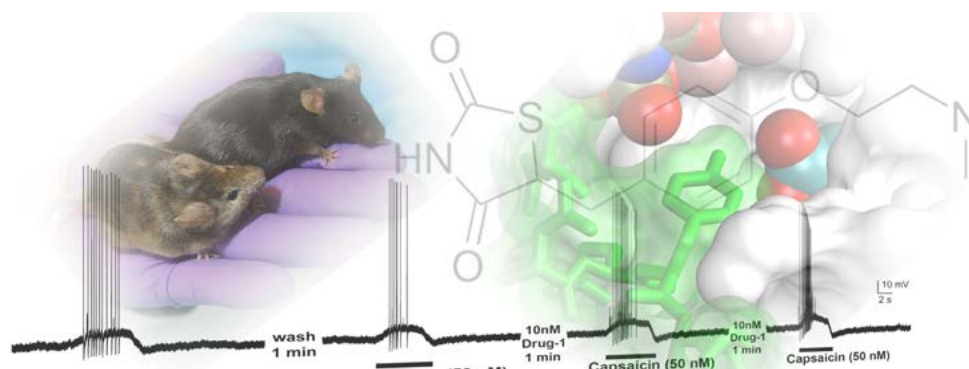


Iowa Pharmacology NEWS

FOR ALUMNI AND FRIENDS OF THE UNIVERSITY OF IOWA DEPARTMENT OF PHARMACOLOGY

VOLUME 3 ISSUE 2

FALL 2015



Greetings from the Chair!



After an unusually pleasant Iowa summer, we are well into another busy and eventful fall semester. As a new cohort of graduate students are identifying laboratories for their thesis research, the roll-out of Iowa's entirely revised medical curriculum is now in its second year, with M2 students taking the new *Mechanism of Human Disease 4* course of which our own Dr. Barry Kasson serves as co-director.

Pharmacology continues to grow, with our funding portfolio expanding and with our continuing recruitment of new faculty including the inaugural *John Paul Long Chair in Pharmacology* underway. The Department and Carver College of Medicine have already received some distinguished visitors this year, such as this year's *Michael J. Brody Lecturer*, Dr. Gail Mandel of Oregon Health & Science University. These and other Pharmacology events are highlighted in this edition of *Iowa Pharmacology News*.

Within this issue, the reader also gets an inside look at the laboratory of Dr. Matthew Potthoff, a Pharmacology investigator who in just three years at Iowa has established a vibrant and productive research lab. The Potthoff lab exemplifies the growth occurring in Pharmacology, and the new interdisciplinary research initiatives of the CCOM. We hope you enjoy this addition of our newsletter, and that you do stay in touch!

Curt D. Seybold

IN THIS ISSUE

Greetings from the Chair	Page 1
Lab in Focus	Pages 2-3
Our Congratulations	Page 4-5
Brody Lecture	Page 5
Funding	Page 6
Of Special Note	Page 7
From the Foundation	Page 7
Fall Events	Page 8

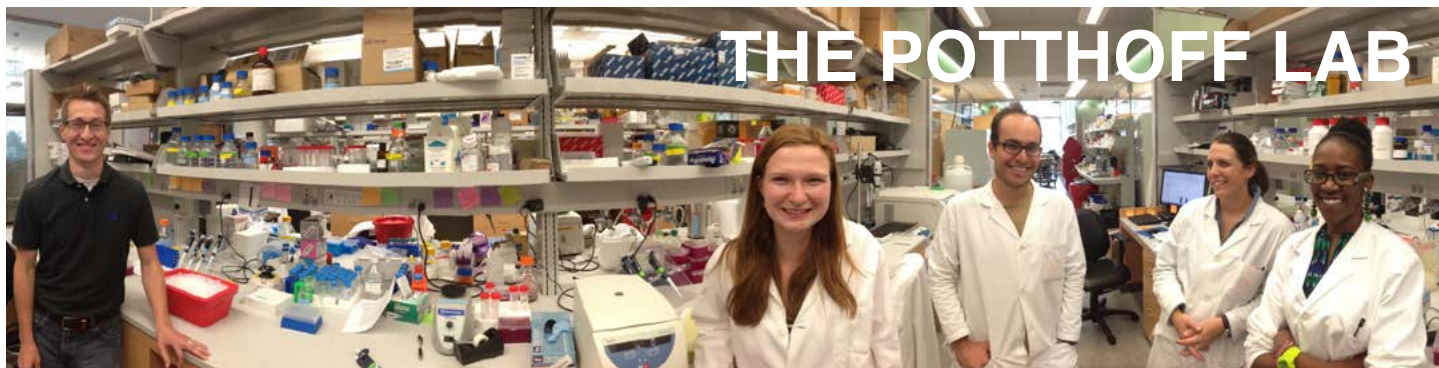
Contact Information:

