Toxicology Graduate Program
Faculty

Dr. Andrij Holian
Director
PhD from Montana State University
- Nanomaterials Toxicity
- Silica and Scavenger Receptors
- Asbestos Research
- Methamphetamine
- Biomass smoke

Howard Beall
PhD from University of Florida
- Medicinal Chemistry
- Pharmacology

Celine Beamer
PhD from University of Montana
- Immunology
- Environmental Exposures

Fernando Cardozo-Pelaez
PhD from University of South Florida
- Neurotoxicology
- DNA damage and repair

Yoon Hee Cho
PhD from Seoul National University
- Epigenetics
- DNA repair gene polymorphism

Zeina Jaffar
PhD from University College London
- Immunology
- Asthma
Faculty

Chris Migliaccio
PhD from University of California
- Immunology
- Fibrosis

Mark Pershouse
PhD from University of Texas
- Cancer
- Tumor suppressor genes

Kevan Roberts
PhD from University of Manchester
- Immunology
- Allergic Asthma

Scott Wetzel
PhD from Oregon Health and Science University
- Immunology
- Environmental exposures

Curtis Noonan
PhD from Colorado State University
- Biomass smoke exposure
- Respiratory health

Elizabeth Putnam
PhD from University of Texas
- Genetic variability
- Gene expression changes

Tony Ward
PhD from University of Montana
- Inhalational exposures
- Particulate matter
The Center for Environmental Health Sciences (CEHS) offers a highly successful Toxicology Graduate program training students to become independent investigators.

Program Overview
- PhD and MS degrees are offered, both with an emphasis in research training and career development
- Following completion of their PhD our graduates pursue advanced training in national and international laboratories in academia, industry, and government
- Several alumni have worked directly in NIH laboratories

Faculty
- The CEHS faculty within the Department of Biomedical and Pharmaceutical Sciences offers training in molecular and cellular toxicology for the PhD and MS degrees

Areas of Emphasis
- Immunotoxicology - Respiratory Toxicology - Nanotoxicology
- Epigenetics - Gene Environment Interactions

Students with a background in the biological, biomedical, or chemical sciences are encouraged to apply.
- Graduate students from CEHS have proceeded to work in both industry and academia, boasting a 100% post-graduation employment rate.

- The University of Montana is located in Missoula, a community with a high quality of life featuring abundant recreational opportunities and nearby Glacier National Park.

- The friendly, collaborative nature of the faculty emphasizes one-on-one faculty-student interactions.

- Extensive research and graduate training funding allows students to conduct research at the highest levels.

- Upon completion, all students have been placed in outstanding postdoctoral training in organizations including the National Institutes of Health, Johns Hopkins, Temple University, Roche Pharmaceuticals, University of Minnesota and Abcam.

Teaching and research assistantships are available to highly qualified applicants.

Tuition fee waivers are granted to most students.

Current stipends are $14,400 for MS students and $23,000 for PhD students.
About CEHS

CEHS was formed in 2000 and is a leading edge biomedical research center focused on diseases associated with exposures to harmful environmental and occupational agents. Center investigators interact with a network of investigators nationally and internationally to enhance basic and translational research.

Research Focus

- To determine the mechanisms by which environmental and occupational exposures contribute to the development of human diseases
- To translate that knowledge into development of biomarkers, therapeutic interventions and improved public health information

Key Areas of Research

- Immune mediated diseases including asthma, fibrosis, autoimmune diseases, increased host susceptibility and inflammatory bowel disease
- Central nervous system diseases including aging related neurodegeneration and neuroinflammation
- Environmental induced epigenetic changes and nanomedicine/nanotoxicology

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CEHS supports three Research Cores:
The Fluorescence Cytometry Core, Molecular Histology and Fluorescence Imaging Core, and Inhalation and Pulmonary Physiology Core

- Each of the Cores are led by experienced faculty and full time staff scientists helping investigators plan, execute and interpret experimental studies

- The cores are highly integrated providing for a smooth workflow when more than one core is necessary to accomplish complicated research

- The state-of-the-art Core Facilities and rich research environment make CEHS a unique center in Montana with the closest related centers located in Seattle, Portland and Denver
Fluorescence Cytometry Core resources and equipment include:

- **BD-FACS Aria flow cytometer and cell sorter**
- **BD-FACS Calibur for routine analyses**
- **Thor Labs (CompuCyte) iCys Laser Scanning Cytometer** for quantitative fluorescence analysis of tissue sections
- **Miltenyi Biotech AutoMACS** magnetic bead system for cell sorting
- **Luminex 100 microbead analysis system**
- **Zeiss Fluorescence microscope with digital camera** allows for in-depth examination and photography of tissues and cells
- **A variety of analyses software programs** are available to optimize data analyses and presentations
The Molecular Histology and Fluorescence Imaging Core provides traditional and specialized histology support services including:

- Full service facilities for tissue processing, sectioning and staining for paraffin embedded or frozen tissue

- Imaging facility including an Olympus Fluoview 1000 Laser Scanning Confocal microscope, with a Tokai Hit stage incubator for live cell acquisitions and TIRF imaging capabilities

- Nikon Eclipse 800 microscope equipped with an Olympus DP26 camera and cellSens software for epi-fluorescence and transmitted light acquisitions
Inhalation and Pulmonary Physiology Core resources include:

- state-of-the-art inhalation exposure and pulmonary function assessment equipment and services
- full surgical suite and animal husbandry
- air sampling equipment
- genotyping capabilities

In addition, a novel inhalation exposure chamber for studying the health effects of inhaled woodsmoke has been recently constructed and installed as part of the Core's inhalation exposure laboratory.

This will allow studies of this complex aerosol on the health and well-being of human populations in the US and abroad.
Alumni Testimonials

Julie Hart, PhD, 2013

My studies in the CEHS graduate toxicology program have helped me prepare for my future in endless ways. The experience gained through my research has played a vital role in securing funding and in establishing a successful publication record post-graduation. I was working in academia prior to my studies at the CEHS and the completion of my terminal degree has opened many doors for me. I am confident that these opportunities for advancement would not be possible without the experiences gained through the CEHS toxicology graduate program.

Sarah Lacher, PhD, 2013

I chose the Toxicology Program in the CEHS because the department had many successfully funded faculty and an established graduate program with a history of well trained students who completed the program. The faculty and staff made it explicitly clear that I had their full support academically and financially if I dedicated myself to the department and my research. My skill set when I completed graduate school allowed me to obtain a Postdoctoral fellowship at the University of Minnesota. I would not have changed a thing, and I miss my science family at CEHS daily.
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Missoula, MT 59812

CEHS Website:
umt.edu/cehs

Graduate Program Curriculum Information:
cehsweb.health.umt.edu/education/graduate

Email: paulette.jones@umontana.edu

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