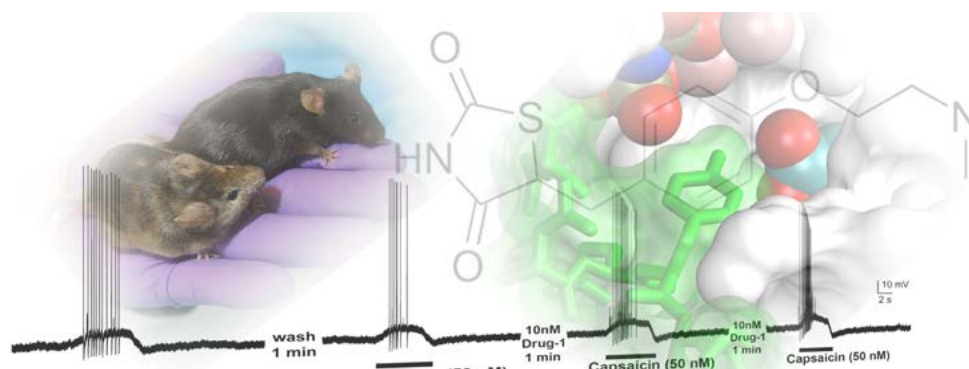


Iowa Pharmacology NEWS

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

VOLUME 3 ISSUE 1

SPRING 2015



Greetings from the Chair!



The 2014-2015 academic year has been eventful for Pharmacology! We have seen impressive discoveries through our research, a growth of our research portfolio, and formal recognition of our faculty and staff for their excellence. Our faculty are further aligning themselves with Iowa's Holden Comprehensive Cancer Center, Fraternal Order of Eagles Diabetes Research Center and the nascent Center for Hypertension Research, which are providing pilot funding for research in new directions. Especially exciting is our recent kick-off of a search for the first John Paul Long Chair in Pharmacology, an endowed chair made possible by the generous contributions of our alumni and supporters! In the John Paul Long Chair, we hope to recruit a preeminent neuroscience researcher to build upon our existing neuroscience strength. On the education front, Pharmacology faculty remain highly visible in Iowa's entirely new medical curriculum, despite the phasing out of our mainstay *Medical Pharmacology* course in favor of integrating basic and clinical sciences in a new systems-based organization. Hence, Pharmacology is a full participant in Iowa's bold initiative in medical education!

We hope that alumni and friends will enjoy this addition of *Iowa Pharmacology News*! Please do stay in touch!

Curt D. Syme

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Iowa Pharmacology OUR CONGRATULATIONS

2014 Amanda Hope Skolnick Undergraduate Award



The Amanda Hope Skolnick Undergraduate Award is given annually to honor the memory of Amanda Skolnick, who worked as a Laboratory Assistant in the Department of Pharmacology while an undergraduate at The University of Iowa. In her junior year of study, Amanda's life tragically ended after being struck by a motor vehicle in Iowa City.

The Skolnick family made a generous donation to the Department of Pharmacology to establish an award in memory of Amanda. Our 2014 award recipient was Mohamed Rouabhi. Mohamed has been a Laboratory Assistant in Dr. Kamal Rahmouni's laboratory since the summer of 2013. Mohamed is an outstanding student majoring in Health and Human Physiology. His performance in the laboratory has been exceptional, and he has for two consecutive years been awarded an American Physiological Society Undergraduate Summer Research Fellowship. ***Congratulations and best wishes to Mohamed!***



The Skolnick Award is presented annually to a Department of Pharmacology undergraduate employee who best exemplifies the dedication and spirit that Amanda demonstrated daily in her work as a Laboratory Assistant.

New Pharmacology Grads!

Since the last edition of our newsletter five students successfully completed their PhDs in Pharmacology.

We extend our congratulations to:

Jacqueline Reilly (Hohl Lab)

"The Role of Protein Geranylgeranylation in Prostate Cancer."

