

2011-2012
Summary of Activities
Medical Student Summer Research Program

The Thirty-ninth Annual Medical Student Research Day was held on Friday, August 3, 2012 hosting approximately 150 attendees in the Medical Sciences Building auditorium and College of Medicine Conference Room. Twenty first and second-year medical students participated in research projects with basic science and clinical faculty in the College of Medicine during the summer. A weekly seminar series introduced students to important research related topics. The program aims to highlight the relation between scientific discoveries and their application in clinical medicine.

Dr. David Robertson, Elton Yates Professor in Autonomic Disorders, and Departments of Neurology, Medicine, and Pharmacology at the Vanderbilt University School of Medicine was the keynote speaker. Dr. Robertson's seminar was entitled, *"The New Paradigm of Genome Research in Human Disease."*

Culmination of the summer's work was the presentation of eight oral and twelve poster presentations at the Annual Medical Student Research Day. Student presentations and their faculty sponsors were as follows:

ORAL PRESENTATIONS

Thomas Holcombe, freshman medical student. Focal adhesion kinase regulates the expression of inflammatory cell adhesion molecules in endothelial cells. Sponsored by Lim, Steve, Ph.D., Department of Biochemistry and Molecular Biology.

Justin McCormick, sophomore medical student. Mechanical knee joint loading of Tai Chi exercise in knee osteoarthritis. Sponsored by Liu Wei, Hanes, Ph.D., Department of Physical Therapy, and Kovaleski, John, Ph.D., Department of Health, & Physical Education, & Pearsall, Albert, M.D., Department of Orthopaedic Surgery.

Stefan Osborn, sophomore medical student. Microparticle contents isolated from proliferating pulmonary cells. Sponsored by Bauer, Natalie, Ph.D., Department of Pharmacology, and Sayner, Sarah, Ph.D., Department of Cell Biology & Neuroscience, and Center for Lung Biology.

Jonathan Wolfe, sophomore medical student. Compensatory movement strategies of walking in multiple sclerosis. Sponsored by Martino, Anthony, M.D., and Eckstein, Christopher, M.D., Department of Orthopaedic Surgery, Liu, Wei, Ph.D., Department of Physical Therapy.

Andrew Schneider, sophomore medical student. The presence of SIRS in burn and trauma patients correlates with altered microvascular function. Sponsored by Richards, William, M.D., Simmons, Jon, M.D., Gonzalez, Richard, M.D., Frotan, Mohammed, M.D., Department of Surgery, and Gillespie, Mark, Ph.D., Department of Pharmacology, Alvarez, Diego, M.D., Ph.D., Departments of Internal Medicine and Pharmacology, Center for Lung Biology.

Christopher Smith, sophomore medical student. Disrupting ICOS: ICOS ligand interaction in lupus-prone mice. Sponsored by Barrington, Robert, Ph.D., Department of Microbiology and Immunology.

William Tucker, sophomore medical student. Analysis of function and gait rehabilitation after open reduction internal fixation of acetabular fractures using the posterior Kocher-Langenbach approach. Sponsored by Alonso, Jorge, M.D., and Pearsall, Albert, M.D., Department of Orthopaedic Surgery, and Liu, Wei, Ph.D., Department of Physical Therapy.

Daniel Salisbury, sophomore medical student. The effect of hypernatremia and hypersmolality on intracranial pressure and short-term outcomes in patients with traumatic brain injury: a retrospective review. Sponsored by Simmons, Jon, M.D., Department of Surgery.

POSTER PRESENTATIONS

R. Frank Bumpus, sophomore medical student. Hyperspectral measurement and analysis of cellular fluorescent signals. Sponsored by Rich, Thomas, Ph.D., Alvarez, Department of Pharmacology, Diego, M.D., Ph.D., Departments of Internal Medicine, Pharmacology, and Center for Lung Biology, and Leavesley, Silas, Ph.D., Department of Chemical and Biomolecular Engineering.

