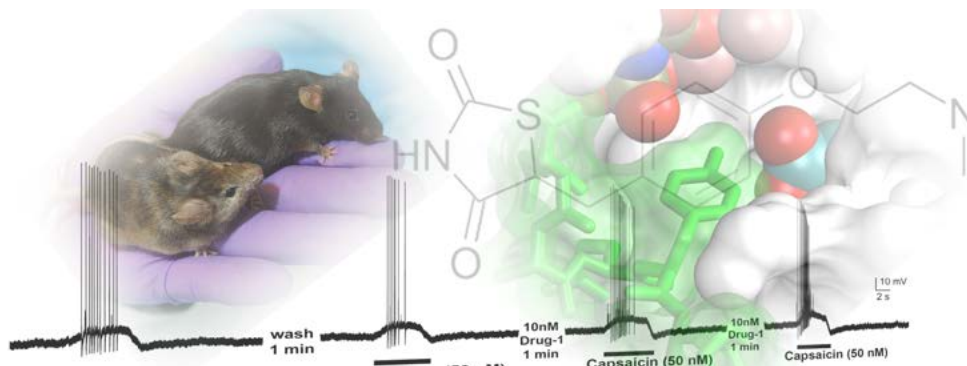


Iowa Pharmacology NEWS

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

VOLUME 2 ISSUE 1

SPRING 2014



Greetings from the Chair!



The past two years were eventful for Pharmacology at Iowa! Several talented new faculty were recruited to the Department, which built upon our existing research strengths, and a major renovation of our laboratory space began that is just now nearing completion. In the midst of these changes, our faculty, staff and trainees have continued to achieve excellence in scholarship, teaching and service as evidenced by a number of impressive awards, new grants, and honors received. Notably, one member of our faculty received the prestigious J. P. Long Award for Teaching in Basic Sciences, which honors the legacy of Pharmacology's own J. P. Long.

The New Year presents significant challenges as well as opportunities for Pharmacology. We will strive to grow our research portfolio in the face of an uncertain funding climate. We must also establish a niche for our teaching of pharmacologic science in a new medical curriculum, one that is in the process of a dramatic revision and in which traditional basic science courses will be replaced by disease mechanism-based courses. We expect that through our efforts we will maintain the long-standing tradition of excellence of Iowa Pharmacology. We hope that alumni and friends of the Department will enjoy this installment of *Iowa Pharmacology News*, and we ask you to please stay in touch and share the news of the happenings in your lives!

Curt D. Bergman

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Iowa Pharmacology CHANGES

Renovation of Pharmacology laboratory space nears completion



The appointment of Dr. Curt Sigmund to his new position of DEO and Chair of Pharmacology in July 2010 also represented the kick-off of an ambitious plan to renovate Pharmacology laboratory space in Bowen Science Building, a 3.5-year project on target for completion in April, 2014. The transformation of Departmental space is highlighted by the creation of modern *open concept* laboratories with specialized suites for specific work, including electrophysiologic recording, microscopy, animal behavioral studies, and bioinformatic analysis, as well as new meeting spaces and common areas. The modernization of our laboratory space is already fostering the growth of the Departmental research mission and will continue to be instrumental in the recruitment of talented new Pharmacology faculty!

New Pharmacology PhDs!

In 2013 four students received PhDs in Pharmacology. We extend our congratulations to:

Caitlin Runne (Chen Lab) "Function and Activation Mechanism of PLEKHG2, a Novel Gbg-Activated RhoGEF in Leukemia Cells"

Andrew Slupe (defended Spring 2013*, Strack Lab) "Regulation of Dynamin-Related Protein γ -mediated Mitochondrial Fission by Reversible Phosphorylation and Its Contribution to Neuronal Survival following Injury."

Uche Maduka (Hammond Lab) "Elucidating Mechanisms by which Substance P in the RVM Contributes to the Maintenance of Pain following Inflammatory Injury"

Lipin Loo (Mohapatra Lab) "Modulation of TRPV1, Nociceptor Sensitization and Induction of Thermal Hyperalgesia by C-Type Natriuretic Peptide"

*award at completion of MSTP

Save!

