic interventions in order to guide health and safety policy.

### **Traffic-Related Air Pollution and Acute Respiratory Diseases and Asthma in Children Ages 0-5 in the SoCAB From 1990-2000**

Principal Investigator: Ritz  
California Air Resources Board

01/06/04-09/30/05

Total Direct Costs: \$55,000

The aims of this study are to estimate the transient effects of traffic related and background air pollution in the South Coast Air Basin (SoCab) on the risk for hospitalization for acute respiratory illness and asthma in children ages 0-5 using a case- crossover study design and a time-series analysis.

### **Assessment of In-Traffic Exposures and Human Reproductive Health**

Pilot project Principal Investigator: Ritz; SCEHSC Center Principal Investigator: Froines, UCLA  
EPA

07/01/04-06/30/05

Total Direct Costs Pilot Project within the PM-center: \$28,000

The goal of this project is to evaluate whether maternal in-vehicle air pollutant exposures during commutes (either in passenger cases, buses or other means of public transportation) affected the risk of low birth weight (LBW) and preterm birth in infants born to women living in Los Angeles County, California between 2003-2004. Commuting behavior (travel time, mileage and/or modeled routes) will be used to evaluate exposure to motor vehicle exhaust pollutants while in-transit

### **Molecular Epidemiology and Gene-Environment Interaction**

Principal Investigator: Zhang, UCLA  
NIH/NIEHS R21 ES 011667

04/01/02-03/31/05

Total Direct Costs: \$450,000

This was a planning grant for molecular epidemiology in Environmental genome. The award was to establish a molecular epidemiology research program focusing on environmental genome.

### **Uncontrolled Asthma and Exposure to Air Pollutants: Linking Chronic Disease and Environmental Data Sources**

Principal Investigator: Meng, UCLA  
CDC/NIOSH/

10/01/02-09/01/05

Total Direct Costs: \$600,000

Based on the California Health Interview Survey (CHIS 2001) data, an extensive air monitoring network, and detailed information on traffic density we are conducting a population-based epidemiologic case-control study to: (1) ascertain the relationship between control of asthma and exposure to air pollutants in Los Angeles County and San Diego County, California; and (2) build and enhance the partnerships between public health and environmental agencies and local communities.

### **Center of Excellence for Environmental Public Health Tracking**

Principal Investigator: Balmes, UCSF  
CDC/ATSDR

10/01/02-09/01/05

Total Direct Costs (UCLA only): \$300,000

The UCLA part of this center grant uses the data from 5,200 California Health Interview Survey (CHIS 2001) respondents who reported having been diagnosed with asthma at some point in their lives and live in the Greater Bay Area, San Joaquin Valley, and Los Angeles County. Criteria pollutant averages are employed as measures of background ambient air quality and linked with sociodemographic information and data on asthma management, access to care, and risk behaviors collected through CHIS for each targeted respondent.

### **Community Response to Maternal/Child Health Disparities**

Principal Investigator: Hobel, Cedars Sinai  
NIH

04/1/03-9/30/05

The major goals of this study are to examine the interrelating biological and social-behavioral factors that contribute to health disparities in pregnancy outcomes and infant and early childhood mortality and morbidity. We will participate as one of five selected sites in the nation to plan for a multi-centered, community-based study examining the relationship between environmental factors and child health disparities.

#### **Extension of the Rocketdyne/AI Worker Cohort Through 1999**

Principal Investigator: Ritz  
California Cancer Research Program  
CRP award #00-00781V-20218  
Total Direct Cost: \$324,508

07/01/00-06/30/04

We extended the mortality follow-up of two previously established cohorts of workers employed at Rocketdyne/Atomics International (now Boeing North American) facility for an additional 5 years and added a cancer incidence component for the period 1972-1998. This study allowed evaluating the impact of radiation and some known animal carcinogens on cancer mortality and morbidity.

#### **Assessment Scale for End-of-Life Care in End-Stage Dementia**

Principal Investigator: Ackerman, UCLA  
Alzheimer's Association  
Total Direct Costs: \$217,583

10/01/00-09/30/03

This pilot project developed a scale to assess end-of-life care for end-stage dementia patients and evaluated its performance using mortality data.

#### **Pilot grant from Southern California Center for Airborne Particulate Matter (SCCAPM)**

Principal Investigator: Froines, UCLA; Pilot grant Principal Investigator: Ritz  
U.S.-EPA-Star grant  
Total Direct Cost: \$12,000

07/01/01-12/31/02

The pilot grant supported exposure assessment for an epidemiologic study of traffic related adverse birth outcomes.

#### **Evaluation and Validation of Pesticide Use Reporting in California**

Principal Investigator: Ritz  
UC Toxic Substances Research & Teaching Program  
Total Direct Costs: \$ 50,000

07/01/99-06/30/01

The goal of this pilot grant was to use biomarker data to evaluate the validity of pesticide exposures estimates derived from geographic models of environmental exposure based on pesticide use reports and land use maps in California residents.

#### **Identify and Reduce Work Hazards in Home Health Care Workers**

Principal Investigator: Ritz  
Institute of Labor and Employment Pilot Study  
Total Direct Costs: \$ 7,500

02/01/01-30/08/01

This pilot project developed and tested a survey instrument and collected preliminary data for a study of job hazards in 74,000 home health care workers in LA county.

#### **Pilot Study for Gene-Environment Interaction and Parkinson's Disease Study**

Principal Investigator: Ritz  
APDA Center Pilot Grant  
Total Direct Costs: \$35,000

03/01/99-12/31/00

This pilot project involved establishing data resources to improve exposure measures for pesticides, and setting up of a county-wide networks to reach incident Parkinson's cases in rural California.

#### **Development of a Temporary Parkinson's Disease Registry for Southern California**

Principal Investigator: Ritz  
APDA/Pilot Grant from the PD-center at UCLA  
Total Direct Costs: \$10,000

03/01/99-12/31/00



This pilot project established mechanisms to obtain incident Parkinson's cases in rural California using information provided by local health care providers, Parkinson's disease foundations, clinics, and Medicare, and to determine which data sources exist for the application of capture-recapture methods to validate coverage of a future PD registry.

#### **Modeling Air Pollution and Birth Defects**

Principal Investigator: Ritz

CBDMP Grant/SCEHS/NIEHS Pilot Grant

07/01/00-09/30/00

Total Direct Costs: \$5,600

The objective of this project was to examine the usefulness of some advanced statistical modeling procedures in order to determine whether exposures to elevated levels of ambient air pollutants (PM10, CO) at the levels found in the South Coast Air basin (SoCAB) basin caused defects of the cardiac system of fetuses.

#### **Pesticide Exposure Modeling Based on Historical Use Reporting in California to Investigate Long-Term Health Effects**

Principal Investigator: Ritz

UCLA-USC NIEHS-Center Pilot Grant

05/01/99-04/30/00

Total Direct Costs: \$18,000

The objectives of this pilot grant were to develop a geographic model for pesticide exposure of California residents between 1950 and 1990 using satellite images of crops, aerial photographs, and Pesticide Use Reporting Data from the California Department of Pesticide Regulations.

#### **Epidemiologic Study to Determine Possible Adverse Health Effects on Rockwell/Rocketdyne Workers from Exposure to Radioactive and Hazardous Substances**

Principal Investigator: Morgenstern, UCLA

CPHF/DOE/DE-FG-03-91SF18983

01/10/93-03/31/99

Total Direct Costs: \$740,000

The major goal of this study was to test the hypothesis whether exposure to toxic chemicals and ionizing radiation among Rockwell/Rocketdyne workers caused an excess of cancer mortality.

#### **Hazard Surveillance in the Defense Nuclear Industry**

Principal Investigator: Froines, UCLA

CDC/NIOSH/R01-CCR912034?

09/01/95-08/31/99

Total Direct Costs: \$1,244,745

The major goals of this project were to develop an integrated theory, approach, and methodology to exposure assessment and hazard surveillance in the U.S. defense nuclear industry.

#### **The Influence of Air Pollution in the Los Angeles Metropolitan Area on the Occurrence of Birth Defects, 1990-1993**

Principal Investigator: Ritz

SCEHSC/NIEHS/UCLA-USC NIEHS-Center Pilot Grant

09/01/97-09/30/98

Total Direct Costs: \$24,000

The objective of this pilot project were to examine whether the exposure of pregnant women to elevated levels of ambient air pollutants (Ozone, NO<sub>2</sub>, PM<sub>10</sub>, CO) at the levels found in the Los Angeles Metropolitan Area or the South Coast Air basin (SoCAB) basin cause low birth weight or preterm birth.

#### **RESEARCH CONDUCTED IN GERMANY (1984-1989)**

Health effects of airborne-dioxin exposure in Hamburg nursery schools

Rheumatic disorders, working conditions and coping behaviors in female office workers

Work-related knee-joint and elbow injuries in pipe-fitters and welders

Back and neck pain, psycho-social and ergonomic stresses in nursing professions

#### **HONORS AND AWARDS**

1999	UCLA Faculty Career Development Award
1999	'Rothman' award presented at SER by C. Poole
1989-1992	Post-doctoral fellowship received from DAAD ("German Academic Exchange Office of the Ministry of Research and Technology")
2001	Delta-Omega Award
2007	Robert M. Zweig M.D. Memorial Award (Clean Air Award) from the South Coast Air Quality Management District (AQMD)

## TEACHING

### UCLA, School of Public Health, graduate courses, 1995-present

Epidemiology Methods (Core course (200B) of the UCLA Epidemiology program)  
 Environmental Epidemiology  
 Occupational Epidemiology  
 Advanced Methods in Occupational and Environmental Epidemiology  
 Seminar: Occupational and Environmental Cancers  
 Seminar: Policy Issues in Occupational and Environmental Health

### University of Hamburg, Medical School, 1984-89

Lectures and seminars in Medical Sociology for medical students  
 Lectures and seminars in Psychiatry for medical students

**ADVISING AND MENTORING OF DOCTORAL STUDENTS (PH.D) AND POSTDOCTORAL FELLOWS (SUBJECT OF DISSERTATION OR FELLOWSHIP)**— *note: this list only includes primary advisees (i.e. chair of committee and not member of dissertation committee) and does not include master level students*

#### At UCLA:

1996 - 2002	Hoyin Song (Air pollution and childhood asthma in Seoul, Korea)
1997 - 2001	Kurt Straif (Cancer mortality in the German rubber industry)
1998 - 2000	Timothy Clary (Pancreatic cancer mortality and pesticide use in California)
1998 - 2004	Michelle Wilhelm (Traffic-related air pollution and pregnancy related health effects)
1998 - 2004	Rudy Rull (GIS modeling of pesticide exposure and neural tube defects)
1998 - 2004	Anusha Krishnadsan (Occupational physical activity and prostate cancer incidence)
2001 - 2004	Yingxu Zhao (Work place exposures to chemicals and cancer incidence)
2003 - 2004	Gail Asleson Kang ( <i>Movement Disorder Fellow</i> : Clinical characteristics of PD patients)
2002 - 2006	Pin-Chieh Jason Wang (Ergonomic interventions and health effects in LA garment workers)
2003 - 2006	Chad Lewis (TTHM contamination in drinking water and adverse birth outcomes)
2003 - 2005	Kathrine Hoggatt (Air pollution and adverse birth outcomes and asthma in children)
2004 - 2008	Angelika Wahner (Doctoral student & postdoctoral fellow: Parkinson's disease, genetic factors and anti-inflammatory drug use)
2004 - 2008	Marie Sharp (The Latina Paradox in Birth Outcomes)
2004 - 2008	Sadie Costello (Parkinson's disease and life style factors)
2005- present	Shannon Rhodes (Doctoral student & postdoctoral fellow: Iron genetics and Parkinson's disease)
2008- present	Nicole Gatto (Postdoctoral fellow: Vitamin D, sunlight and Parkinson's disease)
2004 -present	Amanda Colligan (Residential pesticide exposure and Parkinson's disease)
2005 -present	Anthony Wang (Occupational exposures and adverse birth outcomes)
2007- present	JoKay Ghosh (Psychosocial stress, air pollution and adverse birth outcomes)
2008- present	Tracey Becerra (Obesity and birth weight in Hispanic women)
2005- present	Christina Lombardi (Air pollution and respiratory diseases)
2009-present	Shilpa Narayan (Factors contributing to progression in Parkinson's disease)

#### At University of Washington:

2004-2006 Kathrine Carr (*Postdoctoral Fellow*: Bronchiolitis and air pollution in LA infants)

**At the University of Copenhagen, Denmark:**

2008-present Line Kenborg (Parkinson's disease and outdoors work and sunlight exposures)

**PARTICIPATION IN GRANT AND CENTER REVIEWS**

Reviewer on a NCI Special Emphasis Panel "Improving Exposure Assessment in Environmental and Occupational Epidemiology of Cancer", May 2001

Reviewer of the NIEHS-funded Columbia University Environmental Health Sciences Center, May 2002

Reviewer of the Charles Harkin Award Application for Research in Thyroid Cancer, NIH, April 2003

Reviewer of the Wellcome Trust Application "Pre and post-natal exposure to particulate matter and pregnancy and infant outcomes: an historical cohort study", 2003

Reviewer of the Health Effects Institute's (HEI) Walter Rosenblith New Investigator Award application, April 2003

Reviewer of pilot grants for the Southern California NIEHS center grant (2004 and 2005)

Reviewer of pilot grants for the UCLA-CCPDER center (NIEHS funded) (2003 and 2005 and 2008)

Reviewer for NCI, Epidemiology of Cancer (2004/05 Council EPIC)

Reviewer for several NIH, Department of Health & Human Services meeting applications, 2003-2005

Reviewer (Chair of Review Committee) for a NIEHS-PO1 application (2004)

Appointment to Review Committee of the European Science Foundation (ESF) (2005)

Annual Review of SCEHSC Pilot Project Submission (2004-current)

Institutional Patient-Oriented Career Development Programs in the Environmental Health Sciences [K12] (ES06-005). (2007)

Conference grant applications (2004-2007)

NIH reviewer for Outstanding New Environmental Scientist (ONES) award in the Environmental Health Sciences (2006)

Member of the EPA's Clean Air Scientific Advisory Committee (CASAC) Carbon Monoxide (CO) Review Panel (2008-current)

Grant review for an internal NIEHS scientist's application (Dr. Chen) (2007 and 2008)

**JOURNAL REVIEWER FOR:**

American Journal of Epidemiology

Epidemiology

International Journal of Epidemiology

Annals of Epidemiology

Environmental Health Perspectives

Occupational and Environmental Medicine

Neurology

Pediatrics

Lancet

Journal of the Air & Waste Management Association

Journal of Exposure Analysis and Environmental Epidemiology

Chemosphere

Pharmacogenetics

Movement Disorders

Zeitschrift Sozial- und Präventivmedizin (SPM)

Human Reproduction

**INVITED SEMINARS AND LECTURES (SELECTED)**

1. The Health Effects of Low-level Ionizing Radiation, USC, Health Science Doctoral Seminar 1996
2. Work Environment and Health, UCLA Health Sciences Seminar for Undergraduates 1996
3. The Effects of Carbon Monoxide Exposure on Low Birth Weight in the LA Metropolitan Area, 1989-1993, USC, Southern California Environmental Health Science Seminar, 1997

4. Cancer Mortality in Radiation Workers, USC Southern California Environmental Health Science Seminar, 1997.
5. Basic Principles of Reproductive Epidemiology, European School of Risk Assessment in Reproduction" in Florence/Italy December, 1997.
6. The Rocketdyne/AI Worker Health Study: Results and Lesson's Learned, California Department of Health Services, Occupational Health Branch, 1998
7. Air Pollution and Low Birth Weight in Southern California, GSF Munich Germany, 1998.
8. Air Pollution and Adverse Birth Outcomes: Methodological Issues and First Results, Southern California Environmental Health Science Center, USC, 1998.
9. Gene-Environment Interaction and Parkinson's Disease, Neurology Grand Rounds, UCLA 1998
10. Air Pollution and Adverse Birth Outcomes in Southern California, Dept. of Reproductive Epidemiology, University of Michigan, East Lansing, 1999.
11. Methodologic Issues in Studying of Gene-Environment Interaction, GSF Munich Germany, 1999
12. Methodologic Aspects of Studying Cancer Mortality in Radiation Workers, Dept. of Epidemiology, University of Michigan, East Lansing, 2000.
13. Cancer Mortality in Fernald Uranium Workers, NIOSH, Cincinnati, 2000.
14. GIS Modeling of Pesticide Exposures in California, Dept. Environmental Epidemiology, GSF Munich Germany, 2000
15. Traffic-related Air Pollution and Adverse Birth Outcomes in Southern California, Dept. Environmental Epidemiology, GSF Munich Germany, 2000
16. Studying Parkinson's disease in Populations; American Parkinson's Disease Association conference for patients and care providers at UCLA, 2001
17. From the Epidemiology of Parkinson's Disease to Gene-Environment Interactions, VA-PD conference, Woodland Hills, 2001
18. GIS Modeling of Air Pollution and Pesticide Exposures in California, USC-UCLA NIEHS Town hall meeting; Dec, 2001
19. GIS Modeling in the context of a Gene-Environment Interaction study of Parkinson's disease, Dept. Environmental Epidemiology, GSF Munich Germany, 2001
20. The Epidemiology of Parkinson's Disease, Conference of the Society for Research on Amyotrophic Lateral Sclerosis, Colorado May 2002
21. Traffic-related Air Pollution and Reproductive Health Effects: An Overview; Environmental Health Sciences seminar at UC Riverside, Feb. 2002
22. Reproductive Health Effects due to Carbon Monoxide Air Pollution in Southern California, NRC Subcommittee on Health Effects from CO pollution meeting at UC Irvine, April 2002
23. Traffic-related Air Pollution and GIS Modeling in Southern California, USC-GIS Workshop Pasadena, May 2002
24. Health Effects Modeling with GIS, USC-GIS Workshop Public Forum at USC, May 2002
25. Dopamine Imbalance and Oxidative Stress in Parkinson's Disease, VA Research Conference on PD and Movement Disorders, Los Angeles 2002
26. The Center for Gene Environment Interaction in Parkinson's disease (CGEP) at UCLA: Dopamine Imbalance in Parkinson's Disease, Inaugural NIEHS Conference at the Parkinson's Institute in Sunnyvale CA, August 2002
27. Air pollution effects on birth outcomes: An overview. Health Effects Institute, Annual conference held at Georgetown University; 2003
28. Linking air pollution effects and adverse birth outcomes in the Los Angeles basin throughout the 1990s. U.S. EPA, Chapel Hill, NC; 2003
29. Air Pollution and Adverse Birth Outcomes in the South Coast Air Basin, 1989-2000; Conference of the Czech NAS meeting on air pollution effects (Dr. Sram), Prague, 2003.
30. Air pollution and adverse birth outcomes, an update on recent developments. Department of Preventive Medicine at the University of Southern California, 2003
31. GIS modeling of environmental exposures: applications to air pollution and pesticide exposures. Department of Environmental Health, Harvard, 2004
32. Air pollution models of adverse birth outcomes. Department of Epidemiology at the University of North Carolina, 2004
33. Parkinson's disease, metals and pesticides. Department of Toxicology, Symposium on Toxics Risks and Aging, Duke 2005
34. Air pollution and adverse birth outcome research in the SoCAB from 1995-2005. California Air Resources Board, Sacramento, Sept 2005
35. Parkinson's disease and pesticide exposure assessment in farming communities in the California

36. Parkinson's disease and aging. UCLA Center on Aging Research Conference on Aging 2006.
37. Air Pollution and Asthma in Children . AQMD Asthma Impacts of Air Pollution Conference Los Angeles, Feb. 2006
38. Parkinson's disease and pesticides in the Central California Valley. NIEHS center at Columbia University, NY 2007
39. Assessing pesticides exposures for prostate cancers in the Central California Valley. IARC, Lyon 2007
40. Air pollution and adverse birth outcomes in LA. INSERM, Paris 2007
41. Gene Environment Interactions in Parkinson's disease. CREAL Institute, Barcelona 2008
42. Latest results on Gene Environment Interactions in Parkinson's disease. INSERM, Paris 2008
43. Re-assessing Gene Environment Interactions in Parkinson's disease. MDS conference symposium, Chicago 2008
44. Methodological Issues in studying risk factor for Parkinson's disease in populations. MDS conference symposium, Chicago 2008.
45. Environmental and occupational health studies in California. University of Dublin 2008
46. Air pollution, pregnancy and child health; Healthy Development and Ageing Workshop; British Foreign & Commonwealth Office, LA 2009

