Medical Student Teaching

For many years we have been the bellwether for departments involved in teaching years 1 and 2 medical students. In contrast to the results for all other subject areas, the students’ performance in Microbiology and Immunology has been above the national average. The content of the course changes annually with new advances and there is a substantial amount of content coverage done independently by the students who are guided in their learning via provision of learning objectives. Not everything changes though: our former graduate students will remember teaching the lab classes; and though they are somewhat reduced in number, they still employ the same rather variable quality microscopes!
We have established the Ohio Center for Innovative Immunosuppressive Therapeutics (OCIIT) to boost our ongoing collaborative efforts to develop and commercialize newer generations of immunosuppressants designed to inhibit only pathogenic forms of immunological reactions.

The Center will function as an academic research base for newly recruited scholars, an R&D infrastructure to coordinate interdisciplinary research, a state-of-the-art technology center, a translational research unit to conduct clinical trials of newly developed drugs, and as an academia-industry interface for commercialization.

Our business goal is to develop and commercialize new therapeutics for common immunological disorders (e.g., rheumatoid arthritis, type I diabetes, psoriasis, asthma, hay fever, atopic dermatitis, food allergy, and graft rejection); and new assay platforms to monitor diverse immunological parameters in patients and to identify allergens in the environment. We anticipate that the Center will have an enormous economic impact, boost programmatic growth of regional biotech/pharmaceutical industry, and create new high-tech job opportunities in Ohio.

We have 20 investigators in clinical science, organ transplantation, basic and applied immunology, biomedical engineering, medicinal chemistry, and computational drug design from the UT and Case Western Reserve University. These Center Investigators have proven track-records for extramural funding ($5 million annual direct costs), publication (60 annual publications), and entrepreneurship (launching six startups in Ohio).

The universities received $3 million in capital funds from the Ohio Third Frontier Program to support the development of the new enterprise.

There has been a surge of interest in research on transplantation with the recent hiring of Stan Stepkowski, DVM, Ph.D., D.Sc. and Wenhao Chen, Ph.D. Their interest is in factors, especially cytokines, that are important in late graft rejection. Rejection is still a major cause of death after transplantation; for example, it causes about 30% of the deaths in both adult and child heart recipients. With new equipment employing bead technology, it is now possible to screen for the expression of large numbers of cytokines simultaneously, an approach that vastly simplifies many cellular immunological studies.

In addition, we have been joined by Nancy Collins, who until recently ran the hematological cell transplant service at Sloan-Kettering.

Focus on Stan Stepkowski

Bead array technology using ELISA on different-sized fluorescent beads allows numerous cytokine concentrations to be detected in one assay.
What We’ve Been Up To

Workshop
October 17-18, 2008—Workshop on Infection and Immunity, sponsored by the Department of MMI, the College of Graduate Studies, the College of Medicine Dean’s Office and the Ohio Department of Development. Scientific program included Brian Corbin, Adam Kennedy, Robert Blumenthal, Christopher Waters, Isabel Novella, Matthew Evans, Daniel Kaplan and Sergei Korolov.

New Publications
Mruk, I and Blumenthal, RM (2009) Tuning the relative affinities for activating and repressing operators of a temporally regulated modification system. Nucleic Acids Res. 1-16


Awards
Miao Chen, IIT 4th year student—awarded the UT Retiree’s Scholarship for the IIT Track

Benjamin Hart, IIT 4th year student—Third place winner in the 2008 Graduate Student Research Forum

Jason French, IIT 3rd year student—Finalist in the 2008 Graduate Student Research Forum

Shuo Geng, IIT 3rd year student—Finalist in the 2008 Graduate Student Research Forum

Promotions
R. Mark Wooten from Assistant Professor to Associate Professor with Tenure

Hironori Matsushima from Postdoctoral Fellow to Research Assistant Professor

Recent Additions
Colleen Krout, Research Associate in Takashima Lab

Yoshihiro Miyahara, Postdoctoral Fellow in Stepkowski Lab

Guohua Wang, Research Scholar in Stepkowski Lab

Michael Woodman, Postdoctoral Fellow in Wooten Lab

Fall Research Day
The Ph.D. program in Immunity, Infection and Transplantation track held it’s annual Research Day at the Toledo Botanical Gardens. All IIT Graduate students, with variable degrees of nervous excitement, presented their research. Here is a sampling of the scope of current research being done by our students.

Joshua Vieth spoke on lipid rafts in phagocytosis (Mentor, Randall Worth, Ph.D.)

Vipul Shulka and Yutein Chung presented imaging bacteria and the immune responses in Lyme disease (Mentor, Mark Wooten, Ph.D.)

Jason Mosakowski and Rebecca Thompson talked about immune responses to pneumococcal polysaccharides (Mentor, Julie Westerink, Ph.D.)

Shuo Geng spoke on dendritic cell precursors (Mentor, Akira Takashima, M.D., Ph.D.)

Randy Hart presented control of master gene expression in E. coli (Mentor, Robert Blumenthal, Ph.D.)

Jason French and Junbo Mai presented proteins involved in alphavirus replication (Mentor, Dorothea Sawicki, Ph.D.)

Miao Chen spoke on Toll-like receptors in mast cells (Mentor, Kevin Pan, Ph.D.)

Mithun Khattar gave information on signaling in T_{H}17 and regulatory T cells (Mentor, Stanislaw Stepkowski, D.V.M., Ph.D., D.Sc.)

Answer to Photo Puzzle
The tick is Dermacentor variabilis, the American Wood Tick, that carries Rickettsia rickettsii, the etiologic agent of Rocky Mountain Spotted fever.

Swanton and Oak Openings are a hot spot in Ohio. This tick is not responsible for transmitting Lyme Disease, immunity to which is being studied in the Department.
Photo Quiz

Remember those strolls around the Oak Openings Metro Park in Swanton near the Toledo Airport? Did you ever meet up with this little fellow? What disease is associated with it, and makes Swanton a hot spot in Ohio?