

## Research

*Our students benefit from an environment of inquiry.*

A university - and therefore its medical school - has as its fundamental purpose the advancement of knowledge for the benefit of society. Research that contributes to the advancement, transmission and utilization of knowledge also promotes the professional and academic development of the faculty and students at SIU School of Medicine.

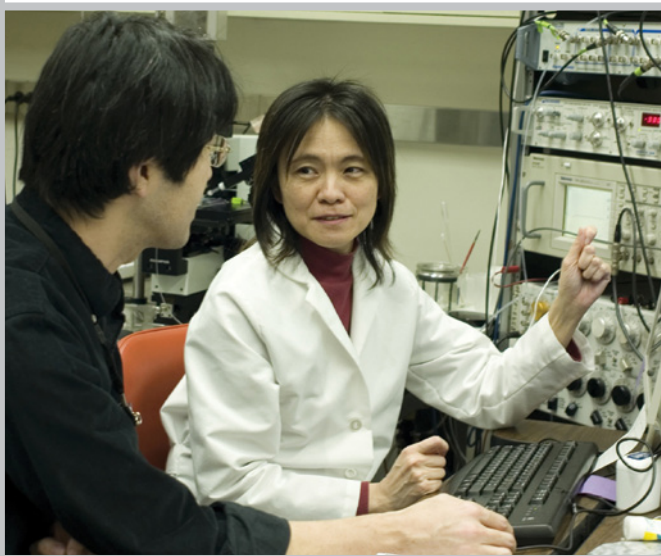
Research enhances medical student education because it produces an environment of inquiry. Such an environment provides an opportunity to obtain well-rounded medical education as opposed to merely receiving technical training. It also aids students in gaining life-long habits of scholarship and self-education.

SIU medical students have many opportunities to participate in research activities in clinical and basic science departments, medical humanities and medical education. Students are encouraged to participate at all levels of their training. An annual Trainee Research Symposium gives medical and graduate students and residents opportunities to present their research results and compete for monetary awards. (See page 23.)

Research activity in more than 100 research laboratories in both Springfield and Carbondale covers a wide range of the clinical and basic sciences. Collaborative collective research projects between faculty members from different disciplines are encouraged and supported with School of Medicine funds.

Some of the current areas of research in the School of Medicine include:

- Diabetes and metabolic syndrome
- Cancer
- Cell signaling
- Geriatrics
- Hearing, tinnitus and age-related hearing loss
- Heart disease, vascular disease and stroke
- Infectious disease
- Ischemia-reperfusion injury
- Medical education
- Microsurgery and wound repair
- Molecular biology
- Neuroscience and neurology, including epilepsy, Alzheimer's disease and Parkinson disease
- Developmental disorders
- Women's health, including cancer, reproduction and infertility



*Pharmacology research work*

The faculty's commitment to research is further manifested by graduate programs leading to master's and doctoral degrees in pharmacology, physiology, and molecular biology, microbiology, and biochemistry.

Basic science laboratories are maintained on both the Carbondale and Springfield campuses. In Carbondale, the primary laboratories are located in Lindegren Hall, Life Science II and the Neckers Building. The Life Science III



*SimmonsCooper Cancer Institute research laboratory*

building in Carbondale provides offices, labs and research support space for medical school faculty in anatomy and physiology, and also houses the botany, microbiology and zoology departments in the College of Science. In Springfield, laboratories are located in the Medical Instructional Facility, the Springfield Combined Laboratory Facility and its addition, and the Cancer Research Laboratory.

Research activities are supported by many School of Medicine resources, shared facilities and committees. Research facilities include the Research Imaging Facility, which offers both scanning and transmission electron microscopes and confocal microscopy. A Flow Cytometer

Laboratory houses three cytometers, one with cell sorting capability. The animal facilities at the School contain 19,991 gross square feet of modern, well-equipped space that includes a surgery suite, rodent barrier area, cagewash facility, diagnostic laboratory, necropsy room, quarantine area and infectious disease containment unit.