## PUBLICATIONS

### PEER REVIEWED JOURNAL ARTICLES (\*indicates mentored students/fellows)

1. **Ritz B.** Humeral Epicondylitis Among Gas- and Waterworks Employees. Scandinavian Journal of Work, Environment and Health, 1995 Dec, 21(6): 478-86.
2. **Ritz B,** Heinrich J, Wjst M, Wichmann E, Krause C. Effect of Cadmium Body Burden on Immune Response of School Children. Archives of Environmental Health 1998, Vol53: 272-280
3. **Ritz B,** Morgenstern H, Froines J, Young B,. Effects of Exposure to External Ionizing Radiation on Cancer Mortality in Nuclear Workers Monitored for Radiation at Rocketdyne/Atomics International. AJIM 1999, Vol.35: 21-31.
4. **Ritz B,** Yu F. The Effect of Ambient Carbon Monoxide on Low Birth Weight Among Children Born in Southern California between 1989 and 1993. Environ Health Perspect, 1999, 107(1):1-9.
5. Heinrich J, Hoelscher B, Wjst M, **Ritz B,** Cyrus J, Wichmann HE. Respiratory Diseases and Allergies in Two Polluted Areas in East Germany. Environ Health Perspect, 1999, 107(1):53-62.
6. **Ritz B,** Morgenstern H, Moncau J. Age at Exposure Modifies the Effects of Low-Level Ionizing Radiation on Cancer Mortality in an Occupational Cohort. Epidemiology, 1999, 10(2):135-140.
7. **Ritz B.** Radiation Exposure and Cancer Mortality in Uranium Processing Workers. Epidemiology, 1999, 10: 531-538.
8. **Ritz B.** Cancer Mortality Among Workers Exposed to Chemicals During Uranium Processing. JOEM 1999, 41(7):556-566.
9. **Ritz B,** Morgenstern H, Young B, Froines J. Chemical Exposures of Rocket Engine Test Stands Personnel and Cancer Mortality in a Cohort of Aerospace Workers. JOEM, 1999; 41(10): 903-910.
10. **Ritz B,** Yu F. Parkinson's Disease Mortality and Pesticide Exposure in California 1984-1994. Int Journal Epi, 2000, Vol. 29:323-329.
11. Jacob B, **Ritz B,** Heinrich J, Hoelscher B, Wichmann HE. The Effect of Low-Level Blood Lead on Hematologic Parameters in Children. Environmental Research, 2000, 82 (2): 150-159
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29. **Ritz B**, Wahner A, Glatt C, Bronstein J. Candidate Gene Polymorphisms and Parkinson's disease in a population based case-controls study. Supplement to Movement Disorders, Vol 20, 2005: S122.
30. **Ritz B**, Wilhelm M. Evidence for Adverse Reproductive Effects of Exposure to Traffic-Related Air Pollution- Are Pregnant Women at Risk? Supplement to Epidemiology, Vol 17, No 6, 2006: MS7-15.
31. Hoggatt K, Qian L, Wilhelm M, **Ritz B**. Traffic-Related Air Pollution and Respiratory Hospital Admissions Among Young Children in Southern California, 1990-2001. Supplement to Epidemiology, Vol 17, No 6, 2006: P-024.
32. Wilhelm M, **Ritz B**. Development of Two Prospective Birth Cohorts in Southern California. Supplement to Epidemiology, Vol 17, No 6, 2006: SS2-08.
33. Wilhelm M, Qian L, **Ritz B**. Commute Length and Preterm Birth: Results From the UCLA Environmental and Pregnancy Outcomes Study. Supplement to Epidemiology, Vol 18, No 5, 2007: ISEE-445.
34. Wahner AD, Bronstein JM, Bordelon YM, **Ritz B**. Statin Use and the Risk of Parkinson's Disease. Supplement to Movement Disorders, Vol 22, 16, 2007: 557.
35. Wahner AD, Lincoln S, Farrer M, Bronstein JM, Cockburn MG, **Ritz B**. Increased Risk of Parkinson Disease Associated with Dopamine Transporter Variability and Pesticide Exposure. Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-749.
36. Lee P, **Ritz B**, Thomas D. Maternal Exposure to Carbon Monoxide and Risk of Term Low Birth Weight Among Singleton Births, Between 1997 and 2005 in Denver, Colorado. Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-755.
37. Han D, Kim J, Lee K, Bennett DH, **Ritz B**, Cassady D, Hertz-Picciotto I. Spatial Analysis of Human Time Location Data: Development of Exposure Weighted Standard Deviatonal Ellipsis (EW-SDE). Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-761.
38. Gatto NM, Wahner A, Bronstein J, **Ritz B**. Well Water Consumption and Parkinson's Disease in Rural California. Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-812.
39. Hertz-Picciotto I, Bennett DH, Cassady D, Lee K, **Ritz B**, Logsdan-Sackett N, Teague C. The SUPERB Study: An Overview. Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-824.
40. Ren C, Wu J, Chung JH, Delfino RJ, **Ritz B**. Association Between Local Traffic-generated Air Pollution and Preterm Delivery in the South Coast Air Basin of California. Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-905.
41. Ghosh J, Wilhelm M, **Ritz B**. Survey Measures of Indoor Air Quality: A Birth Outcomes Study. Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-1145.
42. Wilhelm M, Ghosh J, **Ritz B**. Prenatal Ambient Air Pollution Exposure and Respiratory Health in Early Life: Findings from the UCLA EPOS Cohort. Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-1213.
43. Meng Y, Rull RP, Wilhelm M, Lombardi C, **Ritz B**. Outdoor Air Pollution and Severe Asthma in the San Joaquin Valley, California. Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-1332.
44. Bennett D, **Ritz B**, Cassady DL, Lee K, Frost JD, Logsdan-Sackett N, Hertz-Picciotto I. Pesticide Use in California Homes with Small Children. Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-1534.
45. Bennett DH, Lee K, Teague CH, Frost JD, **Ritz B**, Cassady DL, Hertz-Picciotto I. Variability in Activity Levels as Measured with Actical Monitors Between Individuals, Days, and Seasons. Supplement to Epidemiology, Vol 19, No 6, 2008: ISEE-1586.
46. Rhodes SL, Bandong CC, Bronstein JM, Sinsheimer JS, Rotter JI, Taylor KD, **Ritz B**. Associations between Iron-Related Candidate Genes and Parkinson's disease in the PEG Study. Supplement to Movement Disorders, Vol 23, No 1, 2008: 136.

47. Wahner AD, Lincoln SJ, Farrer M, Bronstein JM, Cockburn MG, **Ritz B**. Increased Risk of Parkinson's Disease Associated with Dopamine Transporter Variability and Pesticide Exposure. Supplement to Movement Disorders, Vol 23, No 1, 2008: 751.

## CURRICULUM VITAE

### WENDIE A. ROBBINS

Occupational & Environmental Health Nursing Program  
School of Nursing  
Department of Environmental Health Sciences  
School of Public Health  
University of California  
Los Angeles, CA 90095-6919  
[wrobbins@sonnet.ucla.edu](mailto:wrobbins@sonnet.ucla.edu)

office: (310) 825-8999  
lab: (310) 794-7511  
FAX (310) 206-3241

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### EDUCATION

Ph.D.	1994	Epidemiology	University of California, Berkeley
M.S.	1990	Epidemiology	University of Washington, Seattle
M.S.N.	1981	Nursing	University of Arizona, Tucson
B.S.N.	1978	Nursing	Arizona State University, Tempe

### PROFESSIONAL EXPERIENCE

2004-present Associate Professor  
UCLA School of Nursing, Primary Care and  
UCLA School of Public Health, Environmental Health Sciences

1997-2004 Assistant Professor  
UCLA School of Nursing, Primary Care and  
UCLA School of Public Health, Environmental Health Sciences

1999-present Faculty  
UCLA Inter-Departmental Program in Molecular Toxicology

1997-present Faculty  
UCLA Center for Occupational & Environmental Health

1997-present Director, UCLA Occupational & Environmental Health Nursing Program

1994-1997 Guest Researcher, Special Volunteer  
National Institute of Environmental Health Sciences

1994-1997 Assistant Clinical Professor, Public Health Nursing  
Assistant Research Professor, Epidemiology  
University of North Carolina at Chapel Hill

1990-1994 Graduate Student Biomedical Scientist  
Lawrence Livermore National Laboratory, University of California,  
Livermore, CA

## PROFESSIONAL EXPERIENCE (continued)

- 1988-1990 Graduate Student Research Assistant  
University of Washington, Seattle
- 1986-1988 Nurse Practitioner / Clinical Nurse Researcher  
San Francisco General Hospital, San Francisco, CA
- 1981-1986 Nurse Practitioner  
Public Health and Non-profit Health Clinics  
Austin, Texas and Phoenix, Arizona

## RESEARCH

### Major Research Interests

- Male Reproductive Toxicology & Epidemiology
- Spermatozoa DNA/Chromatin
- Gene-gene & gene-environment interactions in complex medical disorders
- Occupational & Environmental Epidemiology Studies

### Research Grants and Contracts, W.A. Robbins-Principal Investigator

UC Toxic Substances Research & Teaching Program, Health Effects Component	Development of a Method to Detect Aneuploidy in Sperm of Men Exposed to Environmental and Occupational Toxicants	1991-1993 \$20,000
U.S. EPA, U of North Carolina Cooperative Agreement	Effects of Smoking Cigarettes on Aneuploidy Frequencies in Human Sperm	1995 \$5,000
NIEHS, Environmental Toxicology Program, Repro Toxicology Group	A Pilot Study to Investigate Human Germ Line Effects from Zidovudine and Other Dideoxynucleosides (Co-P.I. JB Bishop)	1996-1999 \$476,000
U.S. EPA, U of North Carolina Cooperative Agreement	Male Reproductive Biomarker Studies	1996-1997 \$20,000
U.S. Environmental Protection Agency	Effects of Air Pollution on Aneuploidy in Sperm of Men from the Czech Republic	1996-1997 \$10,000

Research Grants and Contracts, W.A. Robbins-Principal Investigator (continued)

UCLA School of Nursing	Pilot Study of a Container for Semen Collection	1997-1998 \$8,720
UCLA School of Nursing	Sperm Cytogenetic Damage in Pesticide Exposed Canadian Farmers	1998-1999 \$8,701
UCLA Faculty Senate	Sperm Cytogenetic Damage in Pesticide Exposed Canadian Farmers	1998-1999 \$1,401
National Institute for Occupational Safety & Health (N.I.O.S.H.)	Director, Occupational Health Nurse Training Program, Southern California ERC	1998-1999 \$71,994
UCLA School of Nursing Intramural Grant	Cytogenetic Damage in Sperm in Swim-up versus Unprocessed Semen	1999-2000 \$10,000
U.S. Environmental Protection Agency	Validation of Genetic Testing in Sperm Collected for Epidemiologic Studies	1999-2001 \$18,000
National Institute for Occupational Safety & Health (N.I.O.S.H.)	Director, Occupational Health Nurse Training Program, Southern California ERC	1999-2004 \$444,443
Center for Vulnerable Populations Research, UCLA School of Nursing	Male Reproduction Following Childhood DBCP (Dibromochloropropane) Exposure	1999-2000 \$10,000
UCLA School of Nursing Intramural Grant	Effects of Smoking Cessation on DNA and Aneuploidy in Human Sperm	2000-2001 \$10,000
NIH/National Institute for Nursing Research	Multifactorial Genetic Disease Model: Schizophrenia/HLA	2001-2004 \$313,912
National Institute for Occupational Safety & Health (N.I.O.S.H.)	Male Reproductive Effects from Occupational Exposure to Boron	2001-2007 \$2.4 million
National Institute for Occupational Safety & Health (N.I.O.S.H.)	Director, Occupational & Environmental Health Nurse Training Program, Southern California ERC	2004-2009 \$630,011
UCLA School of Nursing Intramural Grant	Human Reproductive Effects from Herbicide Exposure in a Chinese Production Plant	2005-2007 \$25,000



Research Grants and Contracts, W.A. Robbins-Principal Investigator (continued)

Kaiser Permanente	Kaiser and UCLA School of Nursing Genetics Initiative	2006-2009 \$20,000
Benefits of Walnuts for Male Reproductive Health	California Walnut Commission	2009-2010 \$183,051
National Institute for Occupational Safety & Health (N.I.O.S.H.)	Director, Occupational & Environmental Health Nurse Training Program, Southern California ERC	2009 – 2012 \$615,000

Research Grants and Contracts, W.A. Robbins, Co-Investigator

State of California J.R. Froines (PI)	Summary Report on the Health Effects of Methyl Tertiary Butyl Ether (MTBE) and Its Metabolites, Combustion Products, and Potential Gasoline Additive Substitutes	1998 \$50,000
NIH/ National Institute of Nursing Research D Koniak-Griffin (PI)	Center for Vulnerable Populations Research, UCLA School of Nursing  Director of BioLaboratory Core	1999-2009 \$1.5million  1999-2006

Co-Investigator as Mentor/Advisor of Graduate Students

Naureen Tareen, PhD Student UC Toxic Substances Research and Teaching Program	Male Reproductive Effects of Childhood Dibromochloropropane Exposure	1999-2000 \$20,000
Naureen Tareen, PhD Student Southern California Environmental Health Effects Research Center	Effects of Smoking Cessation on Semen Quality	1999-2000 \$15,000
Ka Ling Lim, Industrial Hygiene MS Student UC Toxic Substances Research and Teaching Program	Influence of Cryopreservation on Integrity of DNA in Human Ejaculated Spermatozoa Over Time: Study of Variation in DNA Strand Breaks Between Subjects and Within Subjects	2001-2002 \$25,000
Daria Zandi & Lori Frank, OEHN MSN students	Safety & Health Audit Research Project	2001-2002 \$3,000

Otis Clapp New Investigator  
Award

Co-Investigator as Mentor/Advisor of Graduate Students (continued)

Karen Young, MS UCLA/UCR/LANL Lead Campus Program in Toxic Mechanisms	In vivo and in vitro Studies of Oxidative Injury in Human Sperm Related to Air Pollution	2002-2003 \$17,000 2003-2004 \$15,000
Chaw-Chih Lee Yeh, OEHN MSN student, Eddie David, MPH EHS student	Farmer Organophosphate Pesticide Exposure and Sex Chromosome Aneuploidy in Sperm	2003-2004 \$17,000
Karen Young, PhDc NIOSH/SC ERC Pilot Project	The Effects of Occupational Nickel Exposure on Human Sperm DNA Integrity	2005-2006 \$20,250
Karen Young, PhDc EHS Community Stars Award	Identifying Greater Los Angeles Area Communities at Risk of Exposure to Metal Contaminants	Summer 2006 \$5000

**HONORS**

Sigma Theta Tau, National Honor Society of Nursing  
Charter Member, Austin AIDS Project, Austin, Texas  
Regents Fellowship, University of California, Berkeley  
Delta Omega Honor Society in Public Health  
XVth Testis Workshop Travel Award, NIH#R13Hd37271  
Faculty Senate Career Award, University of California, Los Angeles  
Fellow American Academy of Nursing (F.A.A.N.)  
Audrienne H. Mosley Endowed Chair in Biological Nursing Research

**TEACHING**

Courses Taught

**Courses University of North Carolina, Chapel Hill**

Public Health Nursing Program:

*Occupational Health Nursing Field Practicum I*, (Public Health Nursing 281)-1994

*Research Methods II: Data Management*, (Public Health Nursing 299)-1995-96

*Community Health Assessment, Roles and Theory* (Public Health Nursing 245)-1996

## TEACHING (continued)

*Adult Physical Assessment Courses for Public Health Nurses, (Public Health Nursing Distance Learning)-1996-1997*

### Epidemiology Department

*Fundamentals of Epidemiology Laboratory / Discussion (Epidemiology 168)-1995*

*Theory and Quantitative Methods in Epidemiology, Consulting Faculty (Epidemiology 268) -1996*

## **Courses University of California, Los Angeles**

### School of Nursing

*Theoretical Concepts in Occupational Health Nursing (N213)-1997*

*Occupational Health Nursing, Role and Theory (NC213A/N213A)  
1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009*

*Reproductive Endocrinology (N235)-1998*

*Occupational Health Programs (N213B)-1998*

*Health Assessment, Research, and Health Promotion in Occupational Health (N213C  
renamed N213B in 2000)-  
1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009*

*Advanced Pathophysiology (N230)-2005*

*Biological Nursing Science, (N248B) 2007*

*Fundamentals of Epidemiology (N50)  
2006, 2007, 2008*

### Environmental Health Sciences, School of Public Health

*Fundamentals of Environmental Health Sciences: (EHS200A)-Epidemiology Section  
(Faculty Team Teaching Effort) 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008*

## **Doctoral Committees – Ph.D. Degree**

### *Chair*

*Karen Young, 2009 (Interdepartmental Program in Molecular Toxicology)*

*Dawn Stone (Nursing)*

## TEACHING (continued)

### **Doctoral Committees – Ph.D. Degree**

#### *Committee Member*

Suh-Woan Hu, 1996 (Epidemiology, *UNC*)  
Russel Seiichi Okoji, 2000 (Environmental Health Sciences)  
Jiang-Hong Liu, 2002 (Nursing)  
Guadalupe Chapa (Environmental Health Sciences)  
Rudy Rull, 2004 (Epidemiology)  
Grace Sangeun Lee, 2004 (Molecular Toxicology, IDP)  
David Simonowitz, 2004 (Islamic Studies)  
Anusha Krishnadasan, 2004 (Epidemiology)  
Isabell Biene Purdy, 2004 (Nursing)  
Mina Attin, 2005 (Nursing)  
Lisa Joy Martin 2006 (Molecular Toxicology IDP)  
Danny Hyunsoo Kim, 2005 (Environmental Health Sciences)  
Craig Fertig Conlon, 2007 (Environmental Health Sciences)  
Wade Thomas Barranco, 2006 (Molecular Toxicology, IDP)  
Robert Phalen, 2006 (Environmental Health Sciences)  
Xu Wenhai 2007 (Environmental Health Sciences)  
Xiaoyan Liao, 2007 (Environmental Health Sciences)  
Cecilia Yuen-Ting Chan, 2007 (Molecular Toxicology IDP)  
Jeng Wang, 2006 (Nursing)  
Kim Henderson 2009 (Molecular Toxicology IDP)  
Jeff Birkner, 2007 (Environmental Health Sciences)  
Amjad Ibrahim Khawaldeh 2008 (Nursing)  
Chunyuan Fei (Epidemiology)  
Isabel Garcia (Fogarty Program, Environmental Health Sciences)  
Rachelle Rodriquez (Epidemiology)  
Sarah Kobylewski (Molecular Toxicology IDP)

### **Masters Students Thesis or Masters Report**

#### *Chair*

Tina Hess, MPH, 1997 (OHN, *UNC*)  
Ingrid Bilan, MPH, 1998 (OHN, *UNC*)  
Slade Matthews, MPH, 1999 (EHS)  
Thuan Ong, MPH, 2000 (EHS)  
Phillip Joo Kim, MPH, 2001 (EHS)  
Vyacheslav Alec Pekler, MS, 2002 (EHS)  
Ka Ling Lim, MS, 2002 (EHS)  
Jennifer Rodriquez, MPH 2002 (EHS)  
Kathleen Kozawa, MPH, 2003 (EHS)  
Karen Young, MS, 2003 (EHS)  
Myranda Rachelle Austin, MS, 2005 (EHS)  
Yasmin Jahan Chowdhury, 2006 MPH (EHS)

## TEACHING (continued)

### Masters Students Thesis or Masters Report

#### *Committee*

Tina Hamblin, MS, 1995 (OHN, UNC)

Lisa Pompeii, MS, 1995 (OHN, UNC)

Amy Miller, MS, 1997 (OHN, UNC)

Lisa Martin, MS, 2002 (EHS)

Hirohito Shiumizu, MS, 2005 (EHS)

Ming-Fen Josephine Ho, MS, (EHS)

David Liu, MPH, 2009 (EHS)

Katia Gee, MPH, (EHS)

### UCLA Undergraduate Student Research Program (SRP) Mentees

Paul-Joseph Penaflor Aspuria 1998, 1999 Pre-Micro and Molecular Genetics

Jacqueline Bautista Guinto 1999, 2000 Physiological Science

Kim Hoang Le 2000, 2001 Biochemistry

Tiffany Anne Y L Lee 2001, 2002, 2003 Pre-psychobiology to Molecular Genetics

Angelica Riestra, 2005 Psychobiology

### UCLA CARE Fellows Program and MERC Fellows Program

Angelica Riestra, 2005 Psychobiology/ her laboratory work was awarded best poster presentation at the National SACNAS Conference in the Medicine and Health category (Society for the Advancement of Chicanos and Native Americans in Science)

### UCLA School of Nursing, Nurses Caring for Older Adults Young Scholars Program Mentee

Karmen Abaza, 2009 Nursing Generic/Prelicensure

### University Guest Lecturer or Seminar Speaker

Epidemiology for Advanced Nursing Practice: Community Health Nursing, Virginia Commonwealth University, Medical College of Virginia, 1994

NIEHS-UNC Nursing-Duke University Medical Center Fellowship Program  
NIEHS, Research Triangle Park, NC 1995, 1996

Cytogenetic Biomarkers in Human Sperm, Graduate Student Seminar Series,  
Graduate Program in Toxicology, University of California, Riverside, 1997

Health Screening and Disease Prevention, *Biobehavioral Foundations of Health Assessment* (N200A), University of California, Los Angeles, 1997, 1998

## TEACHING (continued)

### University Guest Lecturer or Seminar Speaker

Measurement of Human Sperm Cytogenetic Damage in Studies of Occupational Environmental and Lifestyle Exposures, *EHS Seminar Series (M411)*, University of California, Los Angeles, 1998

Reproductive Hazards in the Workplace, *Occupational Medicine (EHS251)*, University of California, Los Angeles, 1998

Clinical Research Questions and Research Design, *FNP Clinical Practicum (N439C)*, University of California, Los Angeles, 1998

Epidemiology of Workplace Hazards, *Occupational Epidemiology (Epidem261)*, University of California, Los Angeles, 1998

Introduction to Genetics and Gametogenesis, *Advanced Pathophysiology (N230)*, University of California, Los Angeles, 1999

Genetics and Family Nursing Theory, *Theoretical Foundations of Family Nursing (N212)*, University of California, Los Angeles, 1999, 2000, 2001, 2002, 2006