The Face of Pharmacology



Front row (left to right): Minnetta Gardinier, Kamal Rahmouni, Anne Kwitek, Dawn Quelle, Curt Sigmund, Pimonrat Ketsawatsomkron, John Koland, Stefan Strack; *Second row:* Justin Grobe, Matt Potthoff, Rory Fisher, Mario Ascoli, Fred Quelle, Frank Faraci, Songhai Chen, Toshi Kitamoto, Qi Wu; *Third row:* Barry Kasson, Chris Benson, DP Mohapatra. *Not pictured:* Tim Brennan, Donna Hammond, Don Heistad, Ray Hohl, A. Kim Johnson, Kathy Lamping, Debra Schwinn, Yuriy Usachev and David Wiemer

Iowa Pharmacology NEW FACULTY

Pharmacology faculty additions

New Iowa Pharmacology Faculty:



Matthew Potthoff, Ph.D. joined the faculty as an Assistant Professor on June 29, 2012. His research interests are to utilize genetic, molecular, and metabolomic techniques to examine the function of transcription factors in obesity and diabetes. His research goals are to: 1) identify novel regulators of hepatic glucose and lipid metabolism; 2) examine how endocrine FGFs are regulated, modified, and secreted; and 3) determine whether GLP-1 control of hepatic glucose production functions under physiological conditions to regulate hepatic glycogen utilization and improves glycemia in the diabetic state. Dr. Potthoff received his B.S. degree in Zoology from the University of Oklahoma, and his Ph.D. in Genetics and Development from the University of Texas Southwestern Medical Center in Dallas, TX. His postdoctoral research was in David Mangelsdorf's laboratory also at UT Southwestern. His research findings have been published in *Cell Metabolism*, *PNAS* and *Diabetes*. Dr. Potthoff is a member of the Fraternal Order of the Eagle's Diabetes Research Center.



Justin Grobe, Ph.D. joined the faculty as an Assistant Professor on June 1, 2012. His research interests are to define the mechanisms 1) by which the brain and systemic renin-angiotensin systems regulate energy homeostasis, 2) of angiotensin-mediated browning of white adipose tissue, and 3) by which microglial cell activation in the brain mediates the central metabolic effects of angiotensin. Dr. Grobe is a member of the Fraternal Order of the Eagle's Diabetes Research Center. He attended Hope College in Holland, MI receiving dual degrees in Biology and Chemistry, and then received his Ph.D. in Pharmacodynamics from the University of Florida, College of Pharmacy, Gainesville, FL. His postdoctoral research was in the laboratory of Dr. Curt Sigmund at the University of Iowa, where he showed that activation of the renin-angiotensin system in the brain leads to increased activity-independent thermogenesis, a finding published in *Cell Metabolism*. Dr. Grobe has published over 30 papers and received a highly competitive K99/R00 grant from the NIH.



Qi Wu, Ph.D. joined the faculty as an Assistant Professor on Jan 9, 2012. His research interests are in the neurobiology of feeding behavior. Dr. Wu was the inaugural hire of the University of Iowa Obesity Initiative, thus also becoming a member of the Fraternal Order of the Eagle's Diabetes Research Center. He received his Ph.D. in Cell Biology from the University of Georgia, Athens, GA, and then performed postdoctoral research with Dr. Richard Palmiter, Howard Hughes Medical Institute and Department of Biochemistry, University of Washington School of Medicine, Seattle, WA. Qi performed groundbreaking work showing that loss of GABAergic signaling by AgRP-expressing neurons that make connections from the arcuate nucleus to the parabrachial nucleus leads to starvation. His research has been published in *Cell*, *Nature Neuroscience*, *PNAS*, *Neuron*, and *J. Neuroscience*. He has since his appointment been distinguished as a Pew Scholar (see *Awards*).

New Pharmacology Faculty Appointments:



Pimonrat Ketsawatsomkron, Ph.D. was appointed as an Associate of Pharmacology on July 8, 2013. Her former appointments include Research Assistant in the Pharmacy School Mahidol University, Thailand, Graduate Research Assistant, Medical College of Georgia, Augusta, GA, Post Doctoral, Department of Internal Medicine, University of Iowa, and most recently Post Doctoral in the Department of Pharmacology, University of Iowa. Dr. Ketsawatsomkron's research focuses on the significance of the receptor PPAR γ in regulation of blood pressure and vascular function. She is an author on ten publications, with first-author papers in distinguished journals including *Circulation Research* and *J. Biological Chemistry*.