Aaron Mickle (Mohapatra Lab)

"Pain Sensitization by Parathyroid Hormone-Related Peptide (PTHrP) via Convergent Phosphoregulation of TRPV1"

Ying Li (Faraci Lab)

"Mechanisms of Vascular Disease: Divergent Roles for Suppressor of Cytokine Signaling 3 (SOCS3) in Angiotensin II-Induced Vascular Dysfunction"

Stella-Rita Ibeawuchi (Sigmund Lab)

"Regulation of Vascular Function: Roles for Cullin-3 and RhoBTB1 in PPAR γ -mediated blood pressure control"

Ryan Sheehy (Hohl Lab)

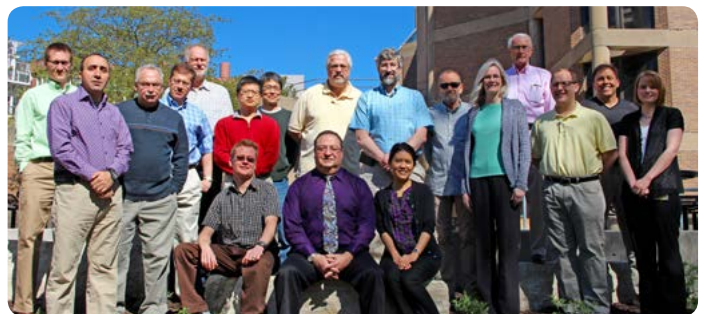
"Schweinfurthin Effects on Cellular Processes"

JOHN PAUL LONG CHAIR IN PHARMACOLOGY OPENS

**A search for the first occupant of the new John Paul Long Chair in Pharmacology is open!
(Story on page 7)**

<https://jobs.uiowa.edu/faculty/view/65982>

The Face of Pharmacology



Seated (left to right): Stefan Strack, Curt Sigmund, Pimonrat Ketsawatsonkron; Standing: Matt Potthoff, Kamal Rahmouni, John Koland, Yuriy Usachev, Barry Kasson, Songhai Chen, Toshi Kitamoto, Frank Faraci, Fred Quelle, Mario Ascoli, Dawn Quelle, Don Heistad, Justin Grobe, Rory Fisher, Kate Ahlers; Not pictured: Minnetta Gardinier, Anne Kwiktek, Chris Benson, Tim Brennan, Donna Hammond, A. Kim Johnson, Kathy Lamping, Debra Schwinn and David Wiemer

Center for Hypertension Research Pilot Grant Program Has Successful First Run!



To build upon the strong tradition of cardiovascular research at the UI and the Iowa City VA, the new *Center for Hypertension Research* was established in July 2014 with the financial support of UI Healthcare. Under the leadership of inaugural Director **Dr. Curt Sigmund**, Chair and DEO of Pharmacology, the *Center* is already pursuing its goals of promoting basic, clinical and translational research in hypertension and uniting the research efforts ongoing across the campus. As a crucial means of achieving these goals, the *Center* initiated its *Pilot Project Grant Program*, designed to foster collaborative research ventures involving hypertension researchers working in diverse UI colleges and in the VA, as well as to link basic and translational research into causes, mechanisms, and treatments for hypertension.

The response to the first *Center for Hypertension Research Pilot Project Grant Program* announcement was robust, with a panel of seven reviewers judiciously selecting four outstanding applications for funding. The grant awards are of 18-month duration starting January 2015 and range in amount from \$70,000-90,000. The projects funded involve collaborations between ten faculty representing seven different departments in three colleges (Carver College of Medicine, College of Liberal Arts and Sciences, College of Pharmacy). Among the faculty supported are some new to the field of hypertension. A list of the funded projects is given below. Please join us in congratulating our colleagues receiving the *Center's* first *Pilot Project Grant* awards!

Mechanisms of Vascular Endothelial Dysfunction and Aortic Stiffness in Obesity: **Kamal Rahmouni**, PhD, Department of Pharmacology & **Gary L. Pierce**, PhD, Department of Health and Human Physiology

Bedrest for Treating Preeclampsia? A Study of Activity, Copeptin, Blood Pressure and Preeclampsia: **Donna A. Santillan**, PhD & **Mark K. Santillan**, MD, Department of Obstetrics and Gynecology, **Linnea A. Polgreen**, PhD, Department of Pharmacy Practice and Science & **Philip M. Polgreen**, MD, Department of Internal Medicine

Vagal Nerve Stimulation for Cardiovascular End-Organ Protection in Hypertension: **Harald M. Stauss**, PhD, Department of Health and Human Physiology & **Steven R. Mickelsen**, MD, Department of Internal Medicine

Role of Proximal Tubule Mitochondrial Dysfunction in Kidney Disease and Hypertension: **Diana Zepeda-Orozco**, MD, Department of Pediatrics; **Eric B. Taylor**, PhD, Department of Biochemistry

The call for the next round of *Pilot Project Grant* applications will be issued in January 2016 for funding on July 1, 2016.

