

DHLRI

FYI



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THE NEWSLETTER OF THE DAVIS
HEART AND LUNG RESEARCH
INSTITUTE AT OSU

September 2005

Kuppusamy Promoted and Named to Newly Created Chair

Effective October 1, 2005, Periannan Kuppusamy, PhD has been promoted to the rank of Professor within the College of Medicine. This achievement recognizes his contributions to the University's missions of teaching, scholarship, and service.

Dr. Kuppusamy has also been named to a newly established chair in cardiovascular medicine and imaging research. The William D. & Jacquelyn L. Wells Chair in Imaging Research will help fund the research of Kuppusamy, who is a leading researcher at Ohio State and holds several highly competitive research grants from the National Institutes of Health. William and Jacquelyn Wells are longtime supporters of Ohio State University medical, academic and research programs.



Periannan Kuppusamy,
Ph.D.

Kuppusamy joined the internal medicine faculty at Ohio State in 2002 as director of the center for Electron Paramagnetic Resonance, Spectroscopy & Imaging. He received a doctorate in EPR spectroscopy from the Indian Institute of Technology and a research fellowship from Johns Hopkins University, where he continued on the faculty for more than 12 years.

Kuppusamy is developing novel methods for imaging free radicals and oxygen in cardiovascular disease and cancer. He has authored more than 160 research articles and has been an invited speaker at numerous professional conferences around the world.

He Receives First R01

Dr. Guanglong He has recently been awarded an R01 grant from NHLBI entitled: "In Vivo EPR Imaging of Myocardial Oxygen Consumption." The total cost of this grant is \$1,345,500 for four years from beginning September 1, 2005.



Guanglong He, Ph.D.

The proposal describes the use of electron paramagnetic resonance (EPR) oximetry and imaging techniques to perform oximetry and imaging measurements on the *in vivo* mouse heart model to determine: (1) real-time variations in tissue oxygen tension (pO_2) and blood flow for the assessment of oxygen consumption during and after myocardial ischemia and reperfusion; (2) regulation of oxygen consumption in the postischemic myocardium by eNOS-derived NO and its derivative peroxynitrite; (3) real-time alterations in postischemic myocardial tissue injury and thereby determine the protective role of NO via the suppression of oxygen consumption.

On the team are Drs.: Guanglong He (PI), Yeong-Renn Chen (co-investigator), Arturo J. Cardounel (co-investigator), Jay L. Zweier (consultant), and Periannan Kuppusamy (consultant). Dr. He also has another career development grant SDG from AHA entitled: "Electron paramagnetic resonance spectroscopy and imaging of the redox status and oxygen tension of the in vivo rat heart". The total cost of this grant is \$260,000.000 for four years from 07/01/04 – 06/30/08. On the team are Drs.: Guanglong He (PI), Jay L. Zweier (mentor).

Institute Director to Lead Faculty and Staff Town Meeting

The Institute is changing! Dr. Jay Zweier will host a Faculty and Staff Town Meeting in the auditorium (170 DHLRI) on Thursday, September 15 at 3:30 to lead a discussion and receive feedback regarding the Institute's future. Topics will include the new leadership and programmatic structures of the DHLRI and plans for the upcoming 5-year anniversary. All faculty and staff are invited to attend, and refreshments will be served following the town meeting.

OSU Among Top 10 Research Universities

Ohio State University is now one of the top 10 public research universities in the country, based on rankings just posted by the National Science Foundation, Division of Science Resources Statistics. The University moved into 10th place among public universities (up from 12th place), and into 15th place among all research universities, public and private (up from 18th place). The report is based on total research expenditures for fiscal year 2002-03, the latest information available.

Reaching the top 10 among public research universities is only the latest in a series of milestones that the university has passed in recent years. Last year, Ohio State announced it had passed the half billion dollar mark in total research awards. In FY 2005 its total awards rose to \$552.7 million, an increase of 4.7 percent. And Ohio State ranks sixth in the country among all universities for industry-sponsored research, according to the NSF.

In an August 2 letter, OSU Senior Vice President for Research Robert McGrath thanked and congratulated all researchers for reaching this milestone. Dr. McGrath noted that attaining a spot among the nation's top 10 public research universities is a remarkable achievement considering that competition for research funding has intensified dramatically during recent years. These achievements reflect the dedication, hard work and imagination of research faculty from all across the university, and enable OSU to provide for our students one of the best educational opportunities in the nation.

Admin Staff Welcomes New Accountant

We are pleased to announce the hiring of Kim Cave to the position of Accountant in the Davis Heart & Lung Research Institute Business Office. Kim will start in the position August 29, 2005. Kim will be located in the Administration Suite in 110 DHLRI. Her phone number will be 247-8083.

Kim will handle placing orders, processing travel requests and reimbursements, maintaining procurement card transactions, usage collection and billing for the DHLRI Core Labs, as well as many other responsibilities. Please join me in welcoming Kim in her new position and in wishing her lots of success at the Institute.

Kudos

Dr. Ruth Altschuld served on the NHLBI K08/K02 (Mentored Scientist Development Grants) Review Committee in August.