Environmental Risk Factors in Community Based Nursing, *Professional Nursing in a Culturally Diverse Community (N102)*, University of California, Los Angeles, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2007, 2008

Gametogenesis, Fertilization, and Sexual Differentiation, *Reproductive Endocrinology (N235)*, University of California, Los Angeles, 1999

Andrology and Assessment of Male Infertility, *Reproductive Endocrinology (N235)*, University of California, Los Angeles, 1999

Occupational Issues in Pregnancy, *Primary Care of Women: Antepartum Management (N237A)*, University of California, Los Angeles, 1999, 2000, 2001, 2002

*Health Hazards of Industrial Processes*, Faculty leader for two site visits, Environmental Health Sciences, UCLA (EHS254), 1999, 2000

Introduction to Occupational and Environmental Epidemiology, *Environmental Health Sciences: The Field and Its Paradigm*, UCLA (EHS200), 1999

Environmental and Occupational Health, Environmental Health Undergraduate Course, University of Southern California, School of Public Health, 1999

## TEACHING (continued)

### University Guest Lecturer or Seminar Speaker

Andrology and Male Reproduction, *Reproductive Endocrinology* (N235), University of California, Los Angeles, 2000

Assessment of Male Infertility and Assisted Reproductive Technologies, *Reproductive Endocrinology* (N235), University of California, Los Angeles, 2000

Sperm Biomarkers in Occupational Studies, *Occupational Epidemiology* (Epidem261), University of California, Los Angeles, 2000

Community Health Assessment, *Biobehavioral Foundations of Health Assessment* (N200A), University of California, Los Angeles, 2000

Workplace and Community Health Assessment, *Biobehavioral Foundations of Health Assessment* (N200A, N200), University of California, Los Angeles, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008

Data Collection and Assessing Data Quality, *Introduction to Research* (N193), University of California, Los Angeles, 2002

Environment and Health, *Introduction to Public Health* (Public Health 150), University of California, Los Angeles, 2002

Human Sperm Biomarkers in Environmental and Occupational Toxicology Studies, *Molecular Toxicology Seminar Series*, University of California, Los Angeles, 2002

Reproductive Effects from Workplace & Environmental Exposures, *Occupational Diseases: Recognition and Prevention* (EHS251B), 2003

Occupational and Environmental Hazards, *Theoretical Foundations of Women's Health Care During the Reproductive Years* (N211), 2004, 2005, 2006, 2007, 2008

Quality, Scope, and Characteristics of Male Mediated Developmental Toxicity Research at UCLA School of Nursing, *Nursing Science Seminar* (N295A), 2004, 2005, 2006, 2007, 2008

Occupational Health Nursing, *Community Health Nursing* (N171A), 2005, 2007 Bridge, 2008 MECN

Occupational Health Nursing Panel Member, *Professional Issues in Nursing* (N264), 2005, 2006

## TEACHING (continued)

Male Mediated Developmental Toxicology, *Graduate Student Seminar Series*, Graduate Program in Environmental Toxicology, University of California, Riverside, 2006

Male Fertility and Reproduction: Environmental and Occupational Epidemiology-Toxicology Studies, *Reproductive Epidemiology*, Epidemiology, 2006, 2007

Reproductive Pathophysiology, *Advanced Pathophysiology* (N230B), 2006

Occupational and Environmental Health, *Advanced Practice Nursing Assessments*, (N439A), 2007

Work and Environmental Health Policy, *Health Care Policy* (N267), 2007

Evaluating the Effects of Environmental Exposures on Male Reproductive Health, *Molecular Toxicology Seminar* (246), 2007

Human Subjects Research, Faculty facilitator for discussion group, *Ethics and Accountability in Biomedical Research* (C134/234), 2006, 2009

Occupational Health Nursing, *Public Health Nursing* (171C), 2009

Epidemiology, Toxicology, and Male Reproductive Health, *Methodologic Issues in Reproductive Epidemiology* (EPIDEMIOLOGY 267), 2009 15 graduate students

## SERVICE

### **Professional and Scholarly Service on Committees, Boards, Advisory, Review Panels – outside University of California**

- |             |   |
|-------------|---|
| 1994 - 1995 | Sigma Theta Tau International, Glaxo Research Grants, Awards Committee  |
| 1995        | International Aneuploidy Workshop Committee: Aneuploidy in Germ Cells: Etiologies and Risk Factors, September 11-13, NIEHS, RTP   |
| 1995        | North Carolina Tarheel Association of Occupational Health Nurses, Research Committee Member   |
| 1995-1997   | Environmental Toxicology Research Program, University of California at Riverside, Consultant for studies on Pesticide Exposures and Sperm Cytogenetic Damage, and Benzene Exposures related to Blood Cytogenetic Damage in Exposed Worker Populations |
| 1995        | IRTA Summer of Discoveries Program, NIEHS, Research Triangle Park, Mentor for Occupational Health Nursing Graduate Student  |



**SERVICE (continued)**

**Professional and Scholarly Service on Committees, Boards, Advisory,  
Review Panels – outside University of California**

- |              |  |
|--------------|--|
| 1996         | Sigma Theta Tau, Alpha Alpha Chapter, Research Awards Committee  |
| 1996-1997    | Genotoxicity and Environmental Mutagen Society, Research Triangle Park, Board Member   |
| 1995-1997    | Human Studies Faculty, National Institute of Environmental Health Sciences, Research Triangle Park   |
| 1997         | Associated Women in Science, Travel Awards Committee   |
| 1998-2003    | American Association of Occupational Health Nurses AAOHN representative to the American Society of Safety Engineers, American Standards Institute Z490 Committee on Criteria for Best Practices in Safety, Health and Environmental Training   |
| 1998-2002    | Health, Opportunities, Problem-Solving, and Empowerment Project (HOPE), consultant   |
| 1999-2003    | Sigma Theta Tau, Gamma Tau Chapter, Research Committee Chair   |
| 1999-2004    | Service Employees International Union Education and Support Fund (SEIUE & SF) Training Program Advisory Board, Los Angeles, CA   |
| 1999-2002    | Southern California Environmental Health Sciences Center, Community Outreach and Education Program, UCLA representative  |
| 2000         | National Institute for Occupational Safety and Health (NIOSH), Division of Applied Research and Technology (DART) and the NIOSH Division of Hazard Evaluation and Field Studies (DSHEFS), Peer Reviewer for intramural protocol “Health Assessment of Workers Exposed to 1-Bromopropane” |
| 2000         | Epidemiology Review Panel for the US Army Medical Research and Material Command, Gulf War Illnesses Research, Epidemiological Investigations of Deployment Health Monitoring Methods   |
| 2000-present | Germ Cell/Aneuploidy Special Interest Group, Environmental Mutagenesis Society   |

2001-2005 National Institute Occupational Safety and Health NORA Fertility and Pregnancy Abnormalities, Team Member

**SERVICE** (continued)

**Professional and Scholarly Service on Committees, Boards, Advisory, Review Panels – outside University of California**

2001-present Arizona Disease Control Research Commission, National Peer Reviewer

2002 AIDS FONDS, The Netherlands, Peer Reviewer, new grant applications

2002 US Environmental Protection Agency Peer Review Panelist:  
Graduate Fellowships: Public Health Sciences

2002 US Environmental Protection Agency Peer Review Panelist:  
Grants for Research: Biomarkers for the Assessment of Exposure and Toxicity in Children

2002 National Institute for Occupational Safety and Health, Reproductive Health Assessment Section, Biomonitoring & Health Assessment Branch, Division of Applied Research and Technology, Peer Reviewer for intramural project “Reproductive Health in Workers Exposed to Acrylamide and Its Cogeners”

2002 American Society of Andrology Program Committee for 2003 Annual Meeting

2002 Sigma Theta Tau, Seventh Joint Southern California Chapters’ Conference, Nursing Odyssey 2002, Peer Reviewer, abstracts

2002-2006 Environmental Mutagenesis Society, Awards and Honors Committee

2003 National Institute for Occupational Safety and Health, Reproductive Health Assessment Section, Biomonitoring & Health Assessment Branch, Division of Applied Research and Technology, Peer Reviewer for intramural project “Health Effects Associated with Occupational Cycling”

2004-present American Society of Andrology, Awards Committee

2005 Canadian Institutes of Health Research, Grant Peer Reviewer

2005 US EPA STAR Research Grants Review Panel: Early Indicators of Environmentally Induced Disease

2005 DHHS/CDC/National Institute for Occupational Safety and Health, Grants Review panel: Occupational Exposure Risk on Reproductive Development

2006 Southern California Environmental Health Sciences Center, Pilot Project Peer Reviewer

**SERVICE (continued)**

**Professional and Scholarly Service on Committees, Boards, Advisory, Review Panels – outside University of California**

2006 Chair, NIOSH Occupational Health Nursing Directors meeting, Albuquerque, New Mexico, funded by the UCLA Center for Occupational and Environmental Health

2007 American Association of Occupational Health Nurses, Inc., AAOHN Awards Committee, Review of Innovations in Occupational Health applications (1/2007)

2007 Western Institute of Nursing Annual Meeting, Anaheim , California, Co-Chair of Local Planning Committee

2007 University of Arizona, Quality Assurance for Nursing Faculty Training in Laboratory Bench Research, Consultant

2007-2009 California Association of Occupational Health Nurses (CSAOHN), Secretary

2007, 2008 US EPA “Development of Environmental Health Outcome Indicators”, grant review panel

2008-present National Children’s Oncology Group, Long Term Follow-up Guidelines for Survivors of Childhood, Adolescent, and Young Adult Cancers Taskforce, Fertility and Reproduction

2009 Canadian Institutes of Health Research (CIHR), Grants Review Panel: Environment and Reproductive Health Team Grants

2009 National Institute for Occupational Safety and Health, Review Panel and Site Visitor for University of Minnesota and University of Washington

**University of California Service**

1997 Ad Hoc Committee on Adult Nurse Practitioner Option, School of Nursing

1997-1999 Ad Hoc Committee for review of format for the Master’s of Science in Nursing Comprehensive Examination

1997-2006 CAPAM A/B -Subcommittee Member, School of Nursing

- 1998 Special Fellowship and Dissertation Year Fellowship Reviewer for the Graduate Division Special Fellowship Office
- 1998-2000 Chair, Faculty Research & Professional Affairs Committee  
2005-2009 School of Nursing
- 1998-2000 Faculty Executive Committee, School of Nursing  
2002-present

**SERVICE** (continued)

**Professional and Scholarly Service on Committees, Boards, Advisory, Review Panels**  
**University of California**

- 1998-1999 Student Research Awards Committee member, Chair 1999  
Center for Occupational and Environmental Health
- 1998 Committee to Review the School of Nursing Research Office
- 1999-2000 Catalyst Mentorship Program- mentor, College of Letters and Science,  
Women's Resource Center
- 1999-2008 Admissions and Financial Aid Committee, Environmental Health Sciences
- 1999-2000 Student Affairs Committee, School of Nursing
- 1999-2004 UCLA Labor Occupational Safety and Health Program (LOSH), Faculty  
Advisory Committee
- 1999-2004 UCLA Center for Labor Research and Education, Institute of Industrial  
Relations, School of Public Policy and Social Research, Faculty Advisory  
Committee
- 2000 Computer Support Committee, School of Nursing
- 2000 UCLA Labor Occupational Safety and Health (LOSH) Program, Advisory  
Committee, for "Voices: California Workers' Perceptions of Health and Safety"  
research project
- 2000-2001 Ph.D. Sub-committee of the Graduate Programs Committee, School of Nursing
- 2000-2001 Faculty Research & Professional Affairs Committee, member

- 2001 IT Strategic Planning Committee, School of Nursing
- 2001-2002 Collaborator on Multi-campus Research Incentive Fund proposal 'Application of Molecular Cytogenetic Techniques to Improve the Detection of Cervical Cancer' with UC Riverside Graduate Programs in Toxicology
- 2002-2008 School of Public Health Laboratory & Equipment Committee

**SERVICE** (continued)

**Professional and Scholarly Service on Committees, Boards, Advisory, Review Panels**  
**University of California**

- 2002 Ad Hoc Program Evaluation Committee on Review of Small Programs, UCLA School of Nursing
- 2002-2004 Search Committee for Chair, Environmental Health Sciences Department
- 2002-2005 Student Affairs Committee member, Chair 2003-2005 School of Nursing
- 2003 Search Committee member for Family Medicine / Occupational and Environmental Medicine Faculty
- 2003 Search Committee member for Chair, Global Health Faculty, School of Public Health
- 2003-2006 Faculty Advisory Committee, Interdepartmental Program in Molecular Toxicology
- 2003-present UCLA Center for Society and Genetics, Associate Faculty
- 2005 School of Nursing Research Strategic Planning Committee, Chair
- 2005-2007 School of Nursing Representative to the Legislative Assembly, UCLA Faculty Senate
- 2006, 2007 Southern California NIOSH Education and Research Center, Pilot Project Grants, reviewer
- 2005-2006 Acting Chair two quarters, Primary Care Section, School of Nursing
- 2006 School of Nursing Doctoral Program Subcommittee on evaluation of courses
- 2006 UCLA Academic Senate COR Faculty Grants Program, grant reviewer
- 2006 National Public Health Nursing Initiative, Associated Schools of Public Health,

UCLA School of Public Health representative to the working group,  
Washington, D.C.

2006-2007 South Campus General Institutional Review Board, (IRB), Committee Member,  
2007-present Vice Chair 2007-present

**SERVICE (continued)**

**Professional and Scholarly Service on Committees, Boards, Advisory, Review Panels –  
University of California**

2006, 2007 College of Letters and Science, Undergraduate Research Center (URC), Center  
for Academic and Research Excellence (CARE), Science Poster Day Dean's  
Prize judge

2007 - present Executive Committee, UC Toxics Substances Research & Teaching Program  
(UC TSR&TP) Multi-campus Research Unit

2006-present Recruitment Committee member, New Faculty for School of Nursing

2007 - 2009 UCLA/ CSUN Sigma Theta Tau, Gamma Tau Chapter Research Grant  
reviewer

2007 Search Committee, Associate Dean for Research, School of Nursing

2007-2008 Search Committee for Dean of the School of Nursing

2007- present CAPA Committee, School of Nursing

2008, 2009 UCLA Health System, Department of Nursing, Conference Planning  
Committee and Nursing Practice Research Council, Annual Research  
and Evidence-based Practice Conference

2008 UCLA Center for Vulnerable Populations Research, Pilot Study Proposals –  
reviewer

2008 - present Faculty Advisor for Nursing Students at UCLA (NSUCLA), undergraduate  
nursing student organization

2009 Chair, Search Committee for ERC Director and Aerosol Faculty,  
Environmental Health Sciences, School of Public Health

2009 - present Academic Subcommittee, UCLA Campus Sustainability Committee

2009 UCLA International Activities Workgroup, Chaired by R. Craig Squire,  
Corporate Accounting

2009                    UCLA School of Nursing Alumni Weekend Planning Committee

2009-2012            UCLA Committee on International Education

### **OTHER PROFESSIONAL ACTIVITIES**

#### Editorial Service to Scholarly Journals: Periodic referee of papers for:

American Journal of Epidemiology  
American Journal of Human Genetics  
Asian Journal of Andrology  
Cancer Genetics and Cytogenetics  
Cytogenetic and Genome Research  
Fertility and Sterility  
Human Reproduction  
Journal of Andrology, Editorial Board, 2008 - present  
Journal of Urology  
Mutagenesis  
Mutation Research  
Nursing Research  
Occupational and Environmental Medicine  
Progress in Community Health Partnerships: Research, Education, and Action  
Reproduction, Fertility and Development  
US Environmental Protection Agency, National Health and Environmental Effects  
Research Laboratory (NHEERL), Gamete & Early Embryo Branch, External  
Reviewer for Manuscripts

#### Professional Associations

American Association of Occupational Health Nurses  
American Nurses Association  
American Public Health Association  
American Society of Andrology  
California State Association of Occupational Health Nurses, Secretary 2007-2009  
Environmental Mutagen Society  
Genotoxicity and Environmental Mutagen Society 1994-1997  
International Society of Nurses in Genetics  
National Institute Environmental Health Sciences, Associated Women in Science 1995-1996  
Society for Occupational and Environmental Health 1997-2000

#### Certifications

California Board of Registered Nursing, License No. 399881  
Certified Nurse Practitioner, Practitioner Furnishing Certificate 3311, 1986- present

#### Invited Seminars, Lectures, Podium Presentations at Workshops

Robbins WA (1995) Occupational Health In A Time Of Change: Preparing, Partnering And Positioning For The Future, North Carolina Occupational Safety And Health Educational Resource Center.

**OTHER PROFESSIONAL ACTIVITIES (continued)**

Invited Seminars, Lectures, Podium Presentations at Workshops (continued)

Robbins WA (1995) Use Of Fluorescence *In Situ* Hybridization to Measure Chromosomal Damage In Human Sperm Following Occupational Or Environmental Exposures, Society for Occupational and Environmental Health, Annual Meeting in Bethesda, Maryland.

Robbins WA, Everett G (1996) Physical Assessment for Occupational Health Nurses, 19th Annual Occupational Safety and Health Summer Institute, Norfolk, Virginia, August 5-7, 1996.

Robbins WA (1998) Confounding by Age, Alcohol, Caffeine, and Smoking in a Study of Sperm Aneuploidy in Healthy Men, Environmental Mutagen Society Annual Meeting, Anaheim, CA.

Robbins WA (1998) Seasonal Air Pollution and Sperm Aneuploidy in Healthy 18 Year Olds, 11<sup>th</sup> Annual UCLA Nursing Research Day, Faculty Center, UCLA.

Robbins WA (1998) Identification of Chromosome/Genetic Damage in Human Germ Cells, The 3<sup>rd</sup> International Conference on Environmental Mutagens in Human Populations, Bangkok, Thailand.

Robbins WA (1999) Reproductive Hazards: New Concerns, Occupational-Environmental Medicine Seminar Series, Faculty Center, UCLA.

Robbins WA (1999) Molecular Genetic Techniques to Identify Chromosomal Abnormalities in Human Sperm, Southern California Chapter of the Society of Toxicology, Irvine, CA.

Robbins WA (1999) Genetics, Molecular Biology, Nursing Science and Beyond, UCLA School of Nursing 50<sup>th</sup> Anniversary Program, UCLA Covel Commons.

Robbins WA (1999) Reproductive Hazards in the Workplace, California State Association of Occupational Health Nurses, State Meeting, Palm Springs, CA.

Robbins WA (2000) Occupational Issues in Pregnancy, UCLA Midwifery Continuing Education Conference for Clinical Preceptors, UCLA Faculty Center, Los Angeles, CA.

Robbins WA (2000) Reproductive Hazards in the Workplace, Council of Nurse Leaders in Business and Health, Annual Meeting, San Diego, CA.

Robbins WA (2000) Occupational Health Nursing: Where Are We Going? California Harbor Occupational Health Nursing Association, Annual Dinner Meeting, Redondo Beach, CA.



Robbins WA (2001) Male Reproduction Following Childhood DBCP Exposure: Pilot Project of the Center for Vulnerable Populations Research, UCLA Nursing Research Day, Faculty Center, University of California, Los Angeles, CA.

**OTHER PROFESSIONAL ACTIVITIES (continued)**

Invited Seminars, Lectures, Podium Presentations at Workshops (continued)

Robbins WA (2001) Fluorescence in situ Hybridization (FISH) – To Detect Effects of Smoking, Caffeine, and Alcohol in Human Sperm, Second International Conference on Male-Mediated Developmental Toxicity, Montreal, Canada.

Anderson N, Robbins WA, Kohpahl G (2001) Qualitative and Participatory Methods for Community and Biological Research, UCLA Center for Vulnerable Populations Research Training Workshop, University of California, Los Angeles, CA.

Robbins WA (2002) Integrating Biological Laboratory Assays in Participatory Research, Western Institute of Nursing 35<sup>th</sup> Annual Communicating Nursing Research Conference, Pre-Conference Course: Methodological Challenges with Research Addressing Health Disparities, Palm Springs, CA.

Robbins WA (2002) Male Contribution to Birth Defects: Clinical Aspects, Andrology Postgraduate Course: Genes, Hormones & Environment, 27<sup>th</sup> Annual Meeting of the American Society of Andrology, Seattle, Washington.

Robbins WA (2003) Male Reproductive Effects from Occupational Exposure to Boron, NORA Symposium “Working Partnerships: Applying Research to Practice”, Hilton Crystal City Hotel, Arlington, Virginia.

Robbins WA (2003) Sperm DNA Chromatin Measures in Occupational and Environmental Field Studies, Programa Del II Encuentro Regional De Investigadores En Salud, Las Instalaciones de la Facultad de Medicina, Unidad Torreón, Mexico.

Assessing Human Germ Cell Mutagenesis in the Post-Genome Era: A Celebration of the Legacy of William Lawson (Bill) Russell (2004) Sponsored by US EPA, DOE, ORNL, LLNL, NIH/NIEHS/ NIH/ORD, the Jackson Laboratory and the Environmental Mutagen Society, Rapporteur for Poster Session.

Robbins WA (2004) Differential effects of boron on X and Y sperm and sex ratio at birth, Environmental Endocrine Disruptors Gordon Research Conference, New London, NH.

Robbins WA (2004) Application of Community-Based Participatory Research With Biological Research Projects, CVPR Summer Institute

Robbins WA (2005) Environmental Nursing, California State Association of Occupational Health Nursing Annual Conference, San Francisco, California.