Phone: (319) 335-7965
FAX: (319) 335-8930
E-mail: pharmacology@uiowa.edu

<http://www.medicine.uiowa.edu/pharmacology/>

Department of Pharmacology
University of Iowa
Roy J. and Lucille A.
Carver College of Medicine
51 Newton Road, 2-471 BSB
Iowa City, IA 52242-1109

Iowa Pharmacology LAB IN FOCUS...



IT WAS DURING HIS POSTDOCTORAL STUDIES WITH DAVID MANGELSDORF AND STEVEN KIEWER AT THE UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER WHEN MATTHEW POTTHOFF'S RESEARCH FIRST CENTERED UPON METABOLIC REGULATION BY ENDOCRINE FACTORS, THE SUBJECT THAT WAS TO BE THE FOCUS OF HIS OWN LAB AT IOWA. POTTHOFF CAME TO IOWA IN 2012 THROUGH A JOINT RECRUITMENT EFFORT OF PHARMACOLOGY AND THE THEN NEWLY CREATED FRATERNAL ORDER OF EAGLES DIABETES RESEARCH CENTER (FOEDRC). SINCE 2014, HIS LAB HAS BEEN HOUSED IN FOEDRC SPACE IN THE NEW PAPPAS BIOMEDICAL RESEARCH BUILDING, WHICH NEIGHBORS BOWEN SCIENCE BUILDING. IN JUST THREE YEARS, POTTHOFF HAS ALREADY WON MAJOR EXTRAMURAL FUNDING FOR HIS LABORATORY, INCLUDING GRANTS FROM THE NIH, AMERICAN DIABETES ASSOCIATION AND MALLINCKRODT JR. FOUNDATION, AND HIS LAB STAFF HAS GROWN TO INCLUDE FOUR FULL-TIME RESEARCHERS AND FIVE UNDERGRADUATE TRAINEES.

LAB VITALS

Principal Investigator: Dr. Matthew J. Potthoff (BS '03, University of Oklahoma; PhD '07, University of Texas Southwestern Medical Center), Assistant Professor, Department of Pharmacology and Fraternal Order of Eagles Diabetes Research Center (FOEDRC).

Full-time Staff: Dr. Katie Markan, Postdoctoral Scholar, Meghan Naber, Research Assistant, Lucas Bon Durant, Graduate Student, and Magdalene Ameka, Graduate Student.

Research Focus: The Potthoff laboratory is investigating mechanisms of regulation of the body's nutritional status that contribute to metabolic diseases including diabetes. The lab uses a diverse variety of technologies, including biochemistry, proteomics, cell biology, metabolomics, and mouse genetics. A major project focusing on the endocrine hormone fibroblast growth factor 21 (FGF21) was recently funded by a \$1.7 million R01 grant from the NIH/NIDDK.