Edward Eteshola, a Senior Research Associate in Steve Lee's lab, received an EPR-2005 Conference Award. The International Conference and Workshop on Electron Paramagnetic Resonance Spectroscopy and Imaging of Biological Systems is being hosted by the Institute in September.

The National Science Foundation's awarded a GK-12 fellowship to **Theo Nicholson** (PI: Stephen Lee). The GK-12 program supports fellowships and associated training that enable graduate students to acquire additional skills that will broadly prepare them for professional and scientific careers in the 21st century.

The Young Investigator's Travel Award was given to **Bryan Smith** (PI: Stephen Lee) for September's Annual Meeting of the Society for Molecular Imaging in Cologne, Germany.

New Members

In July and August, membership was approved for the following individuals:

Martin Caffrey, PhD: International Scholar (Chemical and Environmental Sciences, University of Limerick). Dr. Caffrey's research interests concern the structure and function of membrane proteins. He has recently operated a laboratory in OSU's Department of Chemistry, and holds a full-time faculty appointment at the University of Limerick, Ireland.

Avner Friedman, PhD: Member (Mathematical Biosciences Institute). Dr. Friedman serves as the Director of the Mathematical Biosciences Institute (MBI). The MBI runs approximately 10 workshops a year on topics of the biosciences where mathematics and statistics can play a role.

Christopher Hadad, PhD: Member (Chemistry). Dr. Hadad is interested in the role of reactive oxygen species in the oxidation of organic hydrocarbons. Using both experimental and computational methods, his group examines the lifetimes and mechanistic steps of these reactive intermediates. In collaboration with researchers in the DHLRI, he has published papers so far on the use of EPR spectroscopy to complement in-house laser flash photolysis tools.

James O'Brien, MD, MS: Investigator (Pulmonary, Critical Care, and Sleep Medicine). Dr. O'Brien's research interests revolve around clinical and outcomes investigations among critically ill patients.

Michael Paulaitis, PhD: Member (Chemical and Biomolecular Engineering). Dr. Paulaitis' research interests include molecular simulations and modeling of protein-protein interactions, the role of hydration in biological organization and self-assembly phenomena, and multi-scale modeling of biological interactions.

Asthma Walk

As previously announced, the 2005 "Blow the Whistle on Asthma" Walk will take place Saturday, October 1 at Easton Town Center. This year, instead of multiple teams within the medical center, all areas will participate as the one OSU



Respiratory Team. You can register to walk online at <http://www.mrsnv.com/evt/e01/team.jsp?id=690&tid=242>. We encourage you to join the Division of Pulmonary, Critical Care, and Sleep Medicine, the Respiratory Therapy Department, the Pulmonary Function Laboratory, Pulmonary Rehabilitation, the Davis Heart and Lung Research Institute, and the rest of the OSUMC in raising funds and awareness for asthma.

This event is a fun, easy way to make a difference in the community. Your involvement may quite possibly save a life from being lost to asthma. Please join our team today because, when you can't breathe, nothing else matters.

Staff Satisfaction Survey

The Staff Satisfaction Survey is being conducted through September 9th. You should have received notification of the survey via email and a letter sent directly to your home. In both correspondences you should have been given a PIN. This five digit number is needed in order to login and begin the survey. To ensure that the OSU Med Center Leadership receives the best data, it is critical that you complete the survey and provide feedback. Please take the amount of time needed to complete the survey at your earliest convenience.

12th Avenue Closed for 3 Weeks

12th Avenue will closed on August 24th, and will be closed through September 16, 2005. This is to remove the tower crane for the Biomedical Research Tower construction site and do preliminary work for the Doan Hall expansion. There will also be a crane on 12th Avenue to perform final lifts for the project. Please plan accordingly and please inform all appropriate faculty, staff, researchers, contractors and students in your areas.

Labor Day

In recognition of the Labor Day holiday, University offices will be closed on Monday, September 5.

Research in Progress Series Continues to be offered for Course Credit

The Friday Research in Progress Seminars will once again be offered as a course for credit via the Integrated Biomedical Science Graduate Program. The series is in the Master Schedule as "IBGP 796 Research Seminars in Heart and Lung Disease." The call number is 21648-5.



September Programs and Events

September 2: Research in Progress; Subha Raman, MD; Cardiovascular Medicine.*

September 4-8: The International Conference/Workshop on Electron Paramagnetic Resonance Spectroscopy and Imaging of Biological Systems (EPR-2005); Hilton Columbus at Easton Town Center; see: <http://www.heartlung.osu.edu/epr/3140.cfm>.

September 9: Research in Progress; Mark Angelos, MD; Emergency Medicine.*

September 14: Discovery Series: Alan Daugherty, PhD, DSc; University of Kentucky, Division of Cardiovascular Medicine. 170 DHLRI (Auditorium), Noon.

September 15: DHLRI Faculty & Staff Town Meeting; 170 DHLRI (Auditorium), 3:30 PM.

