

EHSRC UPDATE

New Investigators and New Cores Restructure EHSRC

The EHSRC has undergone a transformation with its new three-year, \$3 million award, with changes in investigators, the establishment of two new research cores, and the reduction of the Center's structure by two facilities and two research cores.

The Pulmonary Biology Research Core under the direction of Dr. Joel Kline and co-directed by Dr. Gary Hunninghake, has shifted its focus and been renamed the Inflammation and Innate Immunity (III) Core to emphasize a research focus on mechanisms of immune responses in the airway as they relate to environmental exposures. Investigators of the III Core will promote the use of these research studies to reduce the adverse health effects of environmental contaminants among rural and agricultural populations.

An Oxidative Stress and Metabolism (OSM) Core directed by Dr. Larry Oberley and co-directed by Dr. Larry Robertson will establish a collaborative, interdisciplinary cadre of researchers with skills and experience in toxicology and oxidative stress. Core investigators will undertake a variety of projects focusing on the effects of environmental and agricultural chemicals on the lung, ranging from inflammation to carcinogenesis. Working with investigators in the Inflammation and Innate Immunity Core and Pulmonary Health Outcomes Core, the OSM core will (*Cont. Page 3*)

Institute of Medicine Conference on Rural and Agricultural Health

The EHSRC and the Institute of Medicine of the National Academies (IOM) co-hosted a national conference titled, "Rebuilding the Unity of Health and the Environment in Rural America," in Iowa City on November 29-30. Over 80 participants heard 18 speakers deliver presentations on a wide range of topics around rural environmental health during the two-day conference, which will be published as part of a series produced by the Roundtable on Environmental Health Sciences, Research, and Medicine.

Environmental health issues rural Americans currently face are often unique, from the effects of farming practices, such as hog confinements, pesticides and fertilizers, on the air and water supply to the gradual disappearance of the family farm and increasing prevalence of urban sprawl over historically-farmed lands. The conference highlighted the current state of knowledge in the areas of the natural environment, the social environment, and the built environment as they apply to the changing rural landscape.

IOM Roundtable member Donald Mattison opened the meeting with an introduction to environmental health, followed by a presentation by EHSRC Director Peter Thorne, focused on Environmental Health in Rural America. (*Cont. Page 2*)



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Larry Oberley
Director

Oxidative Stress & Metabolism Core



Larry Robertson
Co-Director

Oxidative Stress & Metabolism Core

EHSRC Investigators Larry Oberley and Larry Robertson co-direct the new Oxidative Stress and Metabolism Core.



Jane Hoppin of the National Institute of Environmental Health Sciences delivers a presentation on environmental exposures and chronic disease in rural communities



2004 EHSRC Pilot Grant Awards



On October 1, 2004, the EHSRC funded 4 pilot grants for the 2004-2005 year. The EHSRC Pilot Grant Program is designed to enhance and promote research and training in the environmental health sciences, and is open to all University of Iowa researchers interested in environmental health, with priority given to junior investigators. Applicants can apply for funding for U.S.-based projects or for collaborative, international projects. The next due date is February 1, 2005. For more information, visit <http://www.ehsrc.uiowa.edu/PilotGrantPrgm.htm>

2004 EHSRC Pilot Grant Awards



- Caroline George, MD. *The role of surfactant protein-A during early life environmental exposures.*
- Prabhat C. Goswami, PhD. *Polychlorinated biphenyls, intracellular antioxidants and cellular proliferation.*
- Katarina Kulhankova, MD, MS. *The role of neonatal and juvenile inhalation exposures on pulmonary hyperresponsiveness and lung growth.*
- Richard J. Milchak, MD. *High resolution CT-based evaluation of airway responses to endotoxin inhalation.*



Institute of Medicine Conference (Continued from Page 1)

Several subsequent presentations were geared to current regulations, public policy, and efforts of environmental and conservation organizations currently underway in rural areas around the country. Ellen Huntoon, Rural Development Coordinator from the office of Senator Tom Harkin, spoke about the Farm Bill and its implications for the future of Midwestern farmers and communities, while Erroll Davis, Chairman and

CEO of Alliant Energy talked about the challenges of balancing increasing energy demands and overall air quality in 21st century rural America. Topics addressing the social environment included immigration and changing rural demographics, the diminishing vitality of rural communities, and mental health concerns, such as the psychological effects from the loss of a family farm or the isolating circumstances of rural domestic violence, among others.