**OTHER PROFESSIONAL ACTIVITIES** (continued)

Invited Seminars, Lectures, Podium Presentations at Workshops (continued)

Invitational Genetic Symposium funded by NIEHS and National Institute for Human Genome Research: "Genes in the Workplace: The Right Fit?" (2006) Paper II: Rischitelli, G:New Frontiers in Preventing Disease in the Workplace; Implications for Occupational Health, panel discussants: W. A. Robbins and A.E. Gutmacher, at Georgetown University Law Center in Washington, D.C.

Robbins WA (2007) Evaluating Effects of Environmental Exposures on Male Reproductive Health, Guest Speaker for Environmental Health Research Conference, Beijing, China

Robbins WA (2007) Male Reproductive Effects of Workplace Boron Exposure, Joint Colloquia Center for Vulnerable Populations Research and the School of Nursing Research Office Research Office

Robbins WA (2009) Older Workers, seminar for UCLA School of Nursing Gerontology Nursing Special Interest Group

Robbins WA and Orkin A (2009) School of Nursing Social, Behavioral, and Educational Research IRB Submissions: Q&A brown bag seminar sponsored by UCLA School of Nursing Office of Research

## PUBLICATIONS

November 2009

### A. PEER-REVIEWED PAPERS

#### Published

1. Robbins WA, Segraves R, Pinkel D, Wyrobek AJ (1993) Detection of aneuploid human sperm by \* fluorescence in situ hybridization: Evidence for a donor difference in frequency of sperm disomic for chromosomes 1 and Y, American Journal of Human Genetics, 52:799-807.  
<http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1682070&blobtype=pdf>
2. Wyrobek AJ, Robbins WA, Mehraein Y, Pinkel D, Weier H-U (1994) Detection of Sex \* Chromosomal Aneuploidies X-X, Y-Y, and X-Y in Human Sperm using Two-probe Fluorescence in situ Hybridization, American Journal of Medical Genetics, 53:1-7.  
<http://www3.interscience.wiley.com/cgi-bin/fulltext/110525569/PDFSTART>
3. Robbins WA, Baulch JE, Moore II D, Weier H-U, Blakey D, Wyrobek AJ (1995) Three-probe \* fluorescence in situ hybridization to assess chromosome X, Y, 8 aneuploidy in sperm of 14 men from two healthy groups: evidence for an age effect, Reproduction, Fertility, and Development, 7:799-809.  
<http://www.publish.csiro.au/paper/RD9950799> [only abstract accessible]
4. Robbins WA (1996) Cytogenetic damage measured in human sperm following cancer chemotherapy, Mutation Research, 355:235-252.  
[http://www.sciencedirect.com/science?\\_ob=MIimg&\\_imagekey=B6T2C-3W2YGG4-D-1&\\_cdi=4915&\\_user=4423&\\_orig=search&\\_coverDate=08%2F17%2F1996&\\_sk=996449998&\\_view=c&\\_wchp=dGLzVzz-zSkWA&\\_md5=7c4251a599ec02f683ffdb6d9c6345ea&\\_ie=/sdarticle.pdf](http://www.sciencedirect.com/science?_ob=MIimg&_imagekey=B6T2C-3W2YGG4-D-1&_cdi=4915&_user=4423&_orig=search&_coverDate=08%2F17%2F1996&_sk=996449998&_view=c&_wchp=dGLzVzz-zSkWA&_md5=7c4251a599ec02f683ffdb6d9c6345ea&_ie=/sdarticle.pdf)
5. Robbins WA, Vine MF, Truong KY, Everson RB (1997) Use of FISH (fluorescence in situ \* hybridization) to assess effects of smoking, caffeine, and alcohol on aneuploidy load in sperm of healthy men, Environmental and Molecular Mutagenesis, 30:175-183.  
<http://www3.interscience.wiley.com/cgi-bin/fulltext/10009236/PDFSTART>
6. Robbins WA, Meistrich ML, Cassel MJ, Weier H-U, Hagemester FB, Wilson G, Eskenazi B, \* Wyrobek AJ (1997) Chemotherapy induces transient sex chromosomal and autosomal aneuploidy in human sperm, Nature Genetics, 16:74-78.  
<http://www.nature.com/ng/journal/v16/n1/pdf/ng0597-74.pdf>
7. Robbins WA, Rubes J, Selevan SG, Perreault SD (1999) Air pollution and sperm aneuploidy in \* healthy young men, Environmental Epidemiology and Toxicology, 1:125-131.  
Not accessible online
8. Royster MO, Lobdell DT, Mendola P, Perreault SD, Selevan SA, Rothman SG, Robbins WA \* (2000) Evaluation of a mail-in container for home collection of semen with potential uses in population-based, clinical, and occupational settings, Journal of Andrology, 21:478-484.  
<http://www.andrologyjournal.org/cgi/reprint/21/3/478>

**PUBLICATIONS** (continued)

November 2009

**A. PEER-REVIEWED PAPERS** (continued)

9. Robbins WA (2000) Postexposure prophylaxis for HIV exposed health care workers, *Linking Practice & Research* (ed: SL Lusk), *AAOHN Journal*, 48:148-151.  
Not accessible online
10. Robbins WA, Cousins DS (1998) Reproductive Hazards in the Workplace, *Infertility Clinics of North America*, 9:545-580.  
Not accessible online
11. Perreault SD, Rubes J, Robbins WA, Evenson DP, Selevan SG (2000) Evaluation of aneuploidy and DNA damage in human spermatozoa: Applications in field studies, *Andrologia*, 32:247-254.  
[http://www.scsadiagnostics.com/docs/139%20-%202000%20Czech%20II%20\(Andrologia\).pdf](http://www.scsadiagnostics.com/docs/139%20-%202000%20Czech%20II%20(Andrologia).pdf)
12. Robbins WA, Witt KL, Haseman JK, Dunson DB, Troiano L, Cohen MS, Hamilton CD, Perreault SD, Bishop JB, Beyler SA, Raburn D, Libbus B, Sanders L, Tedder ST, Morris R, Johndrow D, Jameson WC, Shelby MD (2001) Antiretroviral therapy effects on genetic and morphologic endpoints in lymphocytes and sperm of men with Human Immunodeficiency Virus infection, *Journal of Infectious Diseases*, 184:127-135.  
<http://www.journals.uchicago.edu/doi/pdf/10.1086/322002>
13. Recio R, Robbins WA, Ocampo-Gomez G, Borja-Aburto V, Moran-Martinez J, Froines JR, Garcia Hernandez, RM, Cebrian ME (2001) Organophosphorous pesticide exposure increases the frequency of sperm sex null aneuploidy, *Environmental Health Perspectives*, 109:1237-1240.  
<http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1240505&blobtype=pdf>
14. Robbins WA (2003) FISH (Fluorescence in situ hybridization) to detect effects of smoking, caffeine, and alcohol on human sperm chromosomes, *Advances in Experimental Medicine and Biology*, 518:59-72.  
Not accessible online
15. Ong TD, Xun L, Perreault SD, Robbins WA (2002) Aneuploidy and chromosome breakage in swim-up versus unprocessed semen from 20 healthy men, *Journal of Andrology*, 23:270-277.  
<http://www.andrologyjournal.org/cgi/reprint/23/2/270>
16. Perreault SD, Aitken J, Baker HWG, Evenson DP, Huszar G, Irvine DS, Morris ID, Morris RA, Robbins WA, Sakkas D, Spano M, Wyrobek AJ (2003) Integrating new tests of sperm genetic integrity into semen analysis, *Advances in Experimental Medicine and Biology*, 518:253-268.  
Not accessible online

**PUBLICATIONS** (continued)

November 2009

**A. PEER-REVIEWED PAPERS** (continued)

17. Nyamathi AM, Dixon EL, Robbins W, Smith C, Wiley D, Leake B, Longshore D, Gelberg L  
\* (2002) Risk factors for hepatitis C virus infection among homeless adults, *Journal of General Internal Medicine*, 17:1-9.  
<http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1495011&blobtype=pdf>
18. Rubes J, Vozdova M, Robbins WA, Rezacova O, Perrault SD, Wyrobek A (2002) Stable variants  
\* of sperm aneuploidy among healthy men show associations between germinal and somatic aneuploidy, *American Journal of Human Genetics*, 70:1507-1519.  
<http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=379139&blobtype=pdf>
19. Nyamathi AM, Robbins WA, Fahey J, Wiley D, Pekler V, Longshore D, Robins TA, Singh J, Saab  
\*δ S (2002) Presence of and predictors of HCV RNA in semen of homeless men, *Biological Research for Nursing*, 4:22-30.  
<http://brn.sagepub.com/cgi/reprint/4/1/22>
20. Pekler VA, Robbins WA, Nyamathi A, Yashina TL, Leak B, Robins TA (2003)  
\*δ Use of Versant™ TMA and bDNA 3.0 Assays to detect and quantify hepatitis C virus in semen, *Journal of Clinical Laboratory Analysis*, 17:264-270.  
<http://www3.interscience.wiley.com/cgi-bin/fulltext/106563974/PDFSTART>
21. Chapin RE, Robbins WA, Scheive L, Sweeney A, Tabacova S, Tomashek K (2004) Off to a good  
start: The influence of pre- and peri-conceptional exposures, parental fertility, and nutrition on  
childrens' health, *Environmental Health Perspectives* 112:69-78.  
<http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1241800&blobtype=pdf>
22. Young KE, Robbins WA, Xun L, Elashoff DA, Rothmann S, Perreault SD (2003) Evaluation of  
\*δ chromosome breakage and DNA integrity in sperm: an investigation of remote semen collection  
conditions, *Journal of Andrology* 24:853-861.  
<http://www.andrologyjournal.org/cgi/reprint/24/6/853>
23. Robbins WA (2005) Adverse effects of exposure to phthalates – communicating risks to workers,  
*American Association of Occupational Health Nurses Journal*, 53:59-62.  
\*no free access\* <http://www.aaohnjournal.com/showabst.asp?thing=34684>
24. Robbins WA, Elashoff DA, Xun L, Jia J, Li N Wu G, Wei F (2005) Effect of lifestyle exposures  
\*δ on sperm aneuploidy, *Cytogenetics and Genome Research*, 111:371-377.  
<http://content.karger.com/ProdukteDB/produkte.asp?Aktion=ShowPDF&ArtikelNr=86914&Ausgabe=231241&ProduktNr=224037&filename=86914.pdf>

## PUBLICATIONS (continued)

November 2009

### A. PEER-REVIEWED PAPERS (continued)

Published (continued)

25. Rubes J, Selevan SG, Evenson DP, Zudova D, Vozdova M, Zudova Z, Robbins WA, Perreault SD  
\* (2005) Episodic air pollution is associated with increased DNA fragmentation in human sperm without other changes in semen quality, *Human Reproduction* 20:2776-2783.  
<http://humrep.oxfordjournals.org/cgi/reprint/20/10/2776>
26. Lawson CC, Grajewski B, Daston GP, Frazier L, Lynch D, McDiarmid M, Muroso E, Perreault SD, Robbins WA, Shelby M, Whelan EA (2006) Implementing a National Occupational Reproductive Research Agenda: Decade one and beyond, *Environmental Health Perspectives*, 114:435-441. <http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1392239&blobtype=pdf>
27. Chang BL, Robbins WA, Wei F, Xun L, Wu G, Li N, Elashoff DA (2006) Work place protection and life styles of boron workers in China, *AAOHN Journal*, 54:435-443.  
\*δ [http://ucelinks.cdlib.org:8888/sfx\\_1?sid=Entrez:PubMed&id=pmid:17059161](http://ucelinks.cdlib.org:8888/sfx_1?sid=Entrez:PubMed&id=pmid:17059161)
28. Martin L, Chen H, Liao X, Allayee H, Shih D, Lee G, Hovland D, Robbins W, Carene K, Hess R, Lusic A, Collins M. (2007) FK506, a calcineurin inhibitor, prevents cadmium-induced testicular toxicity in mice, *Toxicological Sciences* 100:474-485.  
\*δ <http://toxsci.oxfordjournals.org/cgi/reprint/100/2/474>
29. Robbins WA, Wei F, Elashoff DA, Wu G, Xun L, Jia J (2008) Y:X sperm ratio in boron exposed men, *Journal of Andrology*, 29:115-121 .  
\*δ <http://www.andrologyjournal.org/cgi/reprint/29/1/115>
30. Xing X, Wu G, Wei F, Liu P, Wei H, Wang C, Jun X, Xun L, Jia J, Kennedy N, Elashoff DA, Robbins WA (2008) Biomarkers of environmental and workplace boron exposure, *Journal of Occupational and Environmental Hygiene*, 5:141-147.  
\*δ [http://pdfserve.informaworld.com/531605\\_770849120\\_789371060.pdf](http://pdfserve.informaworld.com/531605_770849120_789371060.pdf)
31. Li N, Elashoff DA, Robbins WA, Xun L (2008) A hierarchical zero-inflated log-normal model for skewed responses, *Statistical methods in medical research*, in press.  
\*δ <http://smm.sagepub.com/cgi/rapidpdf/0962280208097372v1>
32. Purdy IB, Wiley DJ, Smith LM, Howes C, Gawlinski A, Robbins W, Badr LK (2008) Cumulative perinatal steroids: child development of preterm infants, *Journal of Pediatric Nursing*, 23:201-214.  
\*δ [http://www.sciencedirect.com/science?\\_ob=ArticleURL&\\_udi=B6WKM-4SHVKJX-9&\\_user=4423&\\_rdoc=1&\\_fmt=&\\_orig=search&\\_sort=d&\\_view=c&\\_acct=C000059605&\\_version=1&\\_urlVersion=0&\\_userid=4423&md5=f00ae158a1e00705aad6fc3b6217c9c](http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6WKM-4SHVKJX-9&_user=4423&_rdoc=1&_fmt=&_orig=search&_sort=d&_view=c&_acct=C000059605&_version=1&_urlVersion=0&_userid=4423&md5=f00ae158a1e00705aad6fc3b6217c9c)
33. Robbins WA, Xun L, Jia J, Kennedy N, Elashoff DA, Ping Liu. Chronic boron exposure and human semen parameters, *Reproductive Toxicology*, volume 29: in press.  
\*δ  
\*Data-based peer reviewed.  
δPapers with UCLA students as co-authors

## **PUBLICATIONS (continued)**

November 2009

### **A. PEER-REVIEWED PAPERS (continued)**

#### Papers In Preparation

Xun, L, Lim KL, Li N, Elashoff DA, Robbins WA, Longitudinal study of Intra-and Inter-individual variation in DNA strand breakage in human sperm.

Robbins WA, Egan B, Peterson E, Interventions for improving stamina and health in older workers.

### **C. BOOK CHAPTERS and PROCEEDINGS**

1. Rubes J, Vozdova M, Selevan SG, Robbins WA, Perreault SD (2000) Impact of Air Pollution on Sperm Aneuploidy, In: Compendium of Reports by the Czech Ministry of the Environment, Czech Academy of Science, Academie Publishers.
2. Robbins WA. (2006) Chapter 8: Epidemiological and Occupational Studies of Metals in Male Reproductive Toxicity In: (Ed: Mari S. Golub) Metals, Fertility and Reproductive Toxicity, Taylor and Francis Publishers, pp.175-211.
3. Surgeon General's Report 2007, How Tobacco Causes Disease: The Biology and Behavioral Basis for Tobacco-Attributable Disease, contributor to Chapter 9. (Chapter Ed: Gayle Windham) Reproductive and Developmental Effects of Cigarette Smoking.
4. Robbins WA, Young KE, Wei F, (2007) Feasibility Study of Metal Effects on the X:Y Ratio in Human Sperm, In: (Eds: D. Anderson and M. Brinkworth) Male Mediated Developmental Toxicity, published by the Royal Society of Chemistry Publishing, United Kingdom.

### **D. PEER-REVIEWED PUBLISHED ABSTRACTS**

1. Robbins W, Eskenazi B, Wyrobek AJ (1991) Development of a method to detect the induction of aneuploidy in sperm of men exposed to occupational and environmental toxicants, UC Toxic Substances Research and Teaching Program Fifth Annual Research Symposium, Laurel Heights Conference Center, University of California, San Francisco.
2. Robbins W, Eskenazi B, Wyrobek AJ (1992) Detection of aneuploidy induction in sperm of men exposed to occupational, environmental, or therapeutic toxicants, UC Toxic Substances Research and Teaching Program Sixth Annual Research Symposium, University of California, Santa Barbara.

#### D. PEER-REVIEWED PUBLISHED ABSTRACTS (continued)

3. Robbins W, Segraves R, Pinkel D, Wyrobek AJ (1992) Frequencies of aneuploid sperm in healthy men vary with donor and chromosome, EMS Annual Meeting, Reno, Nevada, Environmental and Molecular Mutagenesis, 19(Suppl. 20):53.
4. Wyrobek AJ, Weier H-U, Robbins W, Mehraein Y, Pinkel D (1992) Detection of sex-chromosomal aneuploidies in human sperm using two-color fluorescence in situ hybridization, Environmental and Molecular Mutagenesis 19 (Suppl. 20):72.
5. Wyrobek AJ, Robbins WA, Weier H-U, Pinkel D (1992) Detection of human sperm carrying sex-chromosomal and autosomal aneuploidies using one-, two, and three-color fluorescence in situ hybridizations, Am J Human Genetics 51:A23
6. Robbins WA (1993) Development of a method to detect the induction of aneuploidy in sperm of men exposed to occupational, lifestyle, and environmental toxicants, LLNL Technical Women's Symposium, Lafayette Park Hotel, Lafayette, California
7. Robbins WA, Sarrach M, Pinkel D, Weier H-U, Wyrobek AJ (1993) Multi-color fluorescent in situ hybridization for detecting aneuploidy in human sperm, EMS Annual Meeting, Norfolk, Virginia, Environmental and Molecular Mutagenesis, 21 (Suppl. 22):57.
8. Robbins WA, Cassel MJ, Blakey DH, Meistrich ML, Wyrobek AJ (1994) Induction of aneuploidy in the sperm of Hodgkin's disease patients treated with NOVP chemotherapy (Detection by multi-chromosome fluorescence *in situ* hybridization), EMS Annual Meeting, Portland, Oregon, Environmental and Molecular Mutagenesis, 23 (Suppl. 23):57.
9. Robbins WA, Meistrich ML, Cassel MJ, Wyrobek AJ (1994) Aneuploidy in sperm of Hodgkin's disease patients receiving NOVP chemotherapy, American Society of Human Genetics Annual Meeting, Montreal, Canada, October 1994, American Journal of Human Genetics, 55, (Suppl.) A68 and GEMS 12th Annual Meeting, October 17, 1994, Raleigh, N.C.
10. Wyrobek AJ, Lowe X, Holland NT, Robbins W (1994) Paternal-age effects on sperm aneuploidy investigated in mice and humans by three-chromosome fluorescence in situ hybridization, American Society of Human Genetics Annual Meeting, Montreal, Canada, October, 1994, Am J Human Genetics, 55 (Suppl.), 698.
11. Cassel MJ, Robbins WA, Meistrich ML, Wyrobek AJ (1994) Characterization of the temporal persistence of chromosomal abnormalities in the semen of Hodgkin's disease patients after treatment with NOVP chemotherapy using multi-chromosome fluorescence in situ hybridization, Environmental and Molecular Mutagenesis, 23 (Suppl. 23):8 and GEMS 12th Annual Meeting, October 17, 1994, Raleigh, N.C.



#### **D. PEER-REVIEWED PUBLISHED ABSTRACTS (continued)**

12. Robbins WA, Rubes J, Selevan SG, Perreault SD (1998) Seasonal air pollution and sperm aneuploidy in healthy 18 year olds, New York Academy of Medicine International Conference on Hazardous Substances and Male Reproductive Health, New York, NY, May 15, 1998.
13. \*Matthews S, Blakey DH, Arbuckle T, Robbins WA (1999) Aneuploidy estimates in small sample size sperm-FISH studies, Environmental and Molecular Mutagenesis, 33 (Suppl 30):43.
14. Witt KL, Robbins W, Bishop JB, Libbus B, Cohen M, Hamilton CD, Shelby MD (1999) Frequency of chromosomal aberrations in lymphocytes of patients before and after initiation of anti-HIV drug therapy with dideoxynucleosides, Environmental and Molecular Mutagenesis, 33 (Suppl 30): 54.
15. Rothmann SA, Quigley J, Selevan S, Robbins W, Perreault SD (2000) Stability of human semen measures after simulated overnight shipment, American Society of Andrology 25<sup>th</sup> Annual Meeting, Boston, Massachusetts.
16. Perreault SD, Rothmann SA, Selevan SA, Jeffay SC, Robbins WA (2000) Epidemiologic methods for surveillance of human sperm counts: efficacy of a mail-in semen sampling kit, NHEERL Symposium, US EPA, Research Triangle Park, North Carolina.
17. Robbins WA, Bishop JB, Shelby MD, Witt KL, Cohen M, Hamilton CD, Xun L (2000) Investigation of chromosome damage in sperm of men treated with anti-retroviral drugs, Environmental and Molecular Mutagenesis, 35 (Suppl 31): 50.
18. Opas S, Robbins WA (2000) Sperm aneuploidy not increased in pesticide exposed Canadian farm families, as part of Building Excellence & Scholarship With Vulnerable Populations, 33<sup>rd</sup> Annual Communicating Nursing Research Conference, 14<sup>th</sup> Annual WIN Assembly: Building on a Legacy of Excellence in Nursing Research, Denver, Colorado
19. \*Kim PJ, Rodriguez J, Lim KL, Robbins WA (2001) Community participatory-based reproductive epidemiology using DBCP exposure as a model, Environmental and Molecular Mutagenesis 37 (Suppl 32):43.
20. Rubes J, Vozdova M, Rezacova O, Robbins WA, Perreault SD, Wyrobek AJ (2001) Stable variants of sperm aneuploidy among healthy men show associations between germinal and somatic aneuploidy, Environmental and Molecular Mutagenesis 37 (Suppl 32):64.
21. \*Young KE, Xun L, Rothmann SA, Perreault SD, Robbins WA (2002) Effects of sample age and electrophoresis conditions on semen comet assay, Environmental and Molecular Mutagenesis 39 (Suppl 33):70.