THEIR CONTRIBUTION

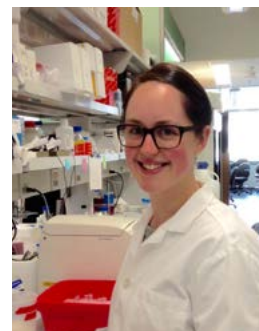
Just three years since its beginnings, the Potthoff laboratory has already seen strong growth and made exciting discoveries concerning the metabolic effects of FGF21 that are highly significant to diabetes. Type II diabetes, a major health concern impacting ~20 million people in the US, is a disease in which the body still produces insulin in response to increases in blood glucose, but glucose-metabolizing cells no longer respond appropriately to the hormone (a phenomenon termed insulin-insensitivity). Pharmacologic strategies for combating type II diabetes therefore include enhancing the response of affected cells to insulin. The Potthoff lab has recently shown that FGF21 circulating in the blood is primarily produced by the liver, and it functions physiologically as an insulin sensitizer under conditions of acute refeeding and overfeeding, consistent with its known glucose-lowering effects. Their data indicate that FGF21 signals directly to brown adipocytes to enhance insulin-stimulated glucose uptake therein. While FGF21 is already being examined as a potential therapeutic for type II diabetes, research in the Potthoff lab is identifying the specific mechanisms by which

Iowa Pharmacology LAB IN FOCUS...

FGF21 exerts its unique metabolic effects, in the hope that additional therapeutic targets for obesity and diabetes might be discovered.

THE TRAINING ENVIRONMENT

Undergraduate, graduate and postdoctoral staff of the Potthoff lab find it an outstanding environment for their training. Graduate student Lucas Bon Durant described how Dr. Potthoff initially worked closely with him in the design of his individual experiments, to ensure that they yielded valid and interpretable results. While this allowed him to make rapid progress, Dr. Potthoff has gradually encouraged him to work with more independence, which is speeding his maturation as a scientist. Lucas stated that his mentor “challenges me and helps me to grow, without pushing me beyond my abilities.” He feels that the whole lab feeds off Dr. Potthoff’s energy and enthusiasm for their work. As are other lab members, Lucas is excited by the scientific environment of the FOEDRC and is motivated by the impact that his research could have. Postdoctoral Scholar Katie Markan, who was one of the first members of the lab, describes the laboratory as one in which she is “given the freedom to be creative and establish new directions in my research.” She feels that in the Potthoff lab she has made significant progress in transitioning to independence, in particular being supported in her successful application for her own NIH F32 National Research Service Award. She expressed her appreciation for Dr. Potthoff’s mentoring, describing how they shared a love for science and diabetes research in particular, and how she is given career advice, and opportunities to establish her own skills in the training of younger scientists. Both Lucas Bon Durant and Katie Markan have done impactful research and authored significant manuscripts either published or under review.



IN MATTHEW POTTHOFF’S WORDS

Recruited here as one of the first members of the then newly created FOEDRC, Potthoff was excited to be joining a cadre of top young investigators of diabetes and metabolic disorders, and found the research infrastructure at Iowa, including core facilities and highly specialized instrumentation for metabolic research, extremely attractive. Subsequent to his arrival, one of the resources most valued to Potthoff has been the Pharmacology administrative staff, who have helped him enormously with the grant application process.

As numerous other diabetes/metabolism investigators (several of them at his same career stage) now occupy FOEDRC space, Potthoff finds that the combined expertise of his colleagues and the highly collaborative environment make Iowa a unique place to pursue metabolic research.



“I WAS IMPRESSED BY THE ENTHUSIASM AND EFFORT PUT INTO MY RECRUITMENT. MOST IMPORTANTLY, I WAS EXCITED TO BE PART OF SOMETHING BEING BUILT FROM THE GROUND UP.”

- Matthew Potthoff on joining Pharmacology and the FOEDRC

YOU CAN SUPPORT THE GROUNDBREAKING RESEARCH OF THE MATTHEW POTTHOFF LAB OR OTHER UI PHARMACOLOGY LABORATORIES BY CONTRIBUTING TO THE **DEPARTMENT OF PHARMACOLOGY DEVELOPMENT FUND** AT THE UNIVERSITY OF IOWA FOUNDATION:
www.givetoiowa.org/pharmacology

Iowa Pharmacology OUR CONGRATULATIONS

Rahmouni receives Mid-Career Award for Research Excellence

Dr. Kamal Rahmouni, Associate Professor of Pharmacology, was recently awarded the *2015 Hypertension Mid-Career Award for Research Excellence* of the American Heart Association (AHA). This distinguished award recognizes a mid-career investigator working in hypertension or cardiovascular research who has significantly contributed to the understanding of the causes of hypertension and related cardiovascular disease. Dr. Rahmouni's research focuses on the identification of the molecular and cellular determinants of glucose metabolism, energy expenditure, and cardiovascular function, as well as investigating the dysregulation of cellular and molecular pathways in disease conditions such as obesity and diabetes. The Rahmouni laboratory has helped uncover new molecular mechanisms that are critically involved in the regulation of metabolic and cardiovascular functions.



