In This Issue

Mandalfino Memorial Funds & Roessler Scholarships

The Dominic and Lisa Mandalfino Memorial Fund in Anesthesiology supports resident research and projects in the Department of Anesthesiology. Anesthesia residents are encouraged to apply for these competitive research awards. To learn more, contact Fievos L. Christofi, PhD.

Our department has supported many Roessler scholars over the years to conduct research in anesthesiology. Awards from the Samuel J. Roessler Memorial Medical Scholarship Fund are made to students in the College of Medicine for medical research with OSU-appointed faculty.

Students may pursue full- (40 hours per week) or part-time (10 or 20 hours per week) research during their curriculum. They may also apply for a leave of absence for up to one year to do research after speaking with the Roessler faculty advisor and having their application approved by the Roessler reviewers. All research must be supervised by faculty at the College of Medicine. We encourage faculty in our department to consider mentoring a Roessler student.

Medical students have teamed up with faculty mentors in the department to prepare research projects. Niya Dhand (mentor Fievos L. Christofi, PhD) developed a research project titled “A new eADO biosensor to monitor real-time release of endogenous adenosine in inflamed gut.”

Medical student Mina Mackery is working with mentor Roger R. Dzwonczyk, PE to develop his research project called “iMRI cost/benefit analysis.”

Gwynne Kirchen received Roessler support in fall 2009 for the project she worked on with Roger R. Dzwonczyk, PE called “Effect of iMRI noise on ECG arrhythmia detection and identification.”

Grants & Clinical Trials/Studies

- Hamdy H. Hassanain, PhD’s ROI grant, “The role of profilin 1 in arterial stiffening and hypertension,” was scored by NIH. Arthur Strauch, PhD, Department of Physiology, and Sampath Parthasarathy, PhD, MBA, Department of Surgery, are co-investigators.
- Mark A. Gerhardt, MD, PhD and Gretel Monreal, PhD:
  - Submitted a ROI grant titled “Right ventricular remodeling in restrictive ventricular septal defect” to NIH NHLBI. The grant requests $2,829,198. Collaborators from Nationwide Children’s Hospital include Loren E. Wold, PhD, Pam Lucchesi, PhD, Brian K. Kaspar, PhD, and Mary J. Cismowski, PhD.
  - Grant awarded from the Teleflex Medical Education Grant for a wet lab that will be hosted in July for the education of incoming CA-1 residents.
- Fievos L. Christofi, PhD submitted a NIH ARRA grant, “Purinergic regulation of enteric reflexes,” to NIH NIDDK.
- Gretel Monreal, PhD submitted a RayBiotech Biomarker Discovery Pilot Grant. The winner, who will receive $10,000 - $20,000 in free software.

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Thomas J. Papadimos, MD, an anesthesiology intensivist who has also been an infectious disease epidemiologist and public health officer, was recently recruited as a full professor on the clinical track in the Department of Anesthesiology in 2009.

Dr. Papadimos has combined his interests in infectious disease with critical care medicine. Specifically, he has an intense clinical interest in central line infections, ventilator-associated pneumonia, and sepsis. This interest led to his collaboration with bench researchers (ZK Pan, MD, PhD, University of Toledo) regarding the ability of lysed bacterial products to induce an inflammatory reaction/cytokine release without the need for the invading bacterial to adhere to the host cell.

In addition, Dr. Papadimos is currently collaborating with bioengineers in an initiative to predict glucose levels in critically ill patients 75 minutes into the future using a mathematical algorithm, thus potentially negating the need for human interaction in the control of glucose. Furthermore, since hyperglycemia postoperatively affects wound healing, he is planning to study chemokine response to glucose levels and insulin infusions.

He is also working to establish a critical care fellowship in the Department of Anesthesiology, with a goal of getting accreditation of that fellowship in the coming year from the Accreditation Council for Graduate Medical Education.

Dr. Papadimos loves to teach and has written medical philosophy articles in that regard, as well as his opinions in relation to the delivery of health care. With more than 70 publications, including articles in Journal of Immunology, The Journal of the American Medical Association, Anaesthesia, Anesthesia & Analgesia, and The Journal of Biological Chemistry, Dr. Papadimos is one of the top 100 published authors in academic anesthesiology/critical care medicine departments in the United States.

Grants & Clinical Trials/Studies (continued from page 1)

- Yun Xia, MD, PhD submitted a grant titled “Planned cesarean section versus planned vaginal birth for mild preeclamptic patients: a prospective, controlled, and randomized trial” to the Office of International Affairs. His collaborator is Mark B. Landon, MD, professor in the Department of Obstetrics and Gynecology and division director of Maternal Fetal Medicine.
- Sergio D. Bergese, MD and his team have three new clinical trials beginning this year:
  1. Evaluation of the accuracy in blood pressure measurements of commercial continuous non-invasive blood pressure (CNIBP) devices compared to an invasive intra-arterial line in surgical and acute care patients (Covidien) (at Western Institutional Review Board® (WIRB) for approval)
  2. Bupivacaine effectiveness and safety in SABER™-Trial (BESST) (DURECT Corporation)
  3. A randomized double-blind, placebo-controlled trial to evaluate the efficacy, tolerability and safety of hydrocodone bitartrate controlled-release capsules in opioid experienced subjects with moderate to severe chronic low back pain (Zogenix, Inc.) (at WIRB for approval)
**Awards & National Presentations**

**Hokuto Nishioka, MD and Michelle Santiago, MD** placed first in their respective categories at the Midwest Anesthesia Residents Conference (MARC). Dr. Nishioka presented "Intrathecal procedures: What goes around comes around" and Dr. Santiago presented "Acute iatrogenic aortic insufficiency after mitral valve replacement."