#### D. PEER-REVIEWED PUBLISHED ABSTRACTS (continued)

22. \*Young K, Xun L, Rothmann S, Perreault S, Robbins W (2003) Evaluation of DNA integrity using tunnel and comet assay in human semen: Immediate versus delayed freezing, *Journal of Andrology* (Suppl March/April):85.
23. \*Lim KL, Xun L, Robbins WA (2003) Sperm Comet and Tunel assays: Effects of intra-individual variability over time and freezing, *Environmental Mutagenesis: From Mechanisms to Risk Assessment*, EMS 34<sup>th</sup> Annual Meeting, Miami Beach.
24. Robbins WA, Wei F, Chang BL, Xun L, Wu G, Liu P, Hu W, Young KE, Lee L, Li N, Hu J, and Boron Epidemiology Research Group (2004) Reproductive Health of Male Boron Workers in the NE Region of China, *Journal of Andrology* (Suppl March/April):50.
25. \*Li N, Jia J, Elashoff D, Wei F, Xun L, Robbins WA, Boron Epidemiology Research Group (2004) Metal effects on human sperm aneuploidy and interaction with heat Effects on X:Y ratio, *Assessing Human Germ Cell Mutagenesis in the Post-Genome Era*, Bar Harbor, Maine, September 28-30.
25. Robbins WA, Xun L, Li N, Elashoff DA, Young KE, Wei H, Wu G, Wei F (2006) Cigarette smoke exposure and male reproductive hormones in healthy men, *Journal of Andrology* (Suppl March/April):58.
26. Robbins WA, Wei F, Elashoff DA (2007) Influence of work and environment of sperm: A study in northeast China, *XI International Congress of Toxicology*, Montreal, Canada
26. Robbins WA (2007) Atrazine Effects on Human Menstrual Cycle, *Special Symposium on Women in Science*, EMS National Meeting, Atlanta
27. Xun L, Jia J, Elashoff DA, Robbins WA (2008) Susceptibility of Y Chromosome Bearing Sperm to DNA/Chromatin Damage, *EMS National Meeting*, Puerto Rico

\*Abstracts with student advisees as first author.

## **Curriculum Vitae      Robert H. SCHIESTL, Ph.D.**

Robert H. Schiestl, Ph.D.  
Professor of Pathology, Environmental Health  
and Radiation Oncology  
UCLA Schools of Medicine and Public Health  
71-295 CHS,  
650 Charles E. Young Drive South  
Los Angeles, CA 90095

phone office: 310-267-2087  
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### Personal Data

Birth: Vienna, Austria, Nov. 10, 1959  
Citizenship: Austrian  
Permanent Resident of the USA

### Education

University of Vienna, Vienna, Austria      B.S.    1980    Biology/Biochemistry  
University of Vienna, Vienna, Austria      Ph.D.   1983    Biology/Genetics  
PhD: University of Vienna (1983) Biology, Genetics with Dr. U. Wintersberger, Department of Molecular Genetics, Institute of Tumor Biology and Cancer Research, University of Vienna, Vienna, Austria

### **Research/Professional Experience**

1982              Fellow of the European Molecular Biology Organization  
                         with Drs. F. Zimmermann and M. Ciriacy, Department of Microbiology  
                         Technische Hochschule Darmstadt, Darmstadt, FRG  
1981 - 1983      "Studienassistent" (Student Lecturer, 50% effort) at the Institute for Tumorbiology-Cancer  
                         Research, Thesis Research with Dr. U. Wintersberger, University of Vienna, Austria  
1983 - 1984      "Universitaetsassistent" (85% research) at the Institute for Tumorbiology-Cancer  
                         Research, University of Vienna, Austria  
1984 - 1986      Alberta Heritage Foundation for Medical Research fellow with Dr PJ Hastings,  
                         Department of Genetics, University of Alberta, Edmonton, Canada  
1986 - 1989      Postdoctoral Research Fellow with Dr. Satya Prakash  
                         Department of Biology, University of Rochester, Rochester, NY  
1989 - 1991      Research Associate with Dr. Tom Petes  
                         Department of Biology, University of North Carolina, Chapel Hill, NC  
1991 - 1996      Assistant Professor, Department of Molecular and Cellular Toxicology, Harvard  
                         School of Public Health (HSPH)  
1996 - 2000      Associate Professor, Department of Cancer Cell Biology, HSPH  
2000 – present    Professor of Pathology, Environmental Health and Radiation Oncology, University  
                         of California at Los Angeles Medical School and School of Public Health

**Currently supervised Personnel:**

Dr. Ramune Reliene (Assistant Researcher)  
Dr. Zorica Scuric (Assistant Researcher)  
Dr. Akos Szakmary (Assistant Researcher)  
Dr. Katrin Hacke (Postdoctoral Fellow)  
Aaron Chapman (Graduate Student)  
Aya Westbrook (Graduate Student)  
Mitsuko Lynn Yamamoto (Graduate Student)  
Danica Cowan (Lab Technician)

**Previous trainees of the Schiestl lab followed by their current positions:**

Previous postdoctoral fellows:

Dr. Beatrice Secretan: Scientist at Internat. Agency for Research on Cancer, Lyon, France  
Dr. Niall Howlett: Associate Professor, University of Rhode Island  
Dr. Alexander Bishop, Assistant Professor of Molecular Genetics, UT San Antonio  
Dr. Richard Brennan, Principal Scientist, Iconix Pharmaceuticals  
Dr. Wendy Yap: Scientist, Environmental Protection Agency  
Dr. Alvaro Galli: Group Leader, C.N.R., Institute of Mutagenesis and Differentiation, Pisa, Italy  
Dr. Fathia Khogali: Chairperson, Dept. of Zoology, Faculty of Sciences Univ. of Khartoum, Sudan  
Dr. Jiri Aubrecht: Senior Scientist, Pfizer Central Research, CT  
Dr. Thunder Jalili: Associate Professor, Dept Nutrition, Univ. of Utah, Salt Lake City, UT  
Dr. Palaniyandi Manivasakam: Principal Scientist, CombinatorX Inc.  
Dr. Nicole Hurst: Scientist, CombinatorX Inc.  
Dr. Tom Luby: Scientist, Zycos, Inc.  
Dr. Marina Repnevskaya: Professor of Genetics, St. Petersburg, Russia  
Dr. Markus Kiechle: Scientist, Society for Radiation Research, Munich, Germany  
Dr. Horst Maxeiner: Researcher, Clinical Testing, Hamburg, Germany  
Dr. Mohammed Naimuddin: Scientist, National Institute of Environmental Sciences, Tokyo, Japan  
Dr. Ken Ohnishi, Associate Professor, Nara Medical University, Nara, Japan  
Dr. Yofre Cabeza-Arvelaiz  
Dr. Cecilia Chan  
Dr. Zhanna Sobol, Senior Scientist, Genetic Toxicology; Drug Safety Res. and Develop.  
Dr. Nikos Hontzeas, Researcher, Pacific Heart, Lung, and Blood Institute, Los Angeles, CA  
Dr. Owen Kelley  
Dr. Kurt Hafer  
Dr. Efreu Neuwirth, Toxicologist, State of California  
Dr. Benedicte Trouiller, Assistant Researcher, USC, Los Angeles, CA

Previous Graduate Students in the Schiestl lab:

Dr. Jie Zhu (GS): Principal Scientist, Analytical Specialties Inc.  
Dr. Rebecca Rugo (GS): Postdoctoral Fellow, Massachusetts Institute of Technology  
Dr. John Davidson (GS) Scientist, Blue Heron Biotechnology, Bothell, WA

**Teaching Experience and Service:**

1992 to 2000, Principal Instructor of TOE 204ab Principles of Toxicology  
Since spring 1992 guest lectures in TOX250 "Molecular and Cellular Toxicology", TOX225  
"Genetic Toxicology" and DBS205 "Seminars in Biological Public Health", general area:  
DNA Repair and Recombination

Fall 1987 Part of a course and seminar on Recombination, DNA Repair and Replication,  
Department of Genetics, University of Alberta, Edmonton, Alberta, Canada

Graduate Student Committees:

Ph.D. Advisory and Thesis Committees: 3 students: Kathryn Hall (Genetics, HMS), Todd Milne  
(HMS) Ziyi Li (TOX, HSPH)

Preliminary Exam Committee: 12 students: Lee Soreng (Genetics, HMS), Ziyi Li, Lauren Posnick,  
Bevin Engelward, Ted Chang, Song Han, (all TOX, HSPH), Carroll Goldsmith  
(Environmental Health, HSPH), Hayan Xu, Lyndal Emmerson (BPH, HMS) Mark Hickman,  
Veronica Leautaud (BPH).

1991 – 2000 Member of the HSPH NIEHS Center

1996 – 2000 Planning Group Member of the HSPH Center for Cancer Prevention (CCP)

1999 – 2000 Member of the Harvard Cancer Center

1997 – 2000 Member of the HSPH Committee on Educational Policy

1997 – 2000 Member of the HSPH Ph.D. Student Admissions Committee

2000 – present Faculty Advisory Committee Member of the UCLA Interdepartmental  
Program/Seminar Series in Molecular Toxicology

2000 – present Member of the UCLA Jonsson Comprehensive Cancer Center

2000 – present Member of the UCLA Center for Occupational and Environmental Health

2000 – present Member of the UC Toxic Substances Research and Training Program, Lead Campus  
Steering Committee

2002 – 2003 Member of the UCLA School of Public Health Dean's Mission Planning Committee

2002 – present Member of the UCLA ACCESS Graduate Program Steering Committee

2002 – present Director of the UCLA Center for Environmental Genomics

2002 – present Member of the Collaborative Centers for Parkinson's Disease Environmental  
Research, Center for Gene-Environment Studies in Parkinson's Disease Steering Committee

2003 – present member of the UCLA Molecular Biology Institute

2005 – present Member of the National Institute of Allergy and Infectious Diseases, Centers for  
Medical Countermeasures against Radiation Steering Committee Meeting

2007 – present Co-Director of Molecular Toxicology Interdepartmental Program

2007 – present Co-PI of NIEHS Training Grant in Molecular Toxicology

**Served** on the editorial board of *Mutat Res.* and as reviewer for manuscripts submitted to *Appl.*  
*Env. Microbiol.*, *Biotechniques*, *Environm. Molec. Mutagen.*, *Gene*, *Genetics*, *Current*  
*Genetics*, *Mol. Gen. Genet.*, *Mutat. Res.*, *Nucl. Acids Res.*, *Yeast*, *Mutagenesis*, *Plasmid*,  
*Proc. Natl. Acad. Sci. USA.*, *Molec. Microbiol.*, *Mol. Cell. Biol.*, *Toxicol. Appl. Pharmacol.*,

**Served as reviewer for Grant Applications** to the **NSF** and the **U.S. DOE** and as special reviewer  
for **NIH RFA** on "Transgenic Model Systems in Molecular Toxicology". Regular Member  
on **American Cancer Society Study Section** on Carcinogenesis, Nutrition and the  
Environment 1996-2001 and on the **California Cancer Research Program** 2000. Ad hoc  
reviewer for the **NIH Radiation Study Section**

**Seminars 2000-present:**

Jan. 18, 2000: Department of Environmental Toxicology Seminar Series, UC-Davis, "Carcinogens  
Induce DNA Deletions – in vivo and in vitro"

Jan 21, 2000: Dept. Biology, University of North Carolina, Chapel Hill  
"Genetic Control of Illegitimate Recombination in *Saccharomyces cerevisiae*"

Jan. 26, 2000: Division of Radiation Biology, Society for Radiation Research, Munich, Germany, "Radiation Induced Genomic Instability – Acute and Persistent Effects"

Jan 27, 2000: Department of Radiation Oncology, University of Heidelberg Medical School, Heidelberg Germany, "Radiation Induced Genomic Instability – Acute and Persistent Effects"

Feb. 9, 2000: Cell and Molecular Biology, Life Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA, "Carcinogen Induced Genomic Instability – Acute and Persistent Effects"

Feb. 10, 2000: Department of Cell and Molecular Radiobiology, Colorado State University, Fort Collins, CO, "Carcinogen Induced Genomic Instability in vitro and in vivo – Acute and Persistent Effects"

March 24, 2000: Division of Cancer Biology, National Cancer Institute, NIH, Bethesda, MD, "Genetic Predisposition to Genomic Instability"

May 17, 2000: Department of Genetics, University of Washington, Seattle, WA 98195, "Carcinogen Induced Genomic Instability in vitro and in vivo – Acute and Persistent Effects"

June 28, 2000: Genetic & Molecular Toxicology, Eli Lilly Corp. Greenfield, IN, "Xenobiotics Induce DNA Deletions in vitro and in vivo"

Aug. 29, 2000: Pfizer Global Research and Development, Groton, CT, "Xenobiotics Induce DNA Deletions in vitro and in vivo"

Jan 8, 2001: UCLA Pathology Seminar Series: Genetic and Environmental Factors Predisposing to Elevated Levels of Genetic Instability"

Mar 25-29, 2001, Chair and Speaker at the Workshop on "In vivo Genotoxicity Assays – Novel Findings", Society of Toxicology Meeting, San Francisco, CA,

May 16, 2001: Environmental Toxicology Program Seminar Series, UC Riverside: "Carcinogen Induced Genomic Instability – Acute and Persistent Effects"

June 6, 2001: UCLA Yeast Group: Genetic Control of Illegitimate Recombination in *Saccharomyces cerevisiae*"

Oct. 2, 2001: UCLA Chemoprevention Symposium, JCCC: "Detection of Populations Predisposed to Cancer"

Oct. 12, 2001, Beckman Research Institute, City of Hope, Duarte, CA: Genetic and Environmental Factors Predisposing to Elevated Levels of Genetic Instability"

Oct. 21–26, 2001: Chair and Speaker at the Symposium on "Genetic Instability" at the Eighth International Conference on Environmental Mutagenesis, Shizouka, JP

Dec. 4, 2001: Los Alamos National Laboratory, Los Alamos, NM "Carcinogen Induced Genomic Instability in vitro and in vivo"

June 28, 2002: Huntingdon Research Laboratories, Huntingdon, UK, "Xenobiotics Induce DNA Deletions in vitro and in vivo"

June 29, 2002, Invited Speaker, 3rd International Workshop on Genotoxicity Testing, Plymouth, UK, "DNA damage, Mitotic Recombination and Loss of Tumor Suppressor Genes"

March 14, 2003: Invited Speaker, 75th Annual Meeting Japanese Genetics Society, Sendai, Japan.

May 10-14, 2003: Member of the Planning Committee for the Environmental Mutagen Society meeting and Chair and Speaker at the Symposium on "Genetic Instability" in Miami Beach, Florida

September 23-27, 2003: Speaker at Radiation Effects Research Foundation Symposium, Hiroshima, Japan, "Genetic and Environmental Effects on Genetic Instability: Stories of Yeast and Mice and Acute and Persistent Effects"

October 4-8, 2003: Speaker on "Genetic Instability" at Eighth International Conference on Mechanisms of Antimutagenesis and Anticarcinogenesis in Pisa, Italy

October 28-30, 2003: Speaker at Annual European Meeting of the Toxicology Forum, Brussels

May 6, 2004: Speaker at Genetic Toxicology Association Spring Meeting, Delaware

May 7, 2004: Chair and Speaker of "Genomics Group" for Annual Meeting of the Collaborative Centers for Parkinson's Disease Environmental Research, Atlanta

March 4, 2005: Presenter at Harbor-UCLA Medical Center, Department of Pathology Grand Rounds, "Genetic and Environmental Causes of Genome Rearrangements and Cancer and Prospects of Nutritional Intervention"

June 8-11, 2005: Speaker at the 2005 International Workshop on Ataxia-Telangiectasia and the DNA Damage Response, Lake Maggiore, Italy

July 22-August 3, 2005: Speaker at the Third National Summer School for Graduate Students in Public Health, sponsored by the National Education Ministry and the National Natural Science Foundation Committee, People's Republic of China at the School of Public Health, Nanjing Medical University, Nanjing China

October 27, 2005: Speaker at the UCLA Environmental Health Science/Environmental Science & Engineering Seminar Series, "Gene-Environment-Nutrition Interaction in the Causation of Genetic Instability and Cancer - A Story of Yeast and Mice."

October 28-29, 2005: Speaker at Mechanisms of Air Pollution Toxicity Symposium, UCTSR&TP Lead Campus Annual Meeting, "Effect of Air Pollution on DNA Deletions and Gene Expression," Riverside, CA

November 7-8, 2005: Speaker at the National Institute of Allergy and Infectious Diseases, Centers for Medical Countermeasures against Radiation Steering Committee Meeting, Arlington, Virginia. "Radioprotection of acute and persistent DNA deletions."

March 5-9, 2006 Speaker at the SOT 45th Annual Meeting & ToxExpo, San Diego, CA

April 1-5, 2006 Speaker at the American Association for Cancer Research 97th Annual Meeting, Washington D.C.

June 7-8, 2006 Speaker at the NIH Centers for Countermeasures Against Radiation (CMCR) 2006 Annual Meeting, Gaithersburg, MD, June 8, 2006: Invited Speaker, "DNA recombination-based approaches for studying genotoxicity and carcinogenicity of chemicals" Pfizer, New Groton, CT

July 2-6, 2006: Speaker at the European Environmental Mutagen Society 36th Annual Meeting, From Genes to Molecular Epidemiology, Prague, Czech Republic

July 7, 2006: Speaker at the University of Vienna, Institute of Cancer Research, "Gene Environment Nutrition Interaction in the Causation of DNA deletions in Cancer" Vienna, Austria

July 14, 2006: Speaker at the American Institute of Cancer Research Annual Meeting, "Effect of Dietary Antioxidants on Genetic Instability and Cancer Incidence in Ataxia Telangiectasia" Washington D.C.

Oct 20-21, 2006: Speaker and Chair UCLA Symposium on Countermeasures Against Radiation Damage and Annual meeting of the UCLA TS RTP lead campus and MolTox IDP to MolTox

May 7-11, 2007: Speaker at the 3rd Japan U.S. Conference on DNA Repair, Sendai Japan, "DNA Double strand breaks induce microhomology mediated recombination in trans"

June 18-19, 2007: Speaker at the Centers for Medical Countermeasures Against Radiation (CMCR) 2007 Annual Meeting, Washington D.C., "Chemicals that protect against radiation damage."