Kamal Rahmouni, Ph.D. officially joined the Department as a primary faculty member on Jan 1, 2012. Kamal is an Associate Professor and holds a secondary appointment in Internal Medicine. Kamal received his Ph.D. in Pharmacology from the University Louis Pasteur, Strasbourg, France, and then performed postdoctoral training in the neural control of obesity at the University of Iowa Cardiovascular Center. He was appointed as an Assistant Professor of Internal Medicine at UI in 2005 and was promoted to Associate Professor in July 2011. He is a member of the Center on Functional Genomics of Hypertension, the Iowa Cardiovascular Center, and the Fraternal Order of the Eagle's Diabetes Research Center. Kamal has published over 70 papers, reviews and chapters. His papers have been published in distinguished journals including *PNAS*, *Diabetes*, *Circulation Research*, *Hypertension*, *Cell Metabolism*, and *Nature Medicine*.



Anne E. Kwitek, Ph.D. officially joined the Department as a primary faculty member on October 1, 2010. She received her Ph.D. in Genetics here at the University of Iowa, and did postdoctoral work at the Medical College of Wisconsin, where she rose through the ranks to become an Associate Professor in 2004. In 2007, she was recruited to Iowa's Department of Internal Medicine as an Associate Professor, and has now accepted a primary appointment in Pharmacology. Dr. Kwitek is an animal and human geneticist whose research revolves around dissecting the genetic components of complex disease in rat and human, with an emphasis on hypertension, diabetes, and the metabolic syndrome. Her use of genome-wide approaches such as QTL mapping, comparative genomics, transcriptomics, and high-throughput genotyping has led to the identification of loci and genes involved in diabetes and cardiovascular disease in both rat models and human populations. Her current work is focused on combining traditional positional cloning approaches with functional genomics and in silico mapping strategies to identify genes and pathways involved in the metabolic syndrome. She is also Associate Director, Iowa Institute of Human Genetics and a member of the Fraternal Order of the Eagle's Diabetes Research Center.

Iowa Pharmacology AWARDS

Fisher receives 2013 J.P. Long Teaching Award

Dr. Rory Fisher, Professor of Pharmacology, was selected to receive the 2013 J. P. Long Award for Teaching in the Basic Sciences. The award recognizes outstanding career-level teaching contributions by the basic science faculty. Rory has been an instructor for all of our professional courses and many of our graduate courses, has served as course director, and has served as both graduate and postdoctoral mentor in the laboratory. Ten of his current and former trainees wrote passionate letters of support, an indicator of the confidence he inspires as a mentor. In the closing of his recommendation letter, one colleague, especially familiar with Rory's approach to training, humorously commented, "If there is any flaw in him [Dr. Fisher], it would be the gift of being an individual who is homozygous for an overly active teaching and mentoring gene!"



Congratulations to Dr. Rory Fisher on this award given in honor of Pharmacology's own Dr. J. P. Long!

Usachev and Quelle receive 2012/2013 Excellence in Medical Education Awards



Dr. Dawn Quelle, Associate Professor of Pharmacology (at right), was recognized as an Outstanding Educator at the 2013 Medical Education Celebration Day in the CCOM. Dr. Quelle has played an important role in the teaching mission of the Department for more than a decade. She has contributed to instruction of medical students as both a CBL small group facilitator and a lecturer on the pharmacology of antibiotics, a critical component of our

course for medical students. She consistently receives outstanding evaluations from the medical students for her lectures in this course. In addition to instruction of medical students, Dawn also contributes to our teaching of dental, pharmacy and graduate students. Of particular note, she has been a key contributor to a course that is central to our interdisciplinary training grant in pharmacological sciences, entitled "Advanced Problem Solving in the Pharmacological Sciences." Dawn helped develop the course and devised several of the novel approaches used in the course to promote interactive, small group peer-to-peer teaching. Throughout this period, Dawn has maintained an active laboratory and has provided mentorship and individual instruction to the 5 postdoctoral fellows, 9 graduate students and 24 undergraduates who have worked in her laboratory.

Dr. Yuriy Usachev, Associate Professor of Pharmacology (at right), was honored with an Excellence in Medical Education Award at the 2012 CCOM Medical Education Celebration Day.