The original UI press release about the new *Center for Hypertension Research* can be found here: http://www.medicine.uiowa.edu/Pharmacology/Pharm_newsarticle.aspx?id=26795.

Kasson receives 2014 Collegiate Teaching Award

Dr. Barry Kasson, Associate Professor of Pharmacology, was among four faculty selected to receive the 2014 Collegiate Teaching Award of the Carver College of Medicine. This distinguished award recognizes faculty for significant and meritorious achievement in teaching. In his letter of nomination, DEO and Chair of Pharmacology Dr. Curt Sigmund testified to the tremendous impact of Barry's teaching contributions in the CCOM and the University of Iowa. Barry has been extensively involved in nearly all of our Departmental teaching activities, either through his classroom teaching, his directorship of several Departmental courses, his mentoring of new faculty in their teaching, or his long-time direction of our graduate students in their teaching of our popular undergraduate course, *Drugs: Their Nature, Action, and Use*. He currently serves the Department as our Associate Chair for Education, and has taken on an active role in the revised CCOM medical curriculum as a director of the new multicomponent course *Mechanisms of Health and Human Disease 4*. Dr. Kasson's nomination was enthusiastically supported by his faculty colleagues in Pharmacology and several current and former students of the Department. Former graduate students were particularly laudatory of Barry's mentoring with respect to their teaching.



Please join us in congratulating Barry on this recognition of his long and outstanding contributions to our Pharmacology teaching mission!

The UI press release detailing the 2014 CCOM awards for teaching can be found at: <http://www.medicine.uiowa.edu/Newsarticle.aspx?id=29675>.

Dr. Ascoli receives Excellence in Medical Education Award

Dr. Mario Ascoli, Professor of Pharmacology, was presented an Excellence in Medical Education Award at the CCOM Medical Education Celebration in November 2014. Mario has played an important role in the teaching mission of the Department for more than two decades. He has contributed to instruction of medical students as both a

small group facilitator and a lecturer on the pharmacology of drugs affecting endocrine systems, a critical component of our course for medical students. He consistently



receives outstanding evaluations from medical students for his lectures. As one student expressed this past year, "Dr. Ascoli's lectures were beautifully organized and informative." In addition to medical students, Mario also contributes to our teaching of pharmacy and graduate students. For several years, he directed our pharmacology course for pharmacy students and still presents numerous lectures in that course. Similarly, he has directed and taught one of our core graduate curriculum courses on intracellular signaling mechanisms. He also brought national recognition to the UI for many years by directing a summer course on reproductive endocrinology offered to faculty, fellows and students throughout the country at the Marine Biological Labs in Woods Hole, Massachusetts, an activity that continues to this day. Throughout this period, Mario maintained an active laboratory and provided mentorship and individual instruction to 35 post-doctoral fellows, 8 graduate students and 4 undergraduates who have worked in his laboratory. He is also the Research Director of the Women's Reproductive Health Research training grant for fellows and junior faculty in the Department of Obstetrics and Gynecology. Congratulations to Mario!

Grobe wins New Investigator Award

Assistant Professor **Dr. Justin Grobe** of Pharmacology was selected to receive the 2015 New Investigator Award from the American Physiological Society's Water and Electrolyte Homeostasis Section.



This award recognizes an outstanding investigator in the early stages of his/her career who has made meritorious contributions to the field of water and electrolyte homeostasis physiology. The award provided Justin the opportunity to present his work during a special session at the Experimental Biology conference in March 2015 in Boston, MA. Justin is also invited to publish a manuscript in the area of his expertise in the *American Journal of Physiology-Regulatory, Integrative & Comparative Physiology*. Congratulations to Justin for receiving this recognition!