September 15, 2007: Speaker at the Department of Cancer Research, Medical University of Vienna, "DNA Double strand breaks induce microhomology mediated recombination in trans," Vienna, Austria

October 28-31, 2007: Invited Speaker at the SBMCTA VIII Brazilian Congress of Environmental Mutagenesis, Carcinogenesis, and Teratogenesis, Angra Dos Reis, Brazil  
May 22, 2008: Invited Speaker at the ISI Health & Environmental Institute Workshop, Seattle, Washington.  
July 2, 2008: Speaker at the 19<sup>th</sup> Annual NASA Space Radiation Investigators' Workshop  
August 2008: Invited Speaker at Alpbach Technology Forum, Vienna, Austria

**Organized Symposia:**

Chair and Speaker at the Symposium on "Recombination and Genome Rearrangements; Involvement in Carcinogenesis and Genotoxic Endpoints." Society of Toxicology meeting in Anaheim, CA, Mar 10-14, 1996.  
Chair and Speaker at the Continuing Education Course on "Molecular Basis of Genetic Toxicity Assays." SOT, Cincinnati, OH Mar 9-13, 1997.  
Chair of the Symposium on "Xenobiotic-Induced Oxidative Stress in Genotoxicity and Carcinogenesis." SOT Seattle, WA, Mar 1-5, 1998  
Chair and Speaker at the Workshop on "In vivo Genotoxicity Assays – Novel Findings" SOT San Francisco, CA, Mar 25-29, 2001  
Chair and Speaker at the Symposium on "Genetic Instability" at the Eighth International Conference on Environmental Mutagenesis, Oct. 21 – 26, 2001, Shizouka, JP  
Chair and Speaker at the Symposium on "Genetic Instability" May 10-14, 2003 Miami Beach, Florida and Member of the Planning Committee for the Environmental Mutagen Society meeting  
Chair and Speaker at the Symposium on "High Thorough-put Assays in Genetic Toxicology" for the Society of Toxicology, New Orleans, March 6-10, 2005  
Chair and Speaker at Current Issues Symposium for the 9th International Conference of Environmental Mutagens, "Genetic and Environmental Effects of Non-homologous End Joining," San Francisco, September 4-8, 2005  
Oct 20-21, 2006: Chair and Speaker UCLA Symposium on Countermeasures Against Radiation Damage and Annual meeting of the UCLA TS RTP lead campus and MolTox IDP to MolTox  
June 19-20, 2008: Chair and Speaker at the UCLA Annual Molecular Toxicology Meeting and UCLA Center for Biological Radioprotectors Annual Symposium

**Honors:**

1979 - 1983 Each year a special stipend for "the gifted students of the University of Vienna" was granted on a competitive basis  
1982 Fellowship of the European Molecular Biology Organization (EMBO)  
1984 - 1986 Alberta Heritage Foundation for Medical Research fellowship (AHfMR)  
1998 1998 Novartis Award for Outstanding Contributions in Biochemistry  
2006 Jonsson Comprehensive Cancer Center, Helene Brown Award

**Professional Societies:**

American Association for the Advancement of Science  
American Association for Cancer Research  
American Society for Microbiology  
Austrian Biochemical Society  
Environmental Mutagen Society  
Genetics Society of Canada



Genetics Society of America  
Radiation Research Society  
Society of Toxicology

## Publications

1. Schiestl R.H. and U. Wintersberger (1982) X-ray enhances mating type switching in heterothallic strains of Saccharomyces cerevisiae. **Mol. Gen. Genet.** **186: 512-517**
2. Wintersberger U. and R.H. Schiestl (1982) The yeast mating type system a model for the regulation of gene expression by the position of a certain gene within the genome. In: Jaenicke L (ed) 33. **Colloquium Mosbach on Biochemistry of Differentiation and Morphogenesis**, Springer, Berlin, Heidelberg, New York, pp 50-53
3. Schiestl R.H. and U. Wintersberger (1983) Induction of mating-type interconversion in a heterothallic strain of Saccharomyces cerevisiae by DNA-damaging agents. **Mol.Gen. Genet.** **191: 59-65**
4. Schiestl R.H. (1986) Heterothallic mating-type switching in Saccharomyces cerevisiae is RAD52 dependent. **Mol. Gen. Genet.** **204: 496-504**
5. Schiestl R.H. and P.J. Hastings (1986) Screening for recombination defective mutants with a positive selection system for plasmid excision. In: Klar AJS, Strathern JN (eds) **Current Communication in Molecular Biology, Mechanisms of Yeast Recombination**, Cold Spring Harbor Laboratory, CSH, New York, pp 85-88
6. Schiestl R.H., S. Igarashi, and P.J. Hastings (1988) Analysis of the mechanism for reversion of a disrupted gene. **Genetics** **119:237-247**
7. Schiestl R.H., S. Prakash (1988) RAD1, an excision repair gene of Saccharomyces cerevisiae, is also involved in recombination. **Mol. Cell. Biol.** **8:3619-3626**
8. Schiestl R.H. (1989) Nonmutagenic carcinogens induce intrachromosomal recombination in yeast. **Nature** **337:285-288**
9. Schiestl R.H., P. Reynolds, S. Prakash and L. Prakash (1989a) Cloning and sequence analysis of the Saccharomyces cerevisiae RAD9 gene and further evidence that its product is required for cell cycle arrest induced by DNA damage. **Mol. Cell. Biol.** **9:1882-1896**
10. Schiestl R.H., R.D. Gietz, R.D. Mehta and P.J. Hastings (1989b) Carcinogens induce intrachromosomal recombination in yeast. **Carcinogenesis** **10:1445-1455**
11. Schiestl R.H., W.-S. Chan, R.D. Gietz, R.D. Mehta and P.J. Hastings (1989c) Safrole, eugenol and methyleugenol, reputed nonmutagenic carcinogens induce intrachromosomal recombination in yeast. **Mutation Research** **224:427-436**
12. Schiestl R.H. and R.D. Gietz (1989) High efficiency transformation of intact yeast cells by single stranded nucleic acids as carrier. **Current Genetics** **16:339-346**

13. Schiestl R.H. (1989) DNA damaging agents show different kinetics in induction of heterothallic mating type switching during growth after treatment in yeast. **Mutation Research 227:269-274**
14. Schiestl R.H. and S. Prakash (1989) Interaction of the RAD7 and RAD23 excision repair genes of Saccharomyces cerevisiae with DNA repair genes in different epistasis groups. **Current Genetics 16:219-223**
15. Schiestl R.H. and J.K. Reddy (1990) Effect of peroxisome proliferators on intrachromosomal and interchromosomal recombination in yeast. **Carcinogenesis 11:173-176**
16. Schiestl R.H., S. Prakash and L. Prakash (1990) The SRS2 suppressor of rad6 mutations of Saccharomyces cerevisiae acts by channeling DNA lesions into the RAD52 DNA repair pathway. **Genetics 124:817-831**
17. Schiestl R.H. and S. Prakash (1990) RAD10, an excision repair gene of Saccharomyces cerevisiae, is involved in the RAD1 pathway of mitotic recombination. **Mol. Cell. Biol. 10:2485-2491**
18. Schiestl R.H., R.D. Gietz, P.J. Hastings and U. Wintersberger (1990) Interchromosomal and intrachromosomal recombination in rad18 mutants of Saccharomyces cerevisiae. **Mol. Gen. Genet. 222:25-32**
19. Gietz R.D. and R.H. Schiestl (1991) Applications of the high efficiency transformation of intact yeast cells with single stranded carrier DNA. **Yeast 7:253-263**
20. Schiestl R.H. and T. D. Petes (1991) Integration of DNA fragments by illegitimate recombination in Saccharomyces cerevisiae. **Proc. Natl. Acad. Sci. USA 88:7585-7589**
21. Gietz, R.D., A. St. Jean, R. A. Woods and R.H. Schiestl (1992) Improved method for high efficiency transformation of intact yeast cells. **Nucleic Acids Res. 20:1425**
22. Schiestl R.H. and U. Wintersberger (1992) Mating type switching in yeast. (Review) **Encyclopedia of Microbiology**, Academic Press, San Diego, CA, volume 3 pp. 45-57.
23. Schiestl R.H. and U. Wintersberger (1992) DNA-damage-induced mating type switching in Saccharomyces cerevisiae. **Mutat. Res. 284:111-123**
24. Schiestl R.H., M. Dominska and T.D. Petes (1993) Transformation of yeast with non-momologous DNA: illegitimate integration of transforming DNA into yeast chromosomes, and *in vivo* ligation of transforming DNA to mitochondrial DNA sequences. **Mol. Cell. Biol. 13:2697-2705**
25. Schiestl R.H. (1993) Nonmutagenic carcinogens induce intrachromosomal recombination in dividing yeast cells. **Environm. Health Persp. 101: 179-184**

26. Manivasakam, P. and R.H. Schiestl (1993) High efficiency transformation of Saccharomyces cerevisiae by electroporation. **Nucleic Acids Res.** **21:4414-4415**
27. Schiestl, R.H., P. Manivasakam, R.A. Woods and R.D. Gietz (1993) Introducing DNA into yeast by transformation. **Methods: A Companion to Methods in Enzymology** **5**, 79-85, Academic Press, New York
28. Carls, N and R. H. Schiestl (1994) Evaluation of the yeast DEL assay with ten compounds selected by the International Program on Chemical Safety for the evaluation of short-term tests for carcinogens. **Mutat. Res.** **320:293-303**
29. Schiestl, R.H., J. Zhu and T.D. Petes (1994) The effect of mutations in genes affecting homologous recombination in restriction enzyme-mediated and illegitimate recombination in yeast. **Mol. Cell. Biol.** **14:4493-4500**
30. Brennan, R.J., B. Swoboda and R.H. Schiestl (1994) Oxidative mutagens induce intrachromosomal recombination in yeast. **Mutation Research** **308:159-167**
31. Schiestl, R.H., F. Khogali and N. Carls (1994) Reversion of the mouse pink-eyed unstable mutation induced by low doses of X-rays. **Science** **266:1573-1576**
32. Galli, A. and R.H. Schiestl (1995) Salmonella test positive and negative carcinogens show different effects on intrachromosomal recombination in G2 cell cycle arrested cells. **Carcinogenesis** **16:659-663**.
33. Gietz, R.D., R.H. Schiestl, A.R. Willems and R.A. Woods (1995) Studies on transformation of intact yeast cells by the LiAc/SS-DNA/PEG procedure. **Yeast** **11:355-360**
34. Manivasakam, P., S. Weber, J. McElver and R.H. Schiestl (1995) Micro-homology mediated PCR targeting in Saccharomyces cerevisiae. **Nucl. Acids Res.** **14:2799-2800**
35. Yan, Y-X., R.H. Schiestl and L. Prakash (1995) Mating-type suppression of the DNA-repair defect of the yeast rad6 $\Delta$  mutation requires the activity of genes in the RAD52 epistasis group. **Curr. Genetics** **28:12-18**
36. Galli, A. and R.H. Schiestl (1995) On the mechanism of UV and  $\gamma$ -ray induced intrachromosomal recombination in yeast cells synchronized in different stages of the cell cycle. **Mol. Gen. Genet.** **248:301-310**
37. Aubrecht, J., R. Rugo, and R.H. Schiestl (1995) Carcinogens induce intrachromosomal recombination in human cells. **Carcinogenesis** **16:2841-2846**
38. Yap, W.Y. and R.H. Schiestl (1995) Nature of abortive transformation in Saccharomyces cerevisiae. **Curr. Genetics** **28:517-520**
39. Gietz, R.D. and R.H. Schiestl (1995) Transforming yeast with DNA. **Meth. in Molec. and Cell. Biol.****5:255-269**

40. Zhu, J. and R.H. Schiestl (1996) Topoisomerase I involvement in illegitimate recombination in Saccharomyces cerevisiae. **Mol. Cell. Biol.** **16:1805-1812**
41. Davidson, J.F., B. White, P.H. Bissinger and R.H. Schiestl (1996) Oxidative stress is involved in heat induced cell death in Saccharomyces cerevisiae. **Proc. Natl. Acad. Sci. USA**, **93:5116-5121**
42. Aubrecht, J., P. Manivasakam and R.H. Schiestl (1996) Controlled gene expression in mammalian cells via a regulatory cascade involving the tetracycline transactivator and lac repressor. **Gene** **172:227-231**
43. Galli, A. and R.H. Schiestl (1996) Hydroxyurea induces recombination in growing but not in G1 or G2 cell cycle arrested yeast cells. **Mutat. Res.** **354:69-75**
44. Brennan, R.J., S. Kandikonda, A.P. Khrimian, A.B. DeMilo, N.J. Liquido and R.H. Schiestl (1996) Saturated and monofluoro analogs of the oriental fruit fly attractant methyl eugenol show reduced genotoxic activities in yeast. **Mutat. Res.** **369:175-181**
45. Brennan, R.J. and R.H. Schiestl (1996) Cadmium is an inducer of oxidative stress in yeast. **Mutat. Res.** **356:171-178**
46. Galli, A. and R.H. Schiestl (1996) Effects of Salmonella assay negative carcinogens on intrachromosomal recombination in G1-arrested yeast cells. **Mutat. Res.** **370:209-221**
47. Schiestl, R.H., J. Aubrecht, F. Khogali and N. Carls (1997) Carcinogens Induce reversion of the mouse pink-eyed unstable mutation. **Proc. Natl. Acad. Sci. USA** **94: 4576-4581**
48. Aubrecht, J., M.E.P. Goad, E.M. Simpson and R.H. Schiestl (1997) Expression of hyg<sup>R</sup> in transgenic mice causes resistance to toxic effects of hygromycin B in vivo. **J. Pharm. Exp. Therap.** **281:992-997**
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Additional manuscripts submitted and in preparation.

### RESEARCH SUPPORT:

#### Past Support (direct costs)

ACS Mass. Div. (Schiestl)	06/01/92 - 05/30/93	5%
Development of a short term test to detect potential carcinogens	\$46,566	
This project concerns the further development for genetic toxicology of an assay screening for intrachromosomal recombination in yeast.		
RO3 RFA PA-91-68 (Schiestl)	09/30/92 - 09/29/93	10%
NIH	\$53,550	
Construction of a short term test to detect carcinogens. This project concerns the construction and the preliminary evaluation of an assay screening for intrachromosomal recombination in mammalian cells.		
15-FY-93-0025 (Schiestl)		
March of Dimes Birth	02/01/93 - 01/31/95	3%
Inducibility of deletions in the mouse	\$234,580	
This project concerns the inducibility of intrachromosomal recombination in the mouse by carcinogens.		
R819477 (Schiestl)	10/01/92 - 09/30/95	27%
Environmental Protection Agency	\$828,435	
Development and evaluation of a short-term test to detect potential carcinogens with yeast This project concerns the further development and the evaluation for genetic toxicology of an assay screening for intrachromosomal in yeast.		
Council for Tobacco Research Grant (Schiestl)	07/01/93 - 06/30/96	10%
Inducibility of intrachromosomal recombination in human cells	\$275,400	

The purpose of this project is to contribute to the understanding of the mechanism of carcinogenesis, recombination and DNA repair in mammalian cells to develop a short term assay utilizing human cells to detect mutagenic as well as nonmutagenic carcinogens.

CN-83A,B (Schiestl) 7/1/92-6/30/97 20%  
 American Cancer Society \$612,000  
 Nonhomologous recombination in yeast  
 This project concerns the mechanisms of nonhomologous, illegitimate and restriction enzyme mediated recombination in yeast.

R01, ES-92-04 (Schiestl) 8/1/93-7/31/97 20%  
 NIH/NIEHS \$872,497; \$298,962 to RHS  
 Biological responses to ozone exposure  
 The major goal of this project is to investigate the mechanism of ozone action in human cell lines, in mice and hamsters.

CN-142 (Schiestl) 7/1/95-6/30/98 15%  
 American Cancer Society \$367,200  
 Radiation induced recombination in the mouse  
 This project concerns the effects of X-rays on p<sup>un</sup> reversions in wildtype, p53 and ERCC1 mutant mice.

1 RO1 ES07694-01 (Schiestl) 8/1/95-7/31/98 25%  
 NIH/NIEHS \$587,749  
 Carcinogen induced deletions in mice  
 The specific aim of this project is to create transgenic mice to determine the effect of environmental carcinogens on the frequency of DNA deletions in different tissues in the mouse.

NIH, STTR 95-4, Phase I (Schiestl) 7/1/97-6/30/98 15%  
 Development and validation of the yeast DEL assay \$48,980  
 The specific aims of this study are to thoroughly validate the DEL assay and to develop it further using oxidative stress mutants, excision repair mutants and cell wall mutants.

R825359-01-0 (Schiestl) 12/02/96-12/01/99 20%  
 Environmental Protection Agency \$552,030  
 Carcinogen induced deletions in mice  
 This project uses a short term in vivo mouse assay to determine dose responses and interactions among carcinogens for the purpose of improved risk assessment.

1 K02 ES00299-04 (Schiestl) 5/1/96-4/30/01 N/A  
 NIH/NIEHS \$489,600  
 Carcinogen induced deletions in vivo and in vitro  
 The specific aims of this project are to investigate genetic and environmental effects on genetic deletions in transgenic mice.

2 RO1 ES06516-05 (Overstreet) 04/01/98-3/31/02 10%  
 NIH \$306,000 (subcontract for RHS)

## Heritability of embryonic radiosensitive targets

The specific aim of this project is to understand the biological mechanism of cell proliferation disadvantage after irradiation of embryos.

2R42ES/CA09038-03 (Brennan) NIH-SBIR Phase II Development and validation of the yeast DEL assay The specific aims of this grant are to finish automation of the yeast DEL assay into a high throughput assay to detect potential carcinogens and to further develop the assay.	07/01/99 - 06/30/02 \$1,147,500 \$190,000 subcontract to RHS	20%
1R41CA86632-01 (Brennan) NIH-SBIR Phase I Development and validation of a mammalian DEL assay The specific aims of this study are to construct and initially validate the mammalian DEL assay.	04/01/00 - 03/31/01 \$229,500 \$33,000 subcontract to RHS	10%
German Research Council, Markus Kiechle fellowship:	\$29,217	
SCPC joint Project w. John Fukuto and Art Cho:	\$76,500	
1 RO1 CA82473-01 (Schiestl) NIH Mechanism of radiation induced delayed genotoxicity This project aims to investigate the mechanism of delayed reproductive effects in response to ionizing radiation.	09/15/99 - 09/14/03 \$959,114	20%
JCCC (Schiestl) Center for Environmental Genomics Operating fund	05/01/02 - 04/28/03 \$250,000	10%
Toxic Substances Research and Training Program (Schiestl) Effect of Particulate Matter on the Frequency of DNA Deletions in vivo in Mice	7/01/02 - 6/30/04 \$50,000	2%
UC Campus Laboratory Exchange Program (Schiestl) Assay to determine the Frequency of Genetic Instability in Human Cells – Collaboration with Los Alamos National Laboratory	8/01/02 - 7/31/03 \$45,000	2%
Southern California Environmental Health Sciences Center (Schiestl) Assay to determine the Frequency of Genetic Instability in Human Cells	8/01/02 - 7/31/03 \$38,250	2%
UCLA Specialized Program of Research Excellence (SPORE) in Lung Cancer: Developmental Research Program Development of a DNA rearrangement assay for human cells	01/01/03 - 12/31/03 \$40,000	
Pfizer (Schiestl)	5/01/04- 4/30/05	5%

Determination of the suitability of the yeast DEL Assay to detect clastogens	\$120,784 (sponsored research agreement)
1 R21 ES011667-01 (Zhang) NIH Molecular Epidemiology and Gene-Environment Interactions Role: Co-Investigator	04/01/02 - 03/31/05 5% \$1,350,000 \$161,700 subcontract to R.H.S.
AICR (Schiestl) Effect of Dietary Antioxidants on Genetic Instability and Cancer Incidence in Ataxia Telangiectasia The objective of this project is to determine the effect of dietary antioxidants on genetic instability in ataxia telangiectasia deficient mice	01/31/05-01/31-07 4% \$165,000
1 U54ES012078-01 (Chessellet) NIH Center for Gene -Environment Studies in Parkinson's Disease The overall objective of the Center is to understand how genetic variations in mechanisms that control dopamine homeostasis impact the detrimental effects of environmental toxins, specifically pesticides, on nigrostriatal dopaminergic neurons, thereby increasing the risk of Parkinson's disease. Role: Co-Investigator	08/01/02 - 07/31/07 5% \$7,013,073, 346,500 to RHS
1 R21 ES013547-01A1 (Schiestl) NIH/NIEHS Effect of parkin on DNA damage induced rearrangements The objective is to determine the effect of mutation in the parkin gene on cigarette smoke induced DNA deletions.	07/01/05 – 06/30/08 .96 calendar
1R21 ES013713-01 (Schiestl) NIH Effect of Diesel Exhaust Particles on DNA Deletions The objective of this project is to determine the effect of diesel exhaust particles on the frequency of genetic instability, DNA deletions, DNA adducts and/or oxidative DNA damage to mice in vivo.	04/01/05 - 04/30/08 .96 calendar \$137,500
Pfizer (Schiestl) Development of the DEL recombination assay in <i>S.cerevisiae</i> for high throughput detection of clastogens and mutagens	4% \$200,000
Center for Human Nutrition Pilot Project Effect of Dietary Supplementation with Tomato Products on the Frequency of DNA Deletions and Oxidative DNA Damage in Cancer-prone ATM Deficient Mice	\$25,000
Pfizer Fellowship Chemically induced persistent genetic instability: implications for genetic toxicology and carcinogenicity testing.	\$150,000

JCCC Helene Brown Award	\$10,000
Stein Oppenheimer Award (Schiestl)	\$20,000.
COEH: Toxicology Subdivision Director	\$3,000

**ACTIVE:**

NNH04ZUU005N (Schiestl)	05/04/05 - 08/14/09	1.44 calendar
NASA		\$194,175

Effect of Space Radiation on degenerative tissue disease, genetic instability and oxidative DNA damage in Ataxia Telangiectasia deficient mice. This project aims to determine the effect of space radiation on the frequency of DNA deletions in Atm deficient mice and whether the antioxidant dietary supplement N-acetyl cysteine will reduce the frequency of deletions.

1RO1ES09519-07A2 (Schiestl)	06/01/05 – 05/31/10	2.28 calendar
NIH/NIEHS		\$225,000

Antioxidant Therapy for Ataxia Telangiectasia  
This project aims to determine whether nutritional supplementation with the antioxidant N-acetyl cysteine reduces the frequency of genetic instability, oxidative DNA damage, and cancer in ATM deficient mice

1 U19 A1 67769-01 (McBride)	09/01/05 – 08/31/10	3.24 calendar
NIH-NIAID		\$1,945,387; 288,293 to RHS

UCLA Center for Biological Radioprotectors  
This cooperative agreement establishes a new UCLA center for biological radioprotectors and will lead to the development of new pharmaceuticals that counteract radiation and radioactive material induced cellular damage, including cancer.  
Role: PI Project 1, Core Leader

R03TW007166-01A1(Schiestl)	11/01/05 - 10/31/09	.12 calendar
NIH-FIRCA		\$32,000

Effect of Particulate Matter on DNA Deletions in Mice  
(Fogarty International Research Collaboration Award)  
This project aims to determine whether particulate matter from different areas within Mexico City increases the frequency of DNA deletions and whether antioxidant exposure may reduce the potential effects of particulate matter on the frequency of deletions.

042218 (Schiestl)	07/01/05 – 06/30/09	1.44 calendar
FAMRI		

Base Excision Repair in ETS Caused DNA Deletions and Cancer  
The objective of this project is to provide mechanistic insight into the genetic control of side-stream smoke and, more specifically, the effect of side-stream smoke on frequencies of genetic instability, lung cancer, oxidative DNA damage, and DNA adducts in oxidative DNA repair-damaged deficient mice.

#unassigned (Schiestl)	09/1/08 - 08/31/09	.6 calendar
UCLA JCCC		\$150,000

Effect of Intestinal Microbiota on Genetic Instability and Immune/ Inflammatory Responses in Atm Deficient Mice



This project aims to investigate the role that microbiota plays in modulation of genetic instability, a process implicated in cancer development. A combination of beneficial bacteria will be compared with the conventional flora for a cancer study and a complete pathology will be performed on all the mice that suffer from cancer.

U19 SEED Grant 11/1/08 – 10/31/2009 .6 calendar  
UCLA CBRP \$50,000

Evaluation of 6-thioguanine *in vivo* selection and HLA marker deletion for radiation emergency hematopoietic stem cell transplantation (HSCT)

This project aims to evaluate the rescue efficacy of 6-thioguanine (6TG) *in vivo* selection mediated synergistic and allogeneic Hprt deficient HSCT on irradiated mice. Another aim is to develop state of the art lentiviral vectors simultaneously expressing hprt and HLA marker targeting siRNAs to render donor HSC's deficient of hprt protein and broaden donor availability.

PI: Noriyuki Kasahara, PhD Role: Co-PI

TSR&TP (Nel) 07/01/06 - 06/30/13  
Training Grant in Nanotoxicology  
Role: Co-Investigator

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME <b>Irwin (Mel) Suffet</b>		POSITION TITLE Professor of Environmental Chemistry UCLA, School Public Health, Dept. of Env. Health Sciences Los Angeles California		
eRA COMMONS USER NAME Mel				
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)				
INSTITUTION AND LOCATION		DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Brooklyn College, Brooklyn NY		B.S.	1957-1961	Chemistry
University of Maryland, College Park, Maryland		M.S.	1962-64	Chemistry
Rutgers University, New Brunswick, N.J.		Ph.D.	1965-1968	Environmental Sciences

### **A. Positions and Honors**

#### **A.1. Professional Positions:**

Assistant Professor of Chemistry (1968-1973) - Department of Chemistry and Environmental Studies Institute, Drexel University, Philadelphia PA

Associate Professor of Chemistry (1973-1978)

Professor of Chemistry and Environmental Science (1978-1988),

P.W. Purdom Professor of Environmental Chemistry (1988-1992)

Professor Step VI (1992-1998), Environmental Science and Engineering Program, Department of Health Science, UCLA - School of Public Health, Los Angeles California

Professor, Step IX, (1998- 2006)

Distinguished Professor, (2006- Present)

#### **A.2. Award**

- International Water Assn., Distinguished Service Award, Off-Flavors Group Award, 2005.

- Golden Spigot Award, Distinguished Service Award, American Water Works, Association, Water Quality Division, 2003

- A. P. Black Annual Research Award, American Water Works Association, 2002. "In recognition of research in the field of organic contaminants and taste and odor in water"

- Distinguished Teaching Award, UCLA Public Health Student Association, School of Public Health, 1996-1997

- American Chemical Society, Environmental Chemistry Division - Distinguished Service Award, 1991.

- F. J. Zimmerman Award in Environmental Science, American Chemical Society, 1983.

- Drexel University - University Research Achievement Award for 1981-82.

#### **A.3. Memberships and other Professional Activities:**

##### **Editorial Boards:**

- J. Environmental Science & Health, Part B, Pesticides, Food Contaminants & Agricultural Waste (1976-77)

- Chemosphere, Pergamon Press (1980-82)

- Chemtech, ACS Journal (1981-86)

- Guest Editor - Special Issue on "Water Pollution" in Journal of Environmental Science & Health, Vol. A 13, Numbers 2 & 4, Preface, Volume 2, (1978).

- Guest Editor - Aqua, 2009. Special Issue - Taste and Odor in Drinking Water (2009)

##### **Book Editor: (9 Volumes)**

**1.** "Fate of Pollutants in the Air and Water Environments," Advance in Environmental Science and Technology Series, Volume 8: John Wiley & Sons, New York NY, 1977. **Part1:** Mechanism of Interaction Between Environments and Mathematical Modeling and the Physical Fate of Pollutants in the Environment", **Part 2:** Chemical and Biological Fate of Pollutants in the Environment.

**7.** "Influents and Removal of Organics in Drinking Water Treatment", Edited with J. Mallevialle and S. U. Samm Lewis Publishers, CRC Press Inc. Boca Raton FL, 1992

**9.** "Emerging Problems: Organic Byproducts of Potential Health Concern Produced During Drinking Water Treatment", Edited by M. Suffet, D. Khiari, A. Bruchet and Z. Doquang, American Water Works Research Foundation, American Water Works Association, Denver CO, In Progress ISBN # In Press, (2009)

## **Selected Organization Appointments**

**National Academy of Science** - Safe Drinking Water Committee, (1978 – 80), Quality Criteria for Potable Water Reuse Panel, (1981-82), Space Station Water Quality Panel, Committee on Toxicology, (1986, 1989)

**Environmental Protection Agency**, Advisory Board "Hazardous Substances Research Center" (EPA Region III/V), U. Michigan, Michigan State U. and Howard U. (1989-1997)

**American Public Health Association**, Standard Methods of Water and Wastewater Committee (1981- Present)

**National Aeronautics Space Administration**, Space Station Water Quality Panel, NASA Johnson Space Center, Houston, TX (July, 1986 and Nov. 1989), Wastewater Reuse in Space Workshops at NASA Johnson Space Station Center, Houston TX (Aug. 1991)

**State of CA**, Report to the Governor and the Legislature of the State of California as Nov. 1998. Report - "Health and Environmental Assessment of MTBE, Report to the Governor – Green Initiative (2008), Signee, Office of Environmental Health Assessment, Review of Regulation Document for 1,2,3-Trichloropropane -2008

## **B. Selected Publications of over 200 (selected major pubs since 2000):**

**2000** T. J. Downs, I. H. "Mel" Suffet and E. Cifuentes-García, Effectiveness of Natural Treatment in a Wastewater Irrigation District of the Mexico City Region: A Synoptic Field Survey", Water Environment Research **72**, (1), 4-21.

**2000** T. J. Downs, M. Mazari-Hiriart, R. Domínguez-Mora and I. H. Suffet, "Sustainability of Least Cost Policies for Meeting Mexico City's Future Water Demand" Water Resources Research, **36**, (8), 2321-2339.

**2000** B. Levine, K. Madireddi, V. Lazarov, M. K. Stenstrom and I. H. Suffet "Treatment of Trace Organic Compounds by Ozone-Biological Activated Carbon for Wastewater Reuse: The Lake Arrowhead Pilot Plant", Water Env. Research **72**, (4), 388-396.

**2000** L. E. Schweitzer, S. M. Bay, and I. H. Suffet, "Dietary Assimilation of a PCB in Adult Sea Urchins (*Lytechinus pictus*) and Maternal Transfer to Their Offspring", Env. Tox. and Anal. Chem., **19**, (7), 1919-1924

**2002** J. A. Pedersen, L. E. Schweitzer, C-H. M. Lin and I.H. (Mel) Suffet, "Effect of Oxidic State on non-polar Organic Contaminants distribution, Mobility and Bioavailability, in Estuarine Sediments" Israeli J. of Chemistry, **42**, 109-118

**2002** M. S. Buffleben, K. Zayeed, D. Kimbrough, M. K. Stenstrom, and I. H. (Mel) Suffet "Evaluation of Urban Non-Point Source Runoff of Hazardous Metals That Enters Santa Monica Bay, California", Water Science and Technology, **45**, #9, 263-268

**2002** T. Shih, M. Wangpaichitr, and I.H.(Mel) Suffet, "Evaluation of Granular Activated Carbon Technology for the Removal of Methyl Tertiary Butyl Ether from Drinking Water" Water Research, **37** (2) 375-385

**2002** D. E. Kimbrough and I.H. "Mel" Suffet, Electrochemical Removal of Bromide and Reduction of THM Formation Potential in Drinking Water" Water Research, **36**, 4902-4906.

**2003** J. A. Pedersen, M. A. Yeager, and I.H. (Mel) Suffet, Xenobiotic Organic Compounds in Runoff from Field Irrigated with Treated Wastewater", J. Agriculture and Food Chemistry, **51**,1360-1372,

**2003** C.H. Lin, J. Pedersen and I. H. Suffet, "Influence of Aeration on Hydrophobic Organic Contaminant Distribution and Diffusive Flux in Estuarine Sediments" Environmental Science & Technology, **37**, 3547-3554.

**2004** M. Soliman, J. A. Pedersen, I.H. (Mel) Suffet, "Rapid GC/MS Screening Method for Human Pharmaceutically, Hormones, Antioxidants and Plasticizers in Water", J Chromo. A, 1029(1-2), 223-237

**2005** J. Pedersen, M. Soliman, I.H. (Mel) Suffet, Human Pharmaceuticals, Hormones and Personal Care Product Ingredients in Runoff from Agricultural Fields irrigated with Treated Wastewater, J. Agr. and Food Chem. **53** (5), 1625.

**2005** C. D. Lewis, I. H. (Mel) Suffet and B. Ritz, Estimated Effects of Disinfection By-Products on Birth Weight in a Population Served by a single Water Utility, American Journal of Epidemiology, **163** (1), 1-10.

**2005** J. Grebel, C. Young and I.H. (Mel) Suffet, Solid Phase Microextraction of N-Nitrosamines, J. Chromo. A **1117**, 11

**2006** D. E. Kimbrough and I. H. "Mel" Suffet, Electrochemical Process for the Removal of Bromide from California State Project Water, Journal of Water Supply: Research & Technology - AQUA **5.3**, 161-167.

**2006** J. Pedersen, M. Yeager and I.H. (Mel) Suffet, Organophosphorus Insecticides in Agricultural and Residential Runoff – Field Observations and Implications for Total Maximum Daily Load Development, Env. Science and Tech. **40**, 2120.

**2006** Wei R. Chen, Charles M. Sharpless, Karl G. Linden, I. H. (Mel) Suffet, Treatment of Volatile Organic Chemicals (VOCs) on the EPA Contaminant Candidate List Using Ozonation and  $O_3/H_2O_2$  Advanced Oxidation Process, Environmental Science and Technology, **40**, 2734-2739.

**2006** R. C. Cheng, C. J. Hwang, C. Andrews-Tate, Y. "Carrie" Guo, S. Carr and I. H. "Mel" Suffet Alternative Methods for the Analysis of NDMA and Other Nitrosamines in Water, Journal American Water Works Association **98**, 12, 82-96

**2007** J. Grebel and I.H. Suffet "Nitrogen-phosphorus Detection and Nitrogen Chemiluminescence Detection of Volatile Nitrosamines in Water Matrices: Optimization and Performance Comparison, J. Chromo. A, **1175**,141–4.

- 2007** M. A. Soliman, J. A. Pedersen, H. Park, A. Castaneda-Jimenez, M. K. Stenstrom and I. H. Suffet, Human Pharmaceuticals, Hormones, Antioxidants and Plasticizers in Wastewater Treatment Plant and Water Reclamation Plant Effluents, Water Environmental Federation , 79(2), 156-167.
- 2007** C. Lewis, I. H. Suffet, K. Hoggatt and B. Ritz, Estimated Effects of Disinfection By-products on Preterm Birth in a Population Served by a Single Water Utility, Env. Health Perspectives: Children's Health Section 115(2) 290-295. 2007
- L. Rosario-Ortiz, S. Snyder, D. Rexing and I. H. (Mel) Suffet, Characterization of the Polarity of Natural Organic Matter by the Polarity Rapid Assessment Method (PRAM), Env. Science and Tech., 41, 4895-4900.
- 2008** W. R. Chen, C. Wu, K. G. Linden and I. H. (Mel) Suffet, Ozonation and Ozone/Hydrogen Peroxide of Thiocarbamate and Urea Herbicides, Triazines and Benzenes on EPA Drinking Water Contaminant Candidate List, Water Research, 42(1) 132-144.
- 2009** I. H. (Mel) Suffet, V. Decottignies, E. Senante, A. Bruchet, Assessment and Characterization of Odor Nuisance Emissions During the Composting of Wastewater Biosolids, Water Environmental Federation, In Press.

### **C. Selected Research Grants (2001-2009)**

- 2001/2004 U.S. Environmental Protection Agency via Duke University** (Co-Principle Investigator Dr. Karl Linden) (\$214,762), “Advanced Oxidation Processes for the Treatment of Candidate Contaminant (CCL) List Chemicals” Section: Ozonation and Ozone/Peroxide (\$157,381)
- 2001/2003 U.S. Environmental Protection Agency, Region IX**, (\$50,000) \_“Analysis of Organochlorine Pesticides and PCBs to Support TMDL Development for Calleguas Creek”
- 2002/2003 California State Water Resources Control Board**, Los Angeles Region. **(\$50,000)** “EPA Chlorinated Hydrocarbons Evaluation of Pesticide Data Available in Calleguas Creek for Development of TMDLs”, Co-Principle Investigator - Michael Stenstrom, Dept. Civil & Env. Eng
- 2002/2003 Long Beach Water Department, via Water Reuse Association** (\$250,000) in cooperation with a consortium of research groups, Section: “Development Of Extraction Methods For The Analysis of Nitrosoamines in Water Reuse Systems” (\$72,499), plus Nitrogen Chemiluminescence Detector (\$30,000)
- 2002/2004 Metropolitan Water District of Southern** (\$96,100), \$140,000 additional funds 2003/2004 “Effect of Ozone/Biofiltration on Reverse Osmosis Membrane Performance”
- 2003/2004 Sweetwater Authority, Spring Valley, CA** (\$250,000) “Optimization of Sweetwater Reservoir’s Urban Runoff Diversion Systems (URDS) Wetlands for Protection of a Drinking Water Supply”, Co-Principle Investigator - Michael Stenstrom, Dept. Civil & Env. Eng. and Richard Ambrose, Dept of Env. Health Sciences
- 2004/2005 Santa Monica Bay Restoration Foundation, LA, CA** (\$190,002 via Institute of the Environment), Co-Principle Investigator - Michael Stenstrom, Dept. Civil & Env. Eng, Accepted for Funding via State of CA PRISM Funds – 10/2003, “Determination of the Primary Source of Chlorinated Pesticides that Enter Ballona Creek”
- 2005/2006 California State Water Resources Control Board, Los Angeles Region**, (\$40,000), Co PI with Dr. L. Pendelton, Env. Science and Eng. Program
- 2007/2008 California State Water Resources Control Board, Los Angeles Region**, Co- (\$100,000 via Institute of the Environment), Co-Principal Investigator - Michael Stenstrom, Dept. Civil & Env. Eng “Determination of the Primary Source of Chlorinated Pesticides Entering Lakes in Los Angeles County, CA”

## **I. H. (Mel) SUFFET**

### **AQUATIC CHEMISTRY**

The application of chemistry principles to the aquatic environment is evolving into a mature field with specializations. Aquatic chemistry may be defined as an area of applied chemistry that deals with the analysis, distribution, transport and reaction of chemicals in natural aquatic environments, air and soils as well as during the treatment of water and solids from different water, wastewater and hazardous waste processes. The aquatic chemist is concerned with the study of the aquatic environment with particular interest in the chemistry of water, wastewater and hazardous waste treatment, ground and surface waters and the oceans. He is concerned with the study of the nature and composition of natural waters, the composition of bottom sediments, soil, and water surfaces in contact with the atmosphere and soil. Research in environmental chemistry requires systematic investigation of analysis, thermodynamics and kinetics of the chemical reactants that occur in the environment and during treatment processes. The use of structure-activity relationships between chemicals and environmental behavior and the development of models as "frames of reference" to define where chemicals are, how much is potentially present and how the chemicals will react in the environment of concern is an evolving process as more is learned about aquatic environments.

Two primary objective of my research are:

- 1) to understand the underlying physiochemical mechanisms that occur during environmental and treatment processes; and
- 2) to develop new analytical chemistry approaches to determine the fate and transport of natural humic materials, hazardous organic pollutants as well as organoleptic compounds in the environment itself, during treatment processes and after the chemical leaves the treatment process and can becomes an environmental problem.

For example, more efficient analytical methods and a better understanding of the mechanism of an environmental process can help develop optimum treatment processes for hazardous organic pollutants as well as for taste and odor compounds in drinking water. Hazardous organic pollutants are of great interest, because of their direct influence on human and environmental health. Organoleptic compounds are also of significance as they can effect the aesthetic quality of water.

A specific example of this approach is a present research efforts which involves new analytical methods to isolate and concentrate carcinogenic nitrosoamines, pharmaceuticals and personal care products and other potential hazardous organic chemicals from water, suspended sediments and organic colloids that transport organic pollutants in storm drains, agricultural drains and from river and lake sediments environments as well as during water treatment processes. These analytical methods are being used to develop a better understanding of the mechanism of environmental transport processes as well as help to develop optimum treatment processes for these potentially hazardous organic pollutants.

An aquatic chemist work in an "interdisciplinary" manner and developing understanding between traditional fields is evolving as the optimum approach for environmental problem solving. There is a need for aquatic chemists, who understand the interactions of chemicals in the environment to work with other scientists, engineers, and social scientists to solve environmental problems.

### **SPECIFIC RESEARCH AREAS OF CONCERN**

#### **I. Hazardous Organics in the Water Environment**

##### **A. Analysis** - Isolation Methods (2-Phase Systems)

1. Liquid-Liquid Extraction and Solid Phase Extraction for Broad Spectrum Chromatographic Analysis
2. Micro-Extraction of Polar Organic Chemicals - Endocrine Disruptors e.g. Pharmaceuticals and Personal Care Products
3. Taste and Odor Compounds
4. Disinfection Byproducts in Water
5. Continuous On-Line Analysis including Natural Organic Matter

##### **B. Treatment** - Unit Operations For Hazardous and Odorous Chemicals During Water, Wastewater Treatment, Water Reuse and Hazardous Waste Treatment

1. Adsorption e.g. Activated Carbon
2. Oxidation/Disinfection e.g. Ozonation, Chloramination
3. Monitoring of Processes e.g. Trace Organics - Endocrine Disruptors e.g. Pharmaceuticals and Personal Care Products
4. Automation e.g. Process Control of Adsorption Processes
5. Membrane Processes e.g. Reverse Osmosis, Ultrafiltration and Nanofiltration for Water Treatment and Water Reuse

##### **C. Fate of Chemicals in the Environment**

1. Trace Organic-Humic Substances Interactions in Water and Sediment.
2. Trace Organics in Agricultural Products, Soils, and Sediments- Endocrine Disruptors e.g. Hormones & Pharmaceuticals
3. Evaluation of the Polarity of Natural Organic Matter in Water Supplies.

4. Effects of Global Warming on Natural Organic Matter and Water Supply.

**D. Trace Organics in the Air Environment**

1. Odor Nuisance Evaluation, e.g. Wastewater Odor, Compost Odors, Sludge Drying Odors, Landfills, etc.
2. Carcinogens Evaluation from Industrial Processes

## CURRICULUM VITAE

Jane L. Valentine  
 Department of Environmental  
 Health Sciences

Academic Title: Associate Professor of Environmental Health Sciences

Business Address: School of Public Health  
 University of California, Los Angeles  
 Los Angeles, California 90095  
 Telephone: (310) 825-8751

Degrees

B.S.	Chemistry	Tennessee State University, Nashville	1967
M.S.	Water Chemistry	University of Wisconsin, Madison	1970
Ph.D.	Environmental Health/ Public Health	University of Texas, Houston School of Public Health	1973

Honors

International Society for Trace Element Research in Humans (founding member)  
 Delta Omega Public Health Society  
 Sigma Xi  
 Invited Lecture to Grand Rounds in Dermatology on Arsenic Exposure to Populations, 1989  
 Invited delegate to China for Environmental Health, Group sponsored by Citizen Ambassador Program, Dwight D. Eisenhower Institute, Spokane, Washington, 1994.

Service

1980-1984	Member, California State Sanitarian Registration Advisory Committee
1984-present	Attendance, California State Sanitarian Registration Advisory Committee
1986-1990	Member, Public Health Subcommittee, San Joaquin Valley Drainage Program, U.S. Bureau of Reclamation
1987-1988	Member, Public Health Strategic Planning Environmental Health Panel, County of Los Angeles, Department of Health Services
1987-1988	Member, 4th International Union of Pure and Applied Chemists (IUPAC) Interlaboratory Trial on Selenium Determination in Human Whole Blood
1992-2006	Member, Technical Advisory Committee, Santa Monica Bay Restoration Project sponsored by EPA and California State Water Resources Control Board.  Member, Public Health Assessment work group San Joaquin Valley Post-Drainage programs.  Consultant to Science Advisory Board of the Environmental Protection Agency.
1993-1996	UC Mexus Natural Sciences Grants Advisory Committee for the University of California Institute for Mexico and the United States.

1993-present	Consultant to NIH/AD AMHA for peer reviews.
1994	Participant, Environmental Health Internship Model Standards Project, Health Resources and Services Administration, Bureau of Health Professions / Tulane University Medical Center
1995-present	Consultant to Agency for Toxic Substances and Disease Registry (ATSDR)
1998-2002	Member, Board of Directors, American Water Resources Association (AWRA)
1999 September 16-19	Panelist speaker (one of five) at Society of Environmental Journalists on the panel "Water Blues: Can We Trust What Comes out of the Tap?"
2000-present	Secretary and Founder, American Water Resources Association Southern California Section
2001	Publicity Chair, Association of Academic Women
2001-2003	President-elect and President, American Water Resources Association
2003-present	Participant, UCLA Volunteer Advocacy Workshop, Government Relations Program
2004	Panelist at the 4th National Conference on Science, Policy, and the Environment: Managing Water in the 21st Century: Towards a Comprehensive Water Vision, National Council on Science and the Environment, Washington, D.C., January, 2004.
2005-2007	Member, UC Water Resources Center Coordinating Council
2005-2007	General Interest in Science and Engineering, Representative of Affiliates, American Association for the Advancement of Science (AAAS)
2005-present (EHSRC)	Member, Environmental Health Specialist Registration Committee
2006, 2008	Member, Evaluation panel for grant awards, Southern California World Water Forum College Grant Program, Metropolitan Water District of Southern California.
2007-present	Faculty Advisory Committee, Latin American Institute, UCLA
2007	Member, Canadian Water Network Expert Panel, Networks of Centres of Excellence Program



### Major Research Interests

Trace metal relationships to health and disease; controls on trace element mobility in soils; general environmental problems.

### Research and Professional Experience

1983-present	Associate Professor of Public Health, Department of Health Sciences, School of Public Health, UCLA	Environmental
1980-1983	Associate Professor of Public Health, Division of Nutritional Sciences, School of Public Health, UCLA	Environmental and
1974-1980	Assistant Professor of Public Health, Division of Nutritional Sciences, School of Public Health, UCLA	Environmental and
1973-1974	Postdoctoral Fellow in Preventive Medicine, Environmental Toxicology, New Jersey College of Dentistry, Newark, New Jersey	Program of of Medicine and

### Courses Taught

1. General Environmental Health (UCLA)
2. Advanced Environmental Health (UCLA)
3. Environmental Measurements (UCLA)
4. Chemistry of Aquatic Systems (UCLA)
5. Laboratory Techniques in Environmental Health and Nutrition Methods of Analysis) (UCLA) (Instrumental)
6. Water Quality and Health (UCLA)
7. Seminar in Health Effects of Environmental Contaminants

## Professional Activities

### Professional Associations and Scholarly Societies

American Public Health Association  
American Water Resources Association  
Sigma Xi  
International Society for Trace Element Research in Humans  
International Society for Environmental Epidemiology  
American Association for the Advancement of Science  
California Environmental Health Association  
Association of Academic Women

### University Committee Service

#### 1. School of Public Health Committees

Student Affairs Committee Member, 1974-75  
Laboratory and Research Committee Member, Winter 1975-June 1975  
    Chairman, 1978-1979  
    Member, 1979-1980  
Research Committee Member, 1986-89  
Laboratory Subcommittee Chair, 1986-89  
Admissions Policy Committee Member, 1975-1976  
Admissions Policy Committee Chair, 1982-1983  
Continuing Education Committee Member, 1976-1977  
MPH Comprehensive Committee  
    Member, 1977-1978  
    Member, 1979-1981  
Faculty Executive Committee Member, 1977-1978  
Educational Policy & Curriculum Committee  
Subcommittee on Course Approval, Chair, 1984-85; Member, 1985-86  
    Dean's Advisory Committee of School of Public Health for the Latin American Center  
    1988-89  
    Member - Dean's Advisory Committee of School of Public Health for the Latin  
    American Center, 1989-1990  
    Member, Community and Alumni Relations Committee, 1989-1990; 1992-1993; 1996-  
    1997  
Recruiting and Alumni Relations Committee 1990-present  
SPH Evaluation Committee 1991-1992, 1994-1996, 2007-2008  
Member, EHS Admissions Committee 2008-present.

#### 2. UCLA Committees (University Wide)

Member, Program on Mexico Advisory Committee 1991 – 1995  
Legislative Assembly  
    School of Public Health Representative, 1975 – 1977  
    Environmental Health Department Representative 1993 – 1996, 1997 – 2006  
Faculty Welfare Committee, Environmental Science and  
    Engineering, 1977 – 1983  
UCLA Library Committee, 1994 – 1997  
UCLA Extension Committee, 1999 – 2002, chair – 2000  
UCLA Wooden Center Board of Governors, 2002 – 2003, 2003 – 2004  
UCLA Committee on Undergraduate Admissions, 2003 – 2006  
UCLA Charges Committee, 2006 – 2008

3. University of California Committees (System Wide)

Academic Council, Assembly 1993 – 1996.  
Assembly of the Academic Senate of the Academic Council, 2001 – 2007.  
Health Sciences Education Committee, 1997 – 1999.

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Professional Committee Service

American Water Resources Association

International Affairs Committee, 1994 – 1996.  
Cultural Diversity Committee, 1994 – 1996.  
Education Committee, 1994 – 1996.  
Board of Directors, 1998 – 2002.  
Founder, Southern California Section, 2000.  
Secretary, Southern California Section, 2000 – present.

Editorial Service

Member of Editorial Board, *Trace Elements in Experimental Medicine*

Member of Editorial Board, *California Journal of Environmental Health*

Reviewer, Environmental Protection Agency, occasional grant proposals, no formal arrangements

Reviewer, Water Resources Center, University of California, Davis, occasional grant final reports, no formal arrangements

Reviewer, *Journal of Occupational Medicine*, occasional reviews, no formal arrangements

Reviewer, *Journal of Environmental Professional*, occasional reviews, formal arrangement

Reviewer, U.S. Geological Survey grant proposals, for the University's Council on Water Resources, Lincoln, Nebraska

Reviewer, *Heart and Lung Journal*, occasional reviews, no formal arrangements

Reviewer, *Nutrition Research*, occasional reviews, no formal arrangements

Reviewer, *The American Journal of Public Health*, formal arrangement

Reviewer, New Mexico Water Resources Institute grant proposals

Reviewer, ATSDR grant final reports, through Visions USA (contractor)

Reviewer, ATSDR public health assessment reports

Reviewer, National Academy of Sciences Institute of Medicine Workshop Summary, "From Source Water to Drinking Water"

Papers Presented with and without Published Abstracts

Pier, S.P., Heidelbaugh, N.D., and Valentine, J.L. Chemical Contamination of Food-Stuffs. Presented at U.S. Mexico Border Public Health Association Meeting, 1972.

Joselow, M.M., Valentine, J.L. and Banta, J.E. Environmental Contrasts: Blood Lead Levels of Children in Honolulu and Newark. Presented at the American Public Health Association Meeting, November 4-8, 1973.

Oleske, J.M., Valentine, J.L. and Minnefor, A.B. Effects of Acute Infection on Blood Lead, Copper and Zinc Levels in Children. Presented at the American Public Health Association Meeting, October 20-24, 1974.

Ty, A. and Valentine, J.L. The Effect of Oral D-Penicillamine on Trace Metals in Blood. Presented at the American Public Health Association Meeting, October 20-24, 1974.

Harnish, R.A. and Valentine, J.L. Controls on Heavy Metal Availability in Soils. Presented at the American Water Resources Association Meeting, October 30-November 4, 1977.

Kang, H.K. and Valentine, J.L. Correlations of Selenium Concentrations in Human Urine, Blood and Hair. Presented at the American Public Health Association Meeting, October 30-November 3, 1977.

Kang, H.K., Valentine, J.L., and Spivey, G.H. Arsenic Levels in Blood, Hair, Nails and Urine in Response to Exposure Via Drinking Water. Presented at the American Public Health Association Meeting, October 15-19, 1978.

Valentine, J.L., Kang, H.K., Dang, P-M., and Spivey, G. Selenium Levels in Humans as a Result of Drinking Water Exposure. Presented at Selenium in Biology and Medicine. Second International Symposium, May 13-16, 1980.

- Valentine, J.L., Campion, D.S., Schluchter, M.D., and Massey, F.J. Arsenic Effects on Human Nerve Conduction. Presented at Trace Element Metabolism in Man and Animals (TEMA-4) Symposium, Perth, Australia, May 11-15, 1981.
- Valentine, J.L. Critical Review of Lead's Effect on Peripheral Nerve Conduction. Presented at American Public Health Association Meeting, November 1-5, 1981.
- Valentine, J.L., Kang, H.K., Reisbord, L.S., and Schluchter, M.D. Arsenic Effects on Population Health Histories. Presented at Trace Element Metabolism in Man and Animals (TEMA 5) Symposium, Aberdeen, Scotland, June 29 to July 4, 1984.
- Valentine, J.L., Reisbord, L.S., Kang, H.K., and Schluchter, M.D. Effects on Human Health of Exposure to Selenium in Drinking Water. Presented at Selenium in Biology and Medicine, Third International Symposium, Beijing, The People's Republic of China, May 28 - June 1, 1984.
- Valentine, J.L. and Faraji, B. Nutritional Status and Toxic Response: The Development of a Drinking Water Standard for Arsenic. Presented at the American Water Resources Association, 22nd Annual Conference, November 9-14, 1986.
- Valentine, J.L., Faraji, B. and Kang, K. Human Glutathione Peroxidase Activity in Cases of Near Toxic Selenium Exposures. Presented at the First Meeting of the International Society for Trace Element Research in Humans (ISTERH), Palm Springs, December 8-12, 1986.
- Valentine, J.L., Faraji, B. and Akashi, K. Selenium and glutathione peroxidase in mother's experiencing sudden infant death syndrome. Presented at Trace Element Metabolism in Man and Animals (TEMA-6) Symposium, Pacific Grove, California, May 31-June 5, 1987.
- Valentine, J.L., Kang, H.K., Faraji, B. and Lachenbruch, P.A. Selenium Status and Age Effects. Presented at Selenium in Biology and Medicine. Fourth International Symposium. University of Tübingen, W-Germany, July 18-21, 1988.
- Valentine, J.L., He, S-Y, Reisbord, L. Health Status of Arsenic Exposed Populations. Second Meeting of the International society for Trace Element Research in Humans (ISTERH), Tokyo, Aug 28-Sept. 1, 1989.
- Valentine, J.L., Bennett, R.G., Borok, M.E. and Faraji, B. Environmental Arsenic and Skin Toxicity. Presented at Trace Elements in Man and Animals (TEMA-7) Symposium, Dubrovnik, Yugoslavia, May 20-25, 1990.
- Valentine, J.L. Environmental Arsenic Exposures from Drinking Water. Presented at California Environmental Health Association, 41<sup>st</sup> Annual Educational Symposium, Fresno, California, April 8-10, 1992.
- Valentine, J.L., Cebrian, M.E., Garcia-Vargas, G.G., Faraji, B., Kuo, J., Gibb, H.J., Lachenbruch, P.A. Daily selenium intake estimates for residents of arsenic endemic areas. Presented at Fifth International symposium. Selenium in Biology and Medicine. Vanderbilt University, Nashville, Tennessee, July 20-23, 1992.
- Valentine, J.L., Faraji, B., Cebrian, M.E., Gibb, H.J. Dietary recall assessment of food intake of arsenic by populations in northern Mexico. Presented at Fourth Annual Meeting of International Society for Environmental Epidemiology (ISEE) and International Society of Exposure Analysis (ISEA), Cuernavaca, Morelos, Mexico, August 26-29, 1992.
- Valentine, J.L., Reisbord, L.S., Faraji, B., Pisapanit, P., Spivey, G. and Lachenbruch, P. U.S. drinking water intake estimates. Presented at the Eighth International Symposium on Trace Elements in Man and Animals. Dresden, Germany May 16-22, 1993.

- Valentine, J.L., Cebrian, M., Faraji, B., Garcia-Vargas, G. Dietary zinc intake in arsenic-endemic areas. Presented at the Eighth International Symposium on Trace Elements in Man and Animals. Dresden, Germany, May 16-22, 1993.
- Valentine, J.L. Review of Health Assessments for North Americas Populations Exposed to Arsenic in Drinking Water. Presented at the International Conference on Arsenic Exposure and Health Effects. New Orleans, Louisiana. July 28-30, 1993.
- Valentine, J.L. Environmental Arsenic Exposure in the Western United States – Methodological Approaches. Presented at the International Conference on Arsenic, Calcutta, India. February-9-10, 1995.
- Valentine, J.L. Body Burden Concentrations in Humans in Response to Low Environmental Exposure to Trace Elements. Presented at the International Chemical Congress of Pacific Basin Societies, Honolulu, Hawaii, December 17-22, 1995.
- Valentine, J.L. Evaluation Of Teratogenic Effects In Populations Exposed To Selenium. Presented at the Fourth International Symposium on Metal Ions in Biology and Medicine, Barcelona, Spain, May 19-22, 1996.
- Valentine, J.L. Age and Exposure Variations to Arsenic Excretion. Presented at the Ninth International Symposium on Trace Elements in Man and Animals (TEMA-9), Banff, Alberta, Canada, May 19-24, 1996.
- Valentine, J.L. Environmental Occurrence of Selenium in Waters and Related Health Significance. Presented at Selenium in Biology and Medicine, Sixth International Symposium, Beijing, The People's Republic of China, August 18 - 21, 1996.
- Valentine, J.L., Tareen, N.G., “Water Quality Studies of Trace Elements and Human Reproductive Outcome: Arsenic.” presented at the annual conference of the American Water Resources Association, Long Beach, California, October 20-23, 1997.
- Valentine, J.L. “Assessment of Analytical Instrumentation for Trace Element Determination of Source Waters.” presented at American Water Resources Association Annual Conference, Long Beach, California, October 20-23, 1997.
- Valentine, J.L. “American Water Resources Association: A Role in Environmental Protection,” presented at Environment and Society Seminar Series, California Institute of Technology, Feb. 18, 2002.
- Valentine, J.L. “Arsenic and Health: A New Perspective?” presented at Charles Drew University, Feb. 19, 2002.

#### Conferences Attended

- Global Environmental Management Initiative (GEMI) Conference: Success, Current Challenges, and Future Trends. Washington, D.C., Apr. 13, 2005.
- Renewable Natural Resources Foundation Conference on Personal Trends, Education, Policy, and Evolving Roles of Federal and State Natural Resources Agencies. Jointly sponsored with American Association for the Advancement of Science (AAAS). Washington, D.C., Oct. 28-29, 2003.
- UC-ANR Water Resources Coordinating Conference. Hedrick Agricultural History Center, Woodland, CA, Apr. 17, 2008.

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Valentine, J.L., and Joselow, M.M. Application of a Wang 600 Program for Calculating Blood Lead Concentrations Obtained by Micro Atomic Absorption Spectrophotometry. Wang Programmer 7: 9 (1973).

Joselow, M.M., Banta, J.E., Fisher, W. and Valentine, J.L. Enviromental Contrasts: Blood Lead Levels of Children in Honolulu and Newark. Journal of Environmental Health 37: 10-11 (1974).

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- Valentine, J.L. and Chambers, L.A. Distribution of Trace Elements in the Houston Environment: Relationship to Mortality from Arteriosclerotic Heart Disease. Texas Reports on Biology and Medicine 34: 331-339 (1976).
- Valentine, J.L. and Trieff, N.M. Association Between Some Trace Metals and Calcium in Houston Drinking Water. Texas Journal of Science 27: 285-290 (1976).
- Kang, H.K. and Valentine, J.L. Acid Interference in the Determination of Arsenic by Atomic Absorption Spectrometry. Anal. Chem. 49: 1829-1831 (1977).
- Kang, H.K., Harvey, P.W., Valentine, J.L., Swendseid, M.E. Zinc, Iron, Copper, and Magnesium Concentrations in Tissues of Rats Fed Various Amounts of Zinc. Clinical Chemistry 23 (10): 1834-1837 (1977).
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- Baloh, R.W., Campion, D.S., Spivey, G.H., Brown, C.P., Browdy, B.L., Valentine, J.L., Gonick, H.C., Massey, F.W. and Culver, B.D. Neurologic Effects of Increased Lead Absorption. A Longitudinal Study. Accepted for publication in Archives Industrial Hygiene and Toxicology: Proceedings of the 19th International Congress of Occupational Health, Dubrovnik 1978, Vol. 1.
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- Valentine, J.L., Kang, H.K., and Spivey, G. Arsenic Levels in Human Blood, Urine, and Hair in Response to Exposure via Drinking Water. Environmental Research 20: 24-32 (1979).
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- Brown, C.P., Spivey, G.H., Valentine, J.L., and Browdy, B.L. Cigarette Smoking and Lead Levels in Occupationally Exposed Lead Workers. Journal of Toxicology and Environmental Health 6: 877-883 (1980).
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- Valentine, Jane L. Why Weak Correlation Between Blood Level and Erythrocyte ALA-D Activity? - Author's Response. Journal of Occupational Medicine 24:948-949 (1982).
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- Valentine, J.L. Environmental Occurrence of Selenium in Waters and Related Health Significance. Biomedical & Environmental Sciences 10:292-299 (1997).
- Valentine, J.L., The Role of Environmental Education in a Changing World (in preparation).
- Chapters in Books
- Valentine, J.L., Kang, H.K., Dang, P.M., and Spivey, G. Selenium Levels in Humans as a Result of Drinking Water Exposure. Chapter 32 (pp. 354-357), In: Selenium in Biology and Medicine, J.E. Spallholz, J.L. Martin, and H.E. Ganther (eds.), AVI Publishing Company, Westport, Connecticut, 1981.
- Valentine, J.L., Campion, D.S., Schluchter, M.D., and Massey, F.J. Arsenic Effects on Human Nerve Conduction, pp. 409-411. In: Trace Element Metabolism in Man and Animals, J.C. McC. Howell, J.M. Hawthorne, and C.L. White (eds.) Australian Academy of Science, Canberra, 1981.
- Valentine, J.L., Reisbord, L.S., Kang, H.K., and Schluchter, M.D. Effect on Human Health of Exposure to Selenium in Drinking Water. Chapter 69 (pp. 675-687), In: Selenium in Biology and Medicine III, G.F. Combs, Jr., J.E. Spallholz, O.A. Levander and J.E. Oldfield (eds.). Van Nostrand Reinhold Co., New York, 1987.
- Valentine, J.L., Kang, H.K., Reisbord, L.S. and Schluchter, M.D. Arsenic Effects on Population Health Histories, pp. 289-292. In: Trace Elements in Man and Animals. C.F. Mills, I. Bremner, and J.K. Chesters (editors). Commonwealth Agricultural Bureau, United Kingdom, 1985.
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- Valentine, J.L. Body Burden Concentrations in Humans in Response to Low Environmental Exposure to Trace Elements. Presented at the International Chemical Congress of Pacific Basin Societies, Honolulu, Hawaii, December 17–22, 1995. In: *Environmental Monitoring. Exposure Assessment and Specimen Banking* K.S. Subramanian and G.V. Iyengar (Eds.). American Chemical Society, Washington, D.C., 1995.
- Valentine, J.L. Age and Exposure Variations to Arsenic Excretion. Presented at the Ninth International Symposium on Trace Elements in Man and Animals (TEMA-9), Banff, Alberta, Canada, May 19-24, 1996. In: *Trace Elements in Man and Animals (TEMA-9)*. NRC Research Press, Ottawa, 1997.

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Dr. Arthur M. Winer is Distinguished Professor of Environmental Health Sciences, and a core faculty member and former Director (1989-1997) of the interdepartmental Environmental Science and Engineering Program based in UCLA's School of Public Health. Dr. Winer is also a Luskin Scholar at the UCLA Luskin Institute for Innovation and holds an appointment at the UCLA Institute of the Environment where he has served as the Associate Director.

Dr. Winer received a B.S. in Chemistry from UCLA (1964), a Ph.D. in Physical Chemistry (1969) from the Ohio State University, and spent two years as a Post-Doctoral Fellow in Chemistry at UC Berkeley. Prior to joining the faculty at UCLA in 1989, he spent 18 years at the UC Riverside, where he served as Assistant Director of the Statewide Air Pollution Research Center from 1978 to 1986. From 1995 to 2002 he served as Associate Director of the University of California's Toxic Substances Research and Teaching Program. His teaching activities focus on the atmospheric transport and transformations of airborne chemicals, and their influence on regional and global air pollution problems such as photochemical smog, accumulation of greenhouse gases and resulting climate change, stratospheric ozone depletion, human exposure to toxic air contaminants, and the inter-relationship between energy and air pollution issues.

Dr. Winer is the author or co-author of more than 190 peer-reviewed journal articles and sixteen book chapters on a wide range of air pollution topics. Over the past three decades, his research has included studies of the lifetimes and fates of airborne chemicals; application of regional and individual air pollutant exposure models; direct measurements of human exposure to gaseous and particulate air pollutants, with an emphasis on children's exposure in diesel school buses, portable classrooms and homes; measurement of novel vehicle emissions; and the application of long optical path spectroscopy to studies of trace air pollutants.

The co-keynote speaker, with Dr. David Bates, at the Eighth International Clean Air Conference in Melbourne, Australia, Dr. Winer has given numerous invited and plenary lectures at national and international meetings. He has worked extensively at the state, national and international level to promote legislation and public policy measures designed to address a broad range of air pollution, environmental justice and public health problems.

Dr. Winer has served as an advisor to the President's Council on Environmental Quality, EPA's Clean Air Scientific Advisory Committee, the National Academy of Sciences/National Research Council, the Health Effects Institute, California's Air Resources Board and the South Coast Air Quality Management District. He is a member of the International Society of Exposure Analysis, the American Chemical Society, the Air and Waste Management Association, and the American Association for the Advancement of Science, and has received numerous awards for his contributions to the air pollution field, including the Haagen-Smit Award, the Carl Moyer Award for Scientific Leadership, and the American Lung Association's Clean Air Award.