The award is for his significant contributions to the teaching mission of the Department of Pharmacology. According to Barry Kasson, Associate Chair for Education, "Yuriy never hesitates when asked to assist with teaching, has taken on several new sets of lectures over the past few years and has even learned, then taught, material that was considerably outside of his domain of expertise. He has done more than his share of lectures for the past several years, always enthusiastically. He has served as a facilitator for small group medical student learning and has lectured in our courses for medical students, dental students, pharmacy students, and PA students. He lectures in several courses for graduate students and directs one of the core courses in our graduate curriculum, contributing a number of lectures in that course." Sigmund remarked that "Even with this citizenship, he has for many years maintained a highly active research program, has maintained and attracted new extramural funding, and has trained several graduate students and post-doctoral fellows in the laboratory. His excellence in teaching in the classroom is paralleled by his excellence in teaching at the laboratory bench."

Iowa Pharmacology AWARDS

Wu Named 2013 Pew Scholar

Dr. Qi Wu, Assistant Professor of Pharmacology, was selected as a 2013 Pew Scholar in the Biomedical Sciences. Wu is one of just 22 scientists nationwide to receive the prestigious four-year, \$240,000 award from the Pew Charitable Trusts. Pew's scholars program is rigorously competitive and supports outstanding early-career scientists researching the basis of perplexing health problems—including diabetes, autism, Parkinson's disease, and cancer. The awards are specifically designed to be flexible in terms of how the money is used, allowing the recipients to take calculated risks, expand their research, and follow unanticipated leads. "I am extremely honored to receive this award from the Pew Charitable Trusts," Wu says. "This award will provide our laboratory the resources to pursue exciting new scientific directions." Wu's lab investigates the regulation of appetite and energy metabolism by the central nervous system (CNS). Uncontrolled intake of calorie-dense foods and lack of physical exercise has contributed to the epidemic of obesity in the United States.



Stewart honored among TAI "Women of Innovation"



Congratulations to Pharmacology Graduate Student **Adele Stewart**, who was named one of The Technology Association of Iowa's Women of Innovation on Nov 25, 2013! She was recognized for her receipt of a pre-doctorate fellowship from the National Pharmaceutical Researchers and Manufacturers Association Foundation.

Previously, Stewart was awarded a prestigious UI Presidential Fellowship (2009-2014) and has authored six published research papers. It is the Association's fifth year presenting "Women of Innovation Awards," which honor 11 Iowa women in 11 different categories. Adele is pursuing her thesis research on the Regulator of G Protein Signaling 6 protein in the laboratory of Dr. Rory Fisher.

Dr. Anne Kwitek, Associate Professor in Pharmacology and Associate Director of the Iowa Institute of Human Genetics was named along with Adele as a finalist in the category of "Research Innovation and Leadership".

Sigmund honored with 2013 Regents Award for Faculty Excellence

Dr. Curt Sigmund, Professor and Chair of Pharmacology (on left), was one of six recipients of a 2013 Regents award given by the Board of Regents, State of Iowa to recognize contributions to public higher education.



Sigmund came to the UI in 1991 as founding director of the UI Transgenic and Gene Targeting Facility, a high technology core service facility for biomedical researchers that has brought an estimated \$10 million in grant funding to the College of Medicine annually. While directing the facility for 21 years, he also established and sustained a vigorous research program on the molecular basis of hypertension. Through innovations including the use of genetically manipulated mice as a platform for studying the physiological genomics of hypertension, he has transformed investigation in the angiotensin and hypertension fields. Many of the dozens of graduate students, postdoctoral fellows, research scientists, and young faculty he has mentored have emerged as academic and scientific leaders. In 2008 Sigmund was named Roy J. Carver Chair in Hypertension Research, and in 2010 he was appointed Chair of the Department of Pharmacology. In 2009 he received the American Heart Association's Novartis Award in Hypertension Research, the preeminent award given in the field.

Grobe named finalist for Goldblatt Award

Dr. Justin Grobe, Assistant Professor of Pharmacology, has been named a finalist for the American Heart Association's Harry Goldblatt Award. Each year, three finalists are selected by the Council for High Blood Pressure Research's Awards Committee.



The Harry Goldblatt Award recognizes a new, independent investigator working in hypertension or cardiovascular research who has significantly contributed to the understanding of the causes of hypertension and related cardiovascular disease.