Our congratulations to Kamal!

Grobe receives Harry Goldblatt New Investigator Award



Assistant Professor of Pharmacology **Justin L. Grobe** has received the *2015 Harry Goldblatt Award* from the American Heart Association. The *Harry Goldblatt Award* recognizes a new investigator in hypertension research who has significantly contributed to our understanding of the causes of hypertension and related cardiovascular disease. The award is named after pathologist Dr. Harry Goldblatt (an Iowa native, born in Muscatine, IA), who established the first reliable experimental animal model of hypertension in 1934, which bears his name: the "Goldblatt" or 2-kidney/1-clip model. Dr. Grobe was selected for this honor based on his laboratory's research contributions to the areas of neural control of cardio-metabolic function, the involvement of the neurohypophysis in the pregnancy-associated hypertensive disorder preeclampsia, and technical advancements in the area of metabolic rate assessment in experimental animals.

Congratulations Justin!

Ringen receives Distinguished Research Administrator Award

Pharmacology Departmental Administrator **Lisa Ringen** was selected by the Offices of the Vice President for Research and Economic Development and Vice President for Finance and Operations to receive a *2015 Distinguished Research Administrator Award*. Lisa received the award at the *Celebrating Excellence: Discovery and Innovation Awards Ceremony* on April 28, 2015. The award recognizes administrators who have made outstanding contributions in administration that further the research goals of the University. Lisa has been employed at UI since 1989, and has served as the Pharmacology Administrator since 1999. She was nominated by Chair and DEO **Curt Sigmund** on behalf of the Pharmacology Department, the faculty of which will attest to the dedication and expertise with which she administers our grant application and post-award grant management processes. By helping our faculty negotiate the ever-changing complexities of grant administration with multiple federal and private agencies, she has greatly facilitated their success in obtaining and maintaining Pharmacology research funding.



We congratulate Lisa on this well deserved award and for her exemplary service to Pharmacology!

Alum Howard Jacob to join HudsonAlpha

The HudsonAlpha Institute for Biotechnology announced on April 7, 2015 that Pharmacology alumnus and renowned clinical genomics expert **Dr. Howard Jacob** (PhD '89) was appointed as their Executive Vice President for Medical Genomics and Chief Medical Genomics Officer. Dr. Jacob, who did his thesis work in the laboratory of **Dr. Michael J. Brody**, joined the Medical College of Wisconsin in 1996, where he was the inaugural Director of their Human and Molecular Genetics Center and the Warren P. Knowles Chair in Genetics.

We congratulate Dr. Jacob on this outstanding career achievement!

See the full HudsonAlpha press announcement at: <http://hudsonalpha.org/howard-jacob-join-hudsonalpha>

Iowa Pharmacology OUR CONGRATULATIONS

2015 BRODY LECTURER GAIL MANDEL



This October, we welcomed Dr. Gail Mandel, PhD as the 2015 *Michael J. Brody Lecturer* in the Carver College of Medicine *Distinguished Biomedical Scholar Lecture Series*. Dr. Mandel is currently an Investigator of the Howard Hughes Medical Institute and Senior Scientist of the Vollum Institute of the Oregon Health and Science University. Her groundbreaking research is focused on understanding how neuronal cell identity is established and maintained in the contexts of both normal and disease states. She has accumulated a host of honors for her research. In addition to being a Howard Hughes Medical Institute Investigator since 1997, Dr. Mandel is a recipient of the McKnight Investigator Award in Neurosciences as well as the Jacob J. Javits Neuroscience Investigator Award. She is a member of the National Academy of Sciences and a fellow of the American Association for the Advancement of Science.