Stephen Cheek, sophomore medical student. NCK-interacting kinases phosphorylates cofilin and inhibits breast cancer cell invasion. Sponsored by LeClaire, Lawrence, Ph.D., Department of Biochemistry and Molecular Biology.

Jordan Fernandez, freshman medical student. Cloning, expression, and purification of 3 β -hydroxysteroid dehydrogenase from *E. Coli*. Sponsored by Honkanen, Richard, Ph.D., Department of Biochemistry and Molecular Biology.

Brandon Finnorn, freshman medical student. Functional glycomics of the pulmonary and systemic vasculature: lectin histochemistry for probing differentiated glycoproteins. Sponsored by Cioffi, Eugene, Ph.D., Department of Pharmacology and Center for Lung Biology.

Christopher George, sophomore medical student. Three dimensional imaging of the plexiform lesion. Sponsored by Oka, Masahiko, M.D., Ph.D., Stevens, Troy, Ph.D., Department of Pharmacology, and Center for Lung Biology.

Hayden Hundley, sophomore medical student. Reverse toilet training patten in children with higher functioning autism. Sponsored by Swingle, Hanes, M.D., M.PH., and Department of Pediatrics, and Wooster, Donna, Ph.D., Department of Occupational Therapy.

Christopher Mills, sophomore medical student. Sodium bicarbonate regulation of intracellular PH in pulmonary artery and pulmonary microvascular endothelial cells. Sponsored by Sayner, Sarah, Ph.D., Department of Cell Biology and Neuroscience, and Center for Lung Biology.

Megan Missanelli, sophomore medical student. Accuracy of various imaging modalities in predicting pathologic breast tumor size. Sponsored by Dyess, Lynn, M.D., Department of Surgery, Qureshi, Yasmeen, M.D., Department of Radiology, and Tucker, J. Allan, M.D., Department of Pathology.

Ami Patel, sophomore medical student. Prevalence of pneumococcal bacteremia in children with sickle cell disease hospitalized for management of febrile illness. Sponsored by Siddiqui, Abdul Hafeez, M.D., Ph.D., Department of Pediatrics.

Audrey Paulzak, sophomore medical student. The effect of bariatric surgery on the level of activated caspase-1. Sponsored by Nijhawan, Sheetal, M.D., and Richards, William, M.D., Department of Surgery, and Alvarez, Diego, M.D., Ph.D., Departments of Internal Medicine and Pharmacology.

Austin Reece, sophomore medical student. The role of $\alpha 5\beta 1$ integrin in vasoconstriction of pulmonary arteries in an animal model of severe pulmonary arterial hypertension. Sponsored by Fagan, Karen, M.D., Departments of Internal Medicine and Pharmacology, and Center for Lung Biology.

Kyle Taylor, sophomore medical student. Role of $K_{Ca}^{3.1}$ (IK) channels in myometrial contractions. Sponsored by Taylor, Mark, Ph.D., Department of Physiology.

The Clyde G. "Sid" Huggins Medical Student Research Awards were presented to Mr. Jonathan Wolfe, sophomore medical student for best oral presentation entitled, "*Compensatory movement strategies of walking in multiple sclerosis.*" He was sponsored by Anthony Martino, M.D., and Christopher Eckstein, M.D., Departments of Surgery and Neurosurgery, respectively, and Wei Liu, Ph.D., Department of Physical Therapy. Mr. Christopher Smith also tied for the best oral presentation award entitled, "*Disrupting ICOS: ICOS ligand interaction in lupus-prone mice.*" He was sponsored by Robert Barrington, Ph.D., Department of Microbiology and Immunology. Mr. Hayden Hundley, sophomore medical student was presented best poster presentation entitled, "*Reverse toilet training pattern in children with higher functioning autism.*" He was sponsored by Hanes Swingle, M.D., M.P.H., Department of Pediatrics, and Donna Wooster, Ph.D., Department of Occupational Therapy. Each winner was presented with a plaque of recognition and cash award. Recipients are eligible to make their presentations at the Annual National Research Forum in Galveston, Texas.