The School has several committees that review research projects for compliance with federal and state regulations: the Springfield Committee for Research Involving Human Subjects, the Radiological Control Committee, the Laboratory Animal Care and Use Committee and the Infection Control and Safety Committee. The Research Policy Committee provides guidance, direction and advice for research policies at the School.



*Working in Medical Microbiology, Immunology and Cell Biology laboratory*

The level of externally funded grants currently received is \$22.2 million (FY08). Currently, more than 200 research, training, institutional and other projects are being funded. Approximately 45 percent of the School's research projects are supported by the federal government, including the National Institutes of Health. Others are funded through health associations, private foundations, state funds and pharmaceutical companies.

The School emphasizes collaborative research between clinicians and basic scientists to enhance the School's competitive position for large-scale federal research grants. Smaller projects are supported by the state-funded Excellence in Academic Medicine program. The School also provides support for small-scale individual research projects through its Central Research Committee. These funds are directed mainly toward investigators with no previous external support and for promising start-up or pilot projects for both established and new investigators.

Research continues to be a strong force at the School of Medicine, providing faculty and students with opportunities for professional and academic development while generating new knowledge for the benefit of Illinois residents and society as a whole.



*Surgery research laboratory*

## Student Research Projects

Medical students have several opportunities to pursue research during the four-year medical curriculum. During the first year, students can arrange to work with faculty in Carbondale on on-going research projects. Between the first and second years of medical school, students can pursue various interests including research. This program, the Mentored Professional Enrichment Experience (MPEE), is supported by the School of Medicine and may include a stipend to help defray expenses. Students must apply by February 1 of each year to participate in this program.

During the second and subsequent years, students can continue to pursue research projects with clinical or basic science faculty in Springfield. Examples of the projects currently available for student participation are found on the Web at [www.siumed.edu/edaff/mpee/](http://www.siumed.edu/edaff/mpee/).

A Trainee Research Symposium is sponsored every spring at the Springfield campus. Medical students, residents and graduate students are invited to submit an abstract and prepare an oral presentation. This symposium is an excellent opportunity for students to gain experience in making formal presentations of their research findings. The best papers and presentations receive cash awards.

The SIU Chapter of the Alpha Omega Alpha Honor Medical Society (AOA) encourages the submission of research projects for funding by the national AOA. Each medical school can submit one project for potential funding. An SIU medical student has been a national winner of this prestigious award during almost all of the past eight years.

Medical students also are encouraged to apply for other research related fellowships, including the Howard Hughes Medical Institute-National Institutes of Health Research Scholars Program. This program supports students for a year of research work at the National Institutes of Health. Support includes a stipend for living expenses in Bethesda, Maryland. Students selected by the Howard Hughes Medical Institute are provided a year's leave of absence, generally between the second and third years of medical school.

## Previous Winners of Research Symposia

### 2009 Symposium

*“Cimetidine-Associated PDA is Mediated via a Cytochrome P450 Mechanism Independent of H2 Receptor Antagonism”*

Lisa Shah, Class of 2011

*“The Potential Role of Tumor Protection by Paclitaxel-Induced Inflammation Mediated by Binding to Toll-Like Receptor 4”*

Deena Chihade, Class of 2011

### 2008 Symposium

*“The Extraction of Ions from a Solution Using a Novel Material: An Animal Study”*

Rachel Ade, Class of 2009

*“Stimulation of Angiogenesis by Hyperbaric Oxygen Treatment in an Isolated Tissue Flap”*

Valerie Roth, Class of 2009

*“MicroRNA-224 Targets Invasion and Metastasis Oncogenes”*

John Yost, Class of 2008



*Obstetrics/Gynecology laboratory*



*Mentored Professional Enrichment Experience*

## Previous Winners of AOA Research Fellowship

### 2009 Winner

*“The Potential Role of Tumor Protection by Paclitaxel-Induced Inflammation Mediated by Binding to Toll-Like Receptor 4”*

Denna Chihade, Class of 2011

### 2007 Winner

*“Stem Cell Chemostasis in Ovarian Cancer Cells”*

Holly Hoefgen, Class of 2008



*Microsurgery laboratory*