Established in 1993, the annual Brody lecture honors the memory and contributions of **Dr. Michael J. Brody**, a distinguished professor in the Department of Pharmacology. In his unfortunately too-brief career, Dr. Brody mentored more than 20 doctoral students, more than 40 post-doctoral fellows, and influenced countless others who passed through our graduate program. It is thus fitting that graduate students, about whom he cared so much, select and invite each year a distinguished scientist to present the lecture.

Our congratulations to Dr. Gail Mandel on joining the esteemed list of *Michael J. Brody Lecture* honorees!

Pharmacology trainees win conference awards

Several Departmental trainees received travel awards from conference associations allowing them to present their work at national meetings, including **Dr. Zili Luo** (Postdoctoral Fellow in the Fisher laboratory), who presented in March at the 2015 Experimental Biology meeting in Boston, MA and **Charles Warwick** (Graduate Student in the Usachev lab), who traveled this October to the Society for Neuroscience Meeting in Chicago, IL. Three Postdoctoral Scholars in the Sigmund laboratory, **Drs. Masashi Mukoda**, **Njotu (Larry) Agbor**, and **Keisuke Shinohara**, received *Annual Hypertension Conference Travel Awards for New Investigators* from the American Heart Association at their September meeting. Dr. Mukoda also received an *Onsite Poster Competition Award* at the Hypertension Conference. Congratulations to all of you on your awards!

Team Preeclampsia on The Hill

Preeclampsia researchers from the University of Iowa Carver College of Medicine, Departments of Pharmacology (**Curt Sigmund**, PhD and **Justin Grobe**, PhD), Ob/Gyn (Mark Santillan, MD) and Health and Human Physiology (Gary Pierce, PhD) advocated on Capitol Hill on Tuesday May 12, 2015 for increased funding for medical research

and research on women's health. The team met directly with Congressman Dave Loebsack, Congressman David Young and Senator Charles Grassley, and with legislative assistants for Congressman Rod Blum, Congressman Steve King and Senator Joni Ernst. The team spent Monday, May 11, meeting with Division and Program Directors at the NICHD and NHLBI.

Supplement received for T32s

Dan Eberl, Professor of Biology, **Stefan Strack**, Professor of Pharmacology, and Susan Lutgendorf, Professor of Psychology, received a collaborative NIH T32 Administrative Supplement to support three predoctoral training grants, including the Pharmacological Sciences Training Grant of which Strack is the Director. The \$86,000 supplement will be used to develop a new graduate course *Science Communication in the Digital Age* and a career workshop aimed at professional skill development beyond the traditional academic career path. The course teaches students how to communicate their science to both lay and specialist audiences using 21st century technology. Taught by instructors from the Departments of Rhetoric, Journalism and Mass Communication, students will develop direct and succinct communication, receive hands-on training in audio-video production and basic website design, and develop a professional on-line presence in order to communicate and advocate science.

Iowa Pharmacology FUNDING

New Pharmacology grant funding

Pharmacology faculty and trainees have in the past six months won several significant extramural research grant awards. This reflects their tenacious effort in competing for funding from a diversity of funding agencies. To bolster their preliminary data for future grant applications, they also continue to successfully compete for seed grant funding available from Pharmacology, Carver College of Medicine, UI and other initiatives, including the new Center for Hypertension Research and Federal Order of Eagles Diabetes Research Center. The funding portfolio of Pharmacology faculty currently includes ten NIH awards, five American Heart Association awards, as well as grants from the American Diabetes Association and the Department of Defense. Faculty research efforts are also supported by less traditional sources including the Edward Mallinckrodt Jr. Foundation and GlaxoSmithKline. At the same time, Pharmacology undergraduate, predoctoral and postdoctoral trainees have been very successful in obtaining fellowship and other awards that leverage faculty funding (see *Iowa Pharmacology News*, Fall 2014).

