

Summer Undergraduate Research Fellowship Program

June 15 to July 27, 2009



OHIO
UNIVERSITY

College of Osteopathic Medicine

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About the program

The Ohio University College of Osteopathic Medicine provides a wide variety of summer research opportunities for undergraduate students interested in careers in medicine or biomedical research. Participants in this program work in an active research laboratory under the guidance of a faculty member. The program is deliberately flexible, so that students may combine work with other educational experiences. The goal of the program is to expose students to the challenges, excitement and satisfaction of research.

Selection is based on academic records and the appropriateness of the applicant's scientific interests. Students about to begin their senior year of college studies are preferred, but promising juniors and recent graduates will be considered.

Participants are provided with room, board and \$600 for living expenses. Eight undergraduate credit hours in biology are also available tuition-free to all program participants. In addition those program participants who meet minimum requirements for admission to OU-COM, including having taken the MCAT, will be offered an opportunity to interview during the summer.

Participating faculty and their research areas

Bonita Biegalka, Ph.D.

Molecular studies of regulatory mechanisms critical for replication of the herpes virus, *cytomegalovirus*.

Mark Berryman, Ph.D.

Cellular and molecular aspects of a new family of human chloride channel proteins.

Jack Blazyk, Ph.D.

We discovered a new design for antimicrobial peptides that can selectively kill bacteria by disrupting the cytoplasmic membrane. By understanding how these peptides function, we hope to produce sufficiently potent and selective compounds for clinical use against antibiotic-resistant microorganisms.

Karen Coshigano, Ph.D.

Elucidation of genes involved in the development of or protection from kidney damage either as a result of diabetes or over expression of growth hormone.

Peter Coshigano, Ph.D.

Genetic and molecular studies of natural biodegradation processes, such as microorganisms that can degrade toxic compounds, and development of techniques that can exploit them for environmental clean-up purposes.

Kenneth Goodrum, Ph.D.

Immune responses during infections with the Group B streptococcus, the leading cause of bacterial sepsis and pneumonia in newborns, are studied. Bacterial stimulation of inflammatory cytokine and nitric oxide production, which may be either protective or harmful to the infected host, are examined in tissue culture systems.

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Mario Grijalva, Ph.D.

Tropical Disease Research in Ecuador: Epidemiological, entomological and clinical studies in rural communities. Activities will focus on collection and analysis of biological material in the field (mobile laboratory) and further analysis of samples and data at the Infectious Disease Research Laboratory in Quito, Ecuador as well as back in Athens.

For more information, visit www.oucom.ohiou.edu/tdi/ or contact grijalva@ohio.edu

Donald Holzschu, Ph.D.

Role of retroviruses in tumor induction and regression.

Frank Horodyski, Ph.D.

Structure, syntheses and mode of action of insect neuropeptides.

Sharon Inman, Ph.D.

I am a renal physiologist interested in renal transplantation and diabetic kidney disease. My current projects include delineating the mechanisms of ischemia/reperfusion injury which can occur in donor kidneys prior to transplantation and studying the renal microvascular dysfunction associated with diabetes.

John Kopchick, Ph.D.

Molecular basis for obesity and diabetes.

Donald Miles, Ph.D.

Adaptive significance of variation in morphology and locomotion; comparative methods in ecology and evolutionary biology.

Molly Morris, Ph.D.

Sexual selection, alternative mating strategies and the evolution of communication in swordtail fishes.

Felicia Nowak, M.D., Ph.D.

Regulation of gene expression and mechanism of action of neuropeptides in brain development, function and aging; impact of gender and sex steroids on brain development; transgenic models.

Steve Reilly, Ph.D.

Functional morphology (electromyography, kinematics, anatomy) of vertebrate locomotion.

William Romoser, Ph.D.

Research involves both lab and field studies of mosquito biology/physiology, including summer projects in Ecuador. Current efforts focus on container-inhabiting mosquitoes, particularly the dengue virus-transmitting species *Aedes aegypti*, and on anti-microbial mechanisms which act in the developing adult alimentary canal during the pupal (metamorphic) stage and during adult emergence.

Ed Rowland, Ph.D.

Biology of *Trypanosoma cruzi* infections in tissue culture cells, with emphasis on immune inhibition of intracellular parasite growth.

Allen Showalter, Ph.D.

Molecular and cellular biology approaches to the structure and function of plant cell surface proteins, including the use of genetic mutants and RNA interference in *Arabidopsis*.

(see www.plantbio.ohio.edu/epb/faculty/faculty/am.htm)

John Zook, Ph.D.

Touch receptors on the bat wing as a potential model for human Merkel-cell carcinomas. Mammalian auditory brainstem structure, function and development.