Faculty Spotlight

Who: **Dr. Rory A. Fisher**, Professor of Pharmacology and Internal Medicine.

Bio: Rory received his Ph.D. in Molecular Cellular & Developmental Biology from Iowa State University in Ames, Iowa and did postdoctoral work at the University of Texas Health Science Center in San Antonio, Texas. In 1987, he was appointed as an Assistant Professor here in Pharmacology, and rose to the rank of Professor in 2004. Rory has a secondary appointment in the Department of Internal Medicine. His work at Iowa has focused on the molecular mechanisms of signaling by G protein-coupled receptors.



Contribution: While at Iowa, the Fisher laboratory has made numerous advances in the area of G protein-coupled receptor signaling, including the isolation of cDNAs encoding several novel receptor isoforms and characterizing their unique signaling mechanisms. In the late 1990s, the laboratory shifted its focus to proteins in the then newly identified Regulators of G protein Signaling (RGS) family. Here Dr. Fisher's group made major contributions in the identification and molecularly cloning of new RGS proteins, and in discovering novel, non-G protein-dependent actions for them, including an unexpected role of RGS6 as a tumor suppressor. Their recent studies of mice having a targeted disruption of the RGS6 gene led to the uncovering of new roles for RGS6 in cardiac regulation and in mediating the undesired cardiac toxicity of the cancer chemotherapeutic doxorubicin. Very recently, the Fisher lab made the exciting discovery that RGS6, by quite distinct mechanisms, plays critical roles in both the alcohol reward response and in mediating the organ toxicity of alcohol. Published in February 2015 in *The Proceedings of the National Academy of Sciences USA*, their work immediately received significant international attention, being highlighted in several science news magazines.

Quote: "Inhibiting this RGS6 protein could represent a new approach to counteract alcohol dependence and at the same time protect against the cell-killing actions of alcohol in the heart and liver." For additional information, visit: <http://now.uiowa.edu/2015/02/protein-controls-both-alcohol-craving-and-organ-damage>.

Postdocs in Sigmund lab receive HBPR New Investigator Awards

Drs. Keisuke Shinohara and **Masashi Mukoda** each received a New Investigator Award, and **Dr. Fusakazu Jo** received a New Investigator Award for Japanese Fellows at the recent scientific sessions of the Council on Hypertension of the American Heart Association in San Francisco. Keisuke and Fusa gave oral presentations and Masashi presented a poster at the meeting. All three were recognized at the awards luncheon, and we here add our congratulations!



Parkinson's disease: Study focuses on dopamine levels

A collaborative publication in *PLoS Genetics* from the laboratories of **Dr. Rory Fisher** of Pharmacology and Dr. Jacques Drouinin of Montreal was recently highlighted in *ScienceDaily*. The work identifies RGS6 as a potential new target for treatment of Parkinson's disease (PD). PD is characterized by the preferential, but poorly understood, vulnerability to degeneration of midbrain dopaminergic (mDA) neurons in the ventral substantia nigra compacta (vSNc). In mice deficient in Pitx3, a transcription factor critical for survival of mDA during development, flow cytometry and expression profiling were used to identify RGS6 as restricted in expression in these neurons. In contrast to Pitx3^{-/-} mDA neurons that die during fetal or postnatal periods, mDA neurons of RGS6^{-/-} mice exhibit unilateral signs of degeneration in an age-dependent manner. The degenerating neurons have low levels of tyrosine hydroxylase and Pitx3 and its target genes, and express markers of increased dopaminergic signaling including dopamine transporter (DAT). The late onset degeneration may reflect a normally protective action of RGS6 against excessive DA signaling. RGS6-dependent protection is thus critical for adult survival and maintenance of the vSNc mDA neurons that are most affected in PD. This work thus identifies RGS6 as a potential new target for PD drug development.

Read the *ScienceDaily* story at <http://www.sciencedaily.com/releases/2014/12/141211180529.htm>.