September 16: Research in Progress; Chaity Chaudhury, PhD (PI: Anderson); Immunology.*

September 23: Research in Progress; AJ Cardounel, PhD; Pharmacology.*

September 30: Research in Progress; Cynthia Carnes, PharmD, PhD; Pharmacy.*

**Research in Progress presentations are held at noon on Fridays in room 165 Davis Heart & Lung.*



Recent Publications

K. D. Bhalerao, E. Eteshola, M. Keener and Stephen Craig Lee. 2005. Functional abstraction of biological macromolecules for design of nanodevices. *Applied Physics Letters*, in press.

B. Bhushan, D. R. Tokachichu, M. T. Keener and Stephen Craig Lee. Nanoscale adhesion, friction and wear studies on silicon based surfaces. *Acta Biomaterialia*, in press.

E. Eteshola, Leonard Brillson and Stephen Craig Lee. Selection and characteristics of peptides that bind thermally grown silicon dioxide films. *Biomolecular Engineering*, in press.

Stephen Craig Lee, Mathew T. Keener, Dharma R. Tokachichu, B. Bhushan, P. D. Barnes, B. J. Cipriany, M. Gao and L. J. Brillson. 2005. Preparation of a thin protein surface on thermally grown silicon dioxide. *Journal of Vacuum Science and Technology B* 23: 1856-1865

Liu X, Liu Q, Gupta E, Zorko N, Brownlee E, Zweier JL. (Aug, 2005) Quantitative measurements of NO reaction kinetics with a Clark-type electrode. *Nitric Oxide*. 13(1):68-77.

Locigno, E. J.; Zweier, J. L.; Villamena, F. A. Nitric Oxide Release from the Unimolecular Decomposition of the Superoxide Radical Anion Adduct of Cyclic Nitrones in Aqueous Medium, *Org. Biomol. Chem.* 2005, DOI: 10.1039/B507530K (in press).

S.F. Martin, S. Chatterjee, N. Parinandi and B.R. Alevriadou, "Rac1 inhibition protects against hypoxia/reoxygenation-induced lipid peroxidation in human vascular endothelial cells", *Vascul Pharmacol* 43(3):148-156, 2005.

Villamena, F. A.; Merle, K. J.; Hadad, C. M.; Zweier, J. L. Superoxide Radical Anion Adduct of 5,5-Dimethyl-1-pyrroline N-oxide (DMPO). 1. The Thermodynamics of Formation and Its Acidity. *J. Phys. Chem. A* 2005, 109, 6083-6088.

Villamena, F. A.; Merle, K. J.; Hadad, C. M.; Zweier, J. L. Superoxide Radical Adduct of 5,5-Dimethyl-1-pyrroline N-oxide (DMPO). 2. The Thermodynamics of Decay and EPR Spectral Properties. *J. Phys. Chem. A* 2005, 109, 6089-6098.

X Zhao, G He, YR Chen, RP Pandian, P Kuppusamy, JL Zweier. Endothelium-derived nitric oxide regulates in vivo oxygen consumption in postischemic myocardium. *Circulation*. 2005 Jun 7;111(22):2966-72.



Grants Office Tip of the Month: Personnel on NIH Proposals

All personnel are listed in the budget & justification (pages 4 & 5). Subsets of these people are “key personnel” and “other significant contributors.” These are listed on form page 2.

Key personnel “contribute to the scientific development or execution of the project in a substantive, measurable way.”

- Key personnel must have a percent effort greater than 0%
- Must submit Other Support forms before award and annually (as needed)
- Percent efforts required in annual progress report
- Effort reductions of 25% or more from those proposed require prior NIH approval

Other Significant Contributors “contribute to the scientific development or execution of the project, but are not committing any specified measurable effort.”

- Often called “Consultants” with 0% effort in past
- OSCs’ efforts are not measurable and are thus not included in annual progress reports

Their biosketches are included in the proposal (before 09/04, this was limited to key personnel only).

Please see Karla Gengler-Nowak or Elaine Wakely in the DHLRI Grants Office (110 DHLRI) with any questions about this tip.

New Awards

PI: Guanglong He
Co-I: Yeong-Renn Chen, Arturo J. Cardounel
Title: In Vivo EPR Imaging of Myocardial Oxygen Consumption
Sponsor: NIH/1R01 HL81630-01
Amount: \$1,345,500
Start date: 9/1/05 End date: 8/31/09

PI: Gail Herman
Title: Molecular Studies of X-linked Chondrodysplasia Punctata
Sponsor: NIH/2R01 HD038572-14
Amount: \$1,423,500
Start Date: 3/1/00 End date: 5/31/10

PI: Charles Love
Title: AV-node ablation with CLS and CRT pacing therapies for the treatment of symptomatic AF (AVAIL CLS/CRT)
Sponsor: Biotronik
Start date: 7/28/05 End date: 7/27/11

For more information on this newsletter, contact the editor, Chris Brakenbury, at 247-7155 or chris.brakenbury@osumc.edu. The newsletter is also available online at <http://heartlung.osu.edu>. To unsubscribe, please contact Chris via e-mail.