Other presenters included Ralph Beltran, MD, Tyler Burnett, MD, John Coffman, MD, and Jay King, MD.

**Award at OSUMC Research Day**

Medical student Gwynne Kirchen (advisor Roger R. Dzwonczyk, PE) won a $500 travel award at the 9th annual OSUMC Research Day for her poster called "Examining the effects of electromagnetic interference from intraoperative magnetic resonance imaging on electrocardiogram signals." Twelve additional posters were presented.

**Other National/International Presentations**

- Seven posters were presented at the International Anesthesia Research Society (IARS) annual meeting; authors included faculty Sergio D. Bergese, MD, Roger R. Dzwonczyk, PE, Hamdy H. Hassanain, PhD, Kenneth R. Moran, MD, and Tim Park, MD; resident Derek Foerschler, DO; and medical students Nicole Dubosh, Gwynne Kirchen, and Melissa Bailey.
- Tianhua Ren, MD, PhD (visiting scholar), Iveta Grants (research associate), and Jacqueline Wunderlich, MD, PhD (CPY1) had two posters accepted at the DDW/AGA meeting, including one e-submission.
- Tyler Burnett, MD, Jake Coffman, MD, Jennifer Elmore, DO, David Anderson, MD, Derek Foerschler, DO, and Thomas Harris, MD had posters accepted for presentation at the Society for Obstetric Anesthesia and Perinatology (SOAP) annual meeting.
- Hokuto Nishioka, MD and Lucas Mitchel, MD are presenting posters at the Society of Cardiovascular Anesthesiologists (SCA) annual meeting.

**Faculty-authored Publications**

**Sergio D. Bergese, MD**


Galina T. Dimitrova, MD & Hamdy Elsayed-Awad, MD

Thomas T. Dimitrova G. Awad H. Avulsion of a bronchial blocker cuff in the trachea when using a Parker Flex-Tip endotracheal tube. Accepted for publication in *J Cardiothorac Vasc Anesth*.

**Roger R. Dzwonczyk, PE & Luis A. Lopez, MD**


**Thomas J. Papadimos, MD**


**William J. Perez, MD, MA**

Perez WJ, Perrino AC. TEE cardiac output in FlowTrak/Vigileo study. Accepted for publication in *Anesth Analg*.

**New Patent for Technology to Measure Heart Viability**

Promotions & Leadership Activities in Research

- Constantino Benedetti, MD and Fievos L. Christofi, PhD served as members of the College of Medicine Promotion and Tenure Committee meeting in February; Dr. Christofi served as chair of this meeting.
- Bridget Bonaventura was promoted to clinical research coordinator.
- Fievos L. Christofi, PhD:
  - Served as regular member on NIH NIDDK clinical & integrative molecular gastroenterology (CIMG) study section in January.
  - Organized and serves as chair of the research symposium, neurogenic plasticity and the enteric nervous system at Digestive Disease Week (DDW), International meeting of the American Gastroenterology Association (AGA) in New Orleans in May 2010.
  - Is an invited speaker about “signal transduction pathways” in neuroplasticity in the enteric nervous system at the research symposium during DDW.
  - Serves on the Council on Faculty Development in the College of Medicine.
  - Visited the lab of Professor Michael Schemann, PhD, chair of human biology at TU Munchen, Germany to discuss a NIH collaborative agreement for a new R01 submission on “Neuromodulation in human enteric neural circuits in healthy and inflamed gut.”

New Lab Equipment for Shared Use

The lab of Fievos L. Christofi, PhD recently acquired the FAST16 system, a multi component system which records real-time electrochemical data (amperometry) and generates waveform experiments. Enzyme-coated microelectrode arrays allow detection of molecules (adenosine, dopamine, 5HT, glutamate, and catecholamines) and have the ability to reach limits of detection in the nM to µM range for molecules and to measure rapid changes in mediator release from nerves, cells, or tissue. Studies using this system can provide real-time analysis of mediator release with adequate temporal and spatial resolution and sensitivity to characterize their roles in normal and diseased tissues (e.g. surgical specimens or biopsies from patients with IBD). Also available is the PerkinElmer Wallac VICTOR™ multilabel, multitask plate reader model 1420. The optical detection modes for this model include photometry, luminometry, fluorescence intensity, and time resolved fluorescence. This system is available to our faculty and research staff to bioassay clinical samples (e.g. fluids, CSF, plasma, biopsies).

Aurosree Bhowmik, research assistant 1, with FAST16 system. Funding source NIH NIDDK ARRA grant.

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