Iowa Pharmacology FUNDING

Preeclampsia team receives major AHA award



An interdisciplinary team of researchers led by **Curt Sigmund** of Pharmacology has recently received a grant from the American Heart Association to establish the *University of Iowa Strategically Focused Hypertension Research Center*. This major award provides funds for the research and training components of the *Center* in excess of \$3.7M over a four-year period beginning April 1, 2015. The focus of the grant is preeclampsia, a cardiovascular disorder causing the death of more than 100,000 women worldwide each year. Individual projects in the grant will involve basic, clinical and population science discovery. Topics of investigation include the molecular mechanisms of preeclampsia and diagnostic biomarkers for predicting preeclampsia in pregnancy. The Principal

Investigators of the three scientific projects of the *Center* are **Justin Grobe** of Pharmacology (*Molecular Mechanisms of Vasopressin-induced Preeclampsia*), **Gary Pierce** of Health and Human Physiology (*Early Vascular Dysfunction and Elevated Copeptin in Human Preeclampsia*), and **Mark Santillan** of Obstetrics and Gynecology (*Predicting Preeclampsia via Copeptin: Underrepresented Minorities & Synergy with Other Biomarkers*). An integral component of the project is a program for the training of fellows in hypertension research. The *Center Training Director*, **Dr. Kimberly Leslie**, Chair and DEO of Obstetrics and Gynecology, will be responsible for the recruitment of fellows along with the coordination, implementation and oversight of the training program. Dr. Sigmund is the *Center Director* responsible for the overall coordination of the scientific projects and the training program.

Procuring this American Heart Association Strategically Focused Hypertension Research CENTER grant award will significantly advance hypertension research at the UI and enhance the national recognition of our cardiovascular research. We congratulate Dr. Sigmund and his team on their major achievement!

Undergraduate Students Awards

Mohamed Rouabhi (Rahmouni lab)

American Physiological Society Undergraduate Summer Research Fellowship, Effects of Raptor Protein Deletion on Activation of the Leptin Signaling Pathway

Postdoctoral/Staff Researcher Awards

Kathleen Marken (Postdoctoral Research Scholar, Potthoff lab)

NIH NRSA Fellowship, \$137,287, A Novel Therapeutic Approach to Combat Nonalcoholic Fatty Liver Disease

New Extramural Grant Awards to Pharmacology Faculty (Aug 2014 - Apr 2015)

Songhai Chen (Associate Professor)

DOD Breakthrough Award, \$528,501, WDR26 in Advanced Breast Cancer: A Novel Regulator of the PI3K/AKT Pathway

Matthew Potthoff (Assistant Professor)

NIH R01 - Coinvestigator with Eric Taylor, Assistant Professor, Department of Biochemistry, \$98,896, Regulation of Hepatic Gluconeogenesis by the Mitochondrial Pyruvate Carrier

Curt Sigmund (Professor)

AHA - University of Iowa Strategically Focused Hypertension Research Center, \$3,709,200

Strack nets NIH grant, GSK Discovery Fast Track Challenge award



Stefan Strack of Pharmacology recently received a \$415,250 grant from the National Institute of Neurological Disorders and Strokes (NINDS) and on December 1 was named a winner of GlaxoSmithKline's (GSK) 2014 Discovery Fast Track Challenge, which is designed to encourage

the translation of academic research into novel therapies. "We are very excited about these awards. The NINDS grant will allow us to explore how mitochondria regulate normal brain function, while the drug discovery project with GSK may lead to new medicines that improve brain health," said Strack.

The NINDS Exploratory/Development Grant (R21) Program supports research projects in areas of brain and nervous system disorders to reduce the effects of neurological disease. NINDS is part of the National Institutes of Health. Strack's two-year grant, titled "Outer Mitochondrial PKA and PP2A in Neurodevelopment and Plasticity," runs through June 2016.

Read the full UI press release at http://www.medicine.uiowa.edu/Pharmacology/Pharm_newsarticle.aspx?id=29303.