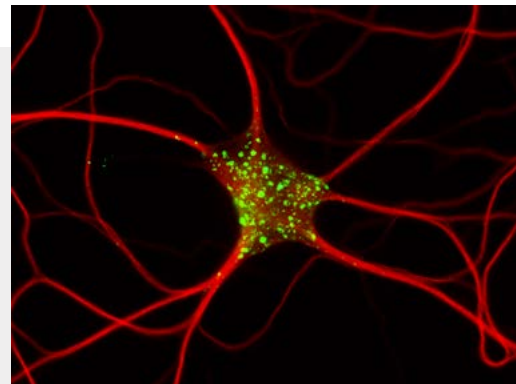
Iowa Pharmacology **NEW FUNDING**

Pharmacology faculty successfully pursue grant funds in challenging economic climate

As the new year begins, the competition for research funding provided by traditional federal sources remains exceedingly intense. Despite these challenging circumstances, Pharmacology faculty have been successful in procuring both NIH funding and grants from alternative sources. Major research awards obtained/renewed in the past year are highlighted here.

Rahmouni receives AHA Established Investigator Award

Dr. Kamal Rahmouni, an Associate Professor in the Departments of Pharmacology and Internal Medicine, has received an Established Investigator Award from the American Heart Association. The project entitled “mTORC1 Signaling in the Hypothalamus and Cardiovascular Regulation” is funded for five years as of January 1, 2014. Dr. Rahmouni is one of just ten scientists nationwide to receive an Established Investigator Award from the American Heart Association this year. Congratulations to Kamal in receiving this distinguished award!



Research team led by Sigmund receives \$10.7 million to study obesity and hypertension

An NIH program project grant, “Genetic and Signaling Mechanisms in the Central Regulation of Blood Pressure,” administrated by Principal Investigator Dr. Curt Sigmund of Pharmacology was successfully renewed in 2013. The grant will fund projects led by nine investigators, including three Pharmacology faculty (Sigmund, Rahmouni, Grobe). In the words of Sigmund, “The project is a great example of successful interdisciplinary research. Our team includes UI researchers from five departments (pharmacology, internal medicine, anatomy and cell biology, pediatrics, and psychology), from two colleges (the Carver College of Medicine and the College of Liberal Arts and Sciences), as well as a fruitful collaboration between the UI and Cornell University.” Congratulations to Sigmund and his team on this major achievement!

Other Pharmacology faculty extramural grant awards (2012–present)

Songhai Chen (Assistant Professor)

DOD, \$339,750, Targeting G Protein Signaling for the Therapeutics of Prostate Tumor Bone Metastases and the Associated Chronic Bone Pain

Rory Fisher (Professor)

NIH, \$1,494,900, Molecular Analysis and Role of RGS6 as a Novel Growth Suppressor

Justin Grobe (Assistant Professor)

NIH Pathway to Independence Research Award, \$731,290, Central Renin-Angiotensin System: Metabolism, Fluid Balance, and Hypertension

American Heart Association, \$150,000, Vasopressin as an Early-pregnancy Initiator of Preeclampsia

American Diabetes Association, \$333,500, Required Interaction of Leptin with Angiotensin in Metabolic Control

Anne Kwitek (Associate Professor)

US Department of Veteran Affairs, \$122,292, Stem Cell-Derived Insulin Producing Cells Correct Hyperglycemia in Diabetic Mice

Matthew Potthoff (Assistant Professor)

Edward Mallinckrodt, Jr. Foundation, \$60,000, A Novel Therapeutic Approach to Combat Obesity and Metabolic Syndrome

American Diabetes Association, \$400,200, Targeting the Transcription Factor Tox as a Therapeutic for Nonalcoholic Fatty Liver Disease

Curt Sigmund (Professor)

Carver Research Program of Excellence, \$500,000, Functional Genomics of Cardiovascular Disease

Stefan Strack (Professor)

NIH, \$1,321,252, Kinase/Phosphatase-mediated Mitochondrial Restructuring in Neuroprotection

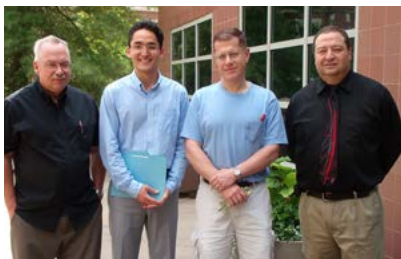
Qi Wu (Assistant Professor)

American Diabetes Association, \$400,200, Functional Analysis of a GABAergic Circuitry in Control of Appetite and Metabolism

Pew Charitable Trusts, \$240,000, Neural Control of Feeding Behavior and Energy Metabolism

Iowa Pharmacology OF SPECIAL NOTE

2012 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 2012 award recipient was Kubat Rahatbek (second from left). Kubat has been a Laboratory Assistant in Dr. Yuriy Usachev's (third from left) lab since the spring of 2011. He is majoring in Health and Human Physiology and on track to graduate in May. Since receiving the Skolnick award, Kubat was also awarded a highly competitive Summer Research Internship at Washington University in St. Louis, and did research there this past summer. He is currently awaiting decisions on applications to medical schools, including that of the University of Iowa. Congratulations and good luck Kubat!



