

# ASPET 2009 Program

**Saturday, April 18**

**12:30 - 3:00 PM**

## **2009 Teaching Institute: Threading New Concepts into Existing Curriculum: Experiences with Genomics**

Chair: George A. Dunaway

Convention Center, Room 207

Curricular threads in medical school curricula.

**Phillip R. Musich**, *East Tennessee State University*

Experience with introduction of genomics into medical biochemistry.

**Phillip R. Musich**, *East Tennessee State University*

Experience with introduction of genomics into medical pharmacology.

**George A. Dunaway**, *Southern Illinois University*

Development and use of clinical scenarios to introduce pharmacogenomics.

**George A. Dunaway**, *Southern Illinois University*

Resources for learning and curricular integration of genomics.

**Phillip R. Musich**, *East Tennessee State University*

## **Diversity Committee Symposium: ASPET Travel Fellows: Lessons Learned Along the Way:**

### **Career Choices from Past Travel Awardees**

Chairs: Gonzalo E. Torres and Dolores Shockley

Convention Center, Room 208

The goal of this symposium is to present and discuss career options taken by past fellows and travel awardees. The stories are of scientists who made the decision to either stay in academia or leave academic research and forged paths to alternative career options related to science. These stories will focus on how these scientists got to where they are today and what they have learned along the way. After the talks, there will be an open session with questions and discussion from the audience.

Career options in science.

**Gonzalo E. Torres**, *University of Pittsburgh*

A career path outside the bench as a medical science liaison.

**Shola Adewale**, *Eisia Inc.*

Scientific regulatory and policy writing in the government: Desktop, an alternative to benchtop.

**Michelle D. Walker**, *Drug Enforcement Administration*

Career opportunities in biomedical research: The academic perspective.

**Chantal A. Rivera**, *Louisiana State University Health Sciences Center*

Closing remarks

**Dolores C. Shockley**, *Meharry Medical College*

**Saturday, April 18**  
**3:15 - 5:45 PM**

**Graduate Student-Postdoctoral Colloquium: Mentoring: It Goes Both Ways**

Chair: Sarah H. Lindsey  
Convention Center, Room 209

The success of graduate or post-graduate research experiences depends largely on a positive relationship between the trainee and mentor. This colloquium, based on a program developed by Chris Pfund at the Wisconsin Program for Scientific Teaching, is focused on helping participants improve the efficiency and effectiveness of their current mentor/mentee relationship and learn how to become effective research mentors themselves. Discussions will focus on different mentoring styles and strategies for developing confidence and independence, establishing expectations and improving communication skills.

Entering mentoring: Learning to become an effective research mentor.

**Chris E. Pfund**, *University of Wisconsin Program for Scientific Teaching*

Session 1: Learning to communicate

Session 2: Goals and expectations

Session 3: The elements of good mentoring

Pulling it all together: Pharmacologists helping pharmacologists.

**Stephanie Watts**, *Michigan State University*

**Sunday, April 19**  
**8:50 - 9:20 AM**

**Ray Fuller Lecture in the Neurosciences**

Convention Center, Room 206  
Introduction. Joe A. Beavo

**Henry A. Lester**, *Caltech*  
**Changes in the Brain During Chronic Exposure to Nicotine**

**Sunday, April 19**  
**9:30 - 12:00 PM**

**RAY FULLER SYMPOSIUM: Mechanisms of Nicotine Addiction**

Chair: Henry A. Lester  
Convention Center, Room 206

**Preceded by the [Ray Fuller Lecture in the Neurosciences](#)**

Genome-wide association scans and candidate genes in nicotine addiction.

**Laura S. Bierut**, *Washington University*

Signal transduction pathways in nicotine addiction.

**Darlene Brunzell**, *Virginia Commonwealth University*

The Ubiquitin-proteasome pathway in nicotine addiction.

**Mariella De Biasi**, *Baylor College of Medicine*

Imaging studies of neural substrates in nicotine addiction.

**Edythe D. London**, *UCLA*

## **Workshop: Integrating Basic Sciences and Patient Care in a Core Clerkship Curriculum**

(Sponsored by the Divisions for Pharmacology Education; Cardiovascular Pharmacology; and Systems & Integrative Pharmacology)

Chair: Amy Wilson-Delfosse

Convention Center, Room 208

Integrating basic and clinical sciences in the post-gateway era