New grant awards of Pharmacology faculty and trainees are listed below. Multiple faculty achieved success in obtaining new NIH funding via collaborative efforts, including the teams of **Curt Sigmund** (PI) and **Frederick Quelle** (Co-I), **Matthew Potthoff** (PI) and Dale Abel (Co-I) of Internal Medicine, **Dawn Quelle** (Project 2 leader) on a multi-investigator SPORC initiative led by Sue O'Dorisio of Pediatrics, and **Yuriy Usachev** (PI) with Co-Investigators **Donna Hammond** (Anesthesia/Pharmacology), **Tim Brennan** (Anesthesia/Pharmacology) and Andrew Russo (Physiology). We commend our faculty and trainees for their vigorous efforts in procuring funding for their research.

Undergraduate Student Awards

Danny Linggonegoro (Laboratory Assistant, Grobe lab)
American Heart Association Undergraduate Summer Research Fellowship, Vasopressin receptor participation in the pathogenesis of preeclampsia

Predoctoral Fellowship Awards

Jake Rysted (Graduate Student, Usachev lab)
American Heart Association Predoctoral Fellowship, The role of mitochondrial Ca^{2+} uniporters MCU and MCUB in neuronal Ca^{2+} signaling and stroke associated neurotoxicity

New Extramural Grant Awards to Pharmacology Faculty

(May 2015 - Oct 2015)

Rory Fisher (Professor)

Broad Institute - RGS6 and Schizophrenia, \$50,047

Yuriy Usachev (Professor)

NIH R21 - The Role of Ca-dependent transcription factor NFAT in pain control, \$416,969

Stefan Strack (Professor)

Canadian Tax Foundation (ARSACS) - Rescuing mitochondrial division in ARSACS by CIDR, \$154,000

NIH T32 Administrative Supplement (Co-I) - Building alternative career skills with "Science Communication in the Digital Age," \$86,400

Dawn Quelle (Associate Professor)

NIH P50 (Project 2 Leader) - Neuroendocrine tumor Specialized Programs of Research Excellence (SPORC) in Human Cancer, \$1,472,182

Matthew Potthoff (Assistant Professor)

NIH R01 - Regulation of carbohydrate metabolism by FGF21 action on brown adipose tissue, \$1,712,250

Curt Sigmund (Professor)

NIH R01 - Hypertension: role of smooth muscle cullin-3 and the CRL3 complex, \$1,696,450



Iowa Pharmacology OF SPECIAL NOTE

Davisson to head Melanoma Research Alliance



The largest private funder of melanoma research, the Melanoma Research Alliance recently announced that distinguished Iowa alumna **Dr. Robin L. Davisson** (BS Psychology '88, MS Psychology '91, PhD Pharmacology '94) was appointed as its President and CEO-elect effective October 1 this year. Currently the Andrew Dickson White Professor of Molecular Physiology at Cornell University and first appointed there in 2006, Dr. Davisson was previously on the faculty of the University of Iowa Department of Anatomy and Cell Biology, where she was appointed in 1998 and rose to the rank of Associate Professor.

Dr. Davisson is a renowned cardiovascular scientist, whose wide-ranging “functional genomics” research efforts have probed the molecular mechanisms underlying hypertension, heart failure, and the pregnancy-induced cardiovascular syndrome preeclampsia. She has also made outstanding contributions in education and in service to the international cardiovascular research community. She has engaged in long-standing collaborations with several Iowa Pharmacology and Cardiovascular Center faculty, and remains a valued colleague of the Department.

Please join us in expressing our sincerest congratulations to Robin, and wishing her the best of success in this important new endeavor!

View the full Melanoma Research Alliance press release at:

<http://www.curemelanoma.org/assets/Uploads/Davisson-Press-Release-FINAL-9.9.15.pdf>

A Letter from the UI Foundation: Advancing the Future of Healthcare Together

The Department of Pharmacology at the University of Iowa Roy J. & Lucille A. Carver College of Medicine is at the forefront of medical research and education, continually advancing the standards for disease prevention and patient care. As state and national funding become increasingly difficult to secure, private support is crucial to the success of the department. With help from private supporters, we can provide scholarships to graduate students and postdocs; invest in new, state-of-the-art equipment; fund seminar series and lectureships; and attract and retain outstanding faculty members. These generous gifts are the lifeline for our advancement and have never been more important.