Iowa Pharmacology OF SPECIAL NOTE

New John Paul Long Chair in Pharmacology open



The Department is extremely excited to announce the recent opening of a search for the first occupant of the **John Paul Long Chair in Pharmacology**, an endowed chair made possible by the generous contributions of supporters of Pharmacology. The fund for the chair was envisioned as a way for alumni, family and friends of the Department to create an enduring tribute to Pharmacology's illustrious researcher and teacher Dr. J. P. Long. The response to the opening of the fund was vigorous, and it was ultimately supported by a total of 129 donors representing 79 households. Their gifts amounting to over \$270,000 were supplemented by Pharmacology funds, and the total grew to a current sustainable endowment of over \$1.8 million. This February, the Department initiated a search for the first faculty occupant of the chair, with advertisements posted in major scientific journals and inquiries made to numerous distinguished institutions. The recruitment at this point is focused on identifying a strongly established and well funded investigator in the neuroscience area, who will augment this existing strength of Pharmacology and enhance the stature and recognition of the Department. While the search will be highly selective, we hope that the John Paul Long Chair can be filled in 2015. We wish to express our sincerest appreciation to all those who contributed to this lasting legacy of our own J. P. Long!



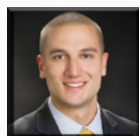
A Letter from the UI Foundation: Building a Bright Future Together

As a leader in education, patient care, and research, the University of Iowa Department of Pharmacology changes the lives of countless individuals each and every day. It's also continuing to address contemporary issues in this ever-changing medical profession.

Being a leader in education, patient care, and research within the pharmacology field wouldn't be possible without our alumni and friends—here in Iowa, across the country, and around the globe. Whether you're in academia, industry, or government, your contributions are making a lasting impact at the UI Department of Pharmacology. Those gifts have never been more important.

As state funding continues to decrease and National Institute of Health funding proves to be even more difficult to secure, your continued support allows us to maintain our status as a leader in pharmacology graduate training and expands our opportunities for crucial research. As the new Associate Director of Development for Major Gifts for the Roy J. and Lucille A. Carver College of Medicine, we can work together to keep the UI Department of Pharmacology moving forward. It's an honor to build upon the success of a nationally renowned program that is transforming the future of healthcare for generations to come.

To learn more about how your private support can change lives and support a department that is a recognized leader in pharmacology, please contact John Dwyer at john-dwyer@uiowa.edu or at (319) 467-3861.



John Dwyer, Associate Director of Development for Major Gifts for the Carver College of Medicine, University of Iowa Hospitals and Clinics, the University of Iowa Foundation

UPCOMING EVENTS

Pharmacology Faculty Apr 9
Forum - Fenghaung (Frank) Zhan,
 M.D., Ph.D., Professor
 Internal Medicine
 The University of Iowa

Pain Interest Group Apr 15
Seminar - S. Stevens Negus,
 Ph.D., Professor
 Pharmacology and Toxicology
 Virginia Commonwealth University

Pharmacology Faculty May 7
Forum - Mark K. Santillan, M.D.
 Assistant Professor
 Obstetrics and Gynecology
 The University of Iowa

Staff Appreciation Event June 11
 Pharmacology Employee
 Recognition Event

GIVING OPPORTUNITIES

The research and teaching missions of Iowa Pharmacology receive critical support in the form of generous gifts from friends and alumni.

Contributions to Iowa Pharmacology can be made to the

**Department of Pharmacology
 Development Fund:**

www.givetoioiwa.org/pharmacology

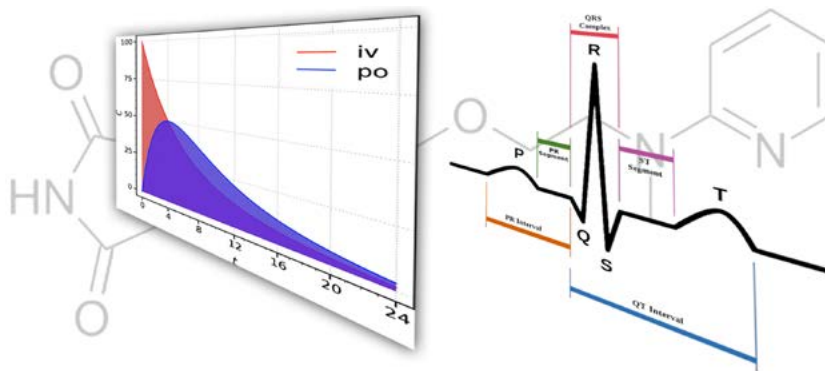
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