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.

DR. ANN BONHAM RECEIVES CCOM DISTINGUISHED ALUMNI AWARD

Ann Bonham ('86 Ph.D. Pharmacology), a former graduate student in the College of Pharmacy and a Pharmacology graduate student in the laboratory of Dr. Michael J. Brody, received the University of Iowa Carver College of Medicine Distinguished Alumni Award on June 8, 2012. Dr. Bonham is an accomplished investigator, respected academic leader, trusted mentor to scientists and junior faculty, and ardent champion to women in research. At the University of California, Davis, her studies of central nervous system regulation of cardiovascular and respiratory functions received more than 16 years of continuous National Institutes of Health funding. As the Chair of the Pharmacology Department and subsequently as the Executive Associate Dean of the UC-Davis School of Medicine, she guided her institution in multiple areas, helping to establish a school of nursing and to secure one of the first NIH Clinical and Translational Science Awards. In her current role as chief scientific officer for the Association of American Medical Colleges, she remains a strong advocate for research and research training. Please join us in congratulating Dr. Bonham!



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 either the

Department of Pharmacology Development Fund:

www.givetoiowa.org/pharmacology

or

John Paul Long Chair in Pharmacology Fund:

www.givetoiowa.org/jplong

CONTACT US

To mail a gift or receive more information about giving please contact:

University of Iowa Foundation
P.O. Box 4550
Iowa City, Iowa 52244-4550
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OUR APPRECIATION

We thank those of you who have already made generous contributions to Iowa Pharmacology!

UPCOMING EVENTS:

Pharmacology Seminar - Feb 25

Elias Aizenman, Ph.D.
Professor, Neurobiology
Johns Hopkins University

Pharmacology Seminar - Mar 4

JoAnn Trejo, Ph.D.
Professor, Pharmacology
UCSD

Pharmacology Faculty Forum - Mar 13

Patrick M. Schlievert
Ph.D., DEO and Professor
Microbiology, University of
Iowa

Pharmacology Seminar - Apr 1

Catherine Kotz, Ph.D.
Professor, Geriatric Research
Education and Clinical Care
University of Minnesota

Pharmacology Faculty Forum - Apr 10

Brad A. Amendt
Ph.D., Professor
Anatomy and Cell Biology
University of Iowa

Pharmacology Seminar - Apr 15

David E. Nichols, Ph.D.
Emeritus Professor
Medicinal Chemistry and
Molecular Pharmacology
Purdue University

Pharmacology Seminar - May 6

Michael H. Alderman, M.D.
Distinguished University
Professor Emeritus
Epidemiology and Population
Health Albert Einstein
College of Medicine

Department Research Retreat - May 8

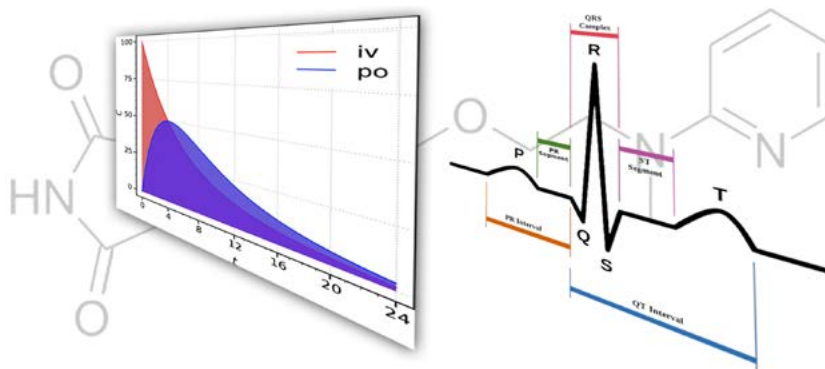
Park Lodge at Terry
Trueblood Recreation Area
Iowa City, IA

Pharmacology Seminar - May 13

Ajay Chawla, M.D., Ph.D.
Associate Professor
Cardiovascular Research
Institute, UCSF



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