Madelynn Krall is the newly appointed Director of Development for the University of Iowa Foundation, supporting the Pharmacology Department. Madelynn is an Iowa City native and an alumna of the University of Iowa, and is available as a resource for friends of the department who are considering an outright or estate gift to Pharmacology. Madelynn travels extensively, and would be happy to talk with alumni and friends of the department by phone (800-648-6973) or email (madelynn-krall@uiowa.edu) about contributions to existing funds or new initiatives.

Thank you for your continued support of the University of Iowa Department of Pharmacology. With your help, we can transform the future of healthcare for generations to come.

To give today, please visit: www.givetoioiowa.org/pharmacology.

FALL EVENTS

Pharmacology Seminar Sept 29

Alan G. Watts, D.Phil.
Professor, Biological Sciences
University of Southern California

Diabetes and Obesity Talk Oct 5

Curt D. Sigmund, Ph.D.
Professor and Chair
Pharmacology
University of Iowa

Faculty Seminar Oct 13

Kamal Rahmouni, Ph.D.
Associate Professor
Pharmacology
University of Iowa

Distinguished Biomedical Scholar and Michael J. Brody Memorial Lecture Oct 15

Gail Mandel, Ph.D.
Investigator, Howard Hughes
Medical Institute, Vollum Institute
Oregon Health & Science
University

Center for Hypertension Research Seminar Oct 16

Jennifer S. Pollock, Ph.D.
Professor, Co-Director, Cardio-
Renal Physiology and Medicine
University of Alabama

Pharmacology Seminar Nov 10

Owen N. Witte, M.D.
Distinguished Professor
Microbiology, Immunology and
Molecular Genetics
University of California, LA

Pain Research Seminar Nov 11

Slobodan M. Todorovic, M.D.
Ph.D., Professor
Anesthesiology and Neuroscience
University of Virginia
School of Medicine

Pharmacology Seminar Nov 17

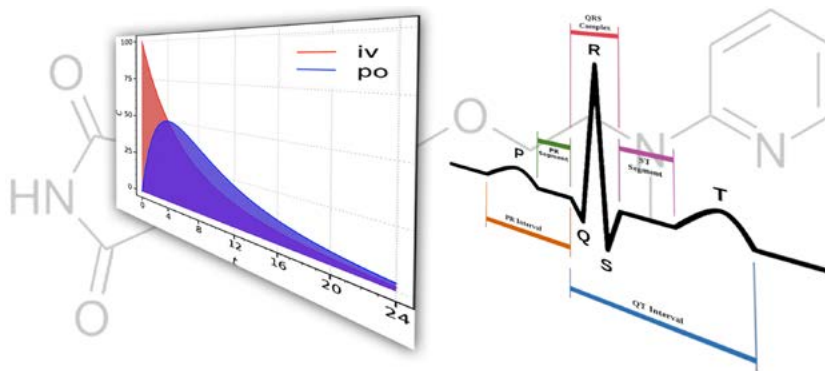
Nick Brustovetsky, Ph.D.
Associate Professor
Pharmacology and Toxicology
Indiana University
School of Medicine

Pain Research Seminar Dec 2

Mary Heinricher, Ph.D.
Professor, Behavioral
Neuroscience, Oregon Health &
Science University



Department of Pharmacology
2-471 Bowen Science Building
51 Newton Road
Iowa City, IA 52242-1109



Contact us:

Department of Pharmacology
University of Iowa
Roy J. and Lucille A.
Carver College of Medicine
51 Newton Road, 2-471 BSB
Iowa City, IA 52242-1109

Phone: (319) 335-7965
FAX: (319) 335-8930
E-mail: pharmacology@uiowa.edu

<http://www.medicine.uiowa.edu/pharmacology/>

Please direct comments and inquiries to:
John Koland, Editor
Iowa Pharmacology News
319-335-6508
john-koland@uiowa.edu

To receive this or future editions of Iowa
Pharmacology News electronically or to be
removed from the mailing list, please express
your desire to pharmacology@uiowa.edu