In addition, aspects of the built environment, such as abandoned and occupied housing and obesity and exercise opportunities through the availability of recreational facilities and bike trails were presented. Dr. Bernard Goldstein, Dean of the School of Public Health at the University of Pittsburgh, spoke on the effects of urban encroachment into rural areas, and Mark Ritchie, President of the Institute of Agricultural and Trade Policy provided an overview of farming practices and their effects on the environment, such as soil erosion and pesticide contamination. The two-day program ended following a presentation by Dr. Jane Hoppin of the National Institute of Environmental Health Sciences on environmental exposures and chronic diseases in rural communities.



Eileen Huntoon from the Office of Senator Tom Harkin and EHSRC Investigator Peter Thorne field questions from the audience.

Conference proceedings are expected to be published in 2005 by the National Academies Press.

**Elizabeth
Chrischilles
Director**

*Pulmonary Health
Outcomes Core*



**R. WILLIAM FIELD
CO-DIRECTOR**

*Pulmonary Health
Outcomes Core*



*EHSRC Investigators
Elizabeth Chrischilles and
R. William Field co-direct a new
Pulmonary Health Outcomes Core.*

New Investigators and New Cores (*Continued from Page 1*)

provide expertise in measurement of reactive oxygen and nitrogen species, quantitation and modulation of antioxidants, and measurement of oxidative damage.

In addition, Dr. Elizabeth Chrischilles will direct a new Pulmonary Health Outcomes Core, co-directed by William Field, whose focus will be placed on the detection, ascertainment, surveillance, etiology, and prognosis of environmental and agricultural airway diseases. Areas of interest include asthma, lung cancer, genetic influences, Hypersensitivity Pneumonitis, Chronic Beryllium Disease, and Chronic Obstructive Pulmonary Disease and related disorders. Core investigators will collaborate with investigators in this and in other cores lending expertise in epidemiologic study design, exposure monitoring, data collection, and evaluation of surveillance systems for pulmonary diseases.

Oberley Receives Lifetime Achievement Award

Larry Oberley, Ph.D., professor of radiation oncology in the University of Iowa Roy J. and Lucille A. Carver College of Medicine, received the first Lifetime Achievement Award from the Society for Free Radical Biology and Medicine (SFRBM). The award, which honors overall contributions to the field of free radical biology and medicine, was presented at the SFRBM annual meeting Nov. 21 where Oberley gave a plenary lecture.

Oberley's research career of almost 30 years has focused primarily on the mitochondrial antioxidant protein manganese superoxide dismutase (MnSOD) and how it affects both cancer cells and aging.

Among his discoveries, Oberley has shown that MnSOD acts as a tumor suppressor. He found that increasing the levels of this protein in cancer cells, which generally have low levels of MnSOD, produces a tumor suppressive effect by slowing or stopping cell proliferation. Further work examining the nature of this tumor suppression has shown that overexpression of MnSOD protein affects the expression of many genes and proteins in cancer cells, some indicating that MnSOD may also play a role in angiogenesis.

Oberley's continuing research on MnSOD and related antioxidant proteins and their roles in cancer and aging includes translating his findings into a phase I clinical trial utilizing intratumoral injections of MnSOD to increase cancer treatment efficacy.

Oberley received his master's and doctoral degrees in physics from the UI and joined the UI faculty in 1975, beginning as an instructor in the Department of Radiology. He is director of the Free Radical and Radiation Biology Program, deputy director of the Holden Comprehensive Cancer Center at the UI, assistant director for basic research in the Center on Aging in the UI College of Public Health, and director of the Oxidative Stress and Metabolism Core within the Environmental Health Sciences Research Center.

The Society for Free Radical Biology and Medicine (formerly The Oxygen Society) was established in 1987 and is a professional organization comprised of over 1,300 scientists, researchers and clinicians with an interest in the field of free radical chemistry, biology and medicine.



EHSRC Investigator Larry Oberley at the ceremony with former graduate student Dr. Daret St. Clair and his wife, Kathy Oberley

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UPCOMING MEETINGS—2005

SOCIETY OF TOXICOLOGY, 44TH ANNUAL MEETING AND TOX EXPO

March 6-10, 2005
New Orleans, Louisiana
<http://www.toxicology.org>

GORDON RESEARCH CONFERENCE, OXIDATIVE STRESS AND DISEASE

March 13-18, 2005
Ventura, CA
<http://www.grc.uri.edu/programs/2005/oxidat.htm>

AMERICAN ACADEMY OF ALLERGY, ASTHMA AND IMMUNOLOGY, AAAAI 61ST ANNUAL MEETING

March 18-22, 2005
San Antonio, TX
http://www.aaaai.org/members/annual_meeting/am2005/default.asp

AMERICAN THORACIC SOCIETY, ATS 2005 INTERNATIONAL CONFERENCE

May 20-25, 2005
San Diego, CA
<http://www.thoracic.org/ic/ic2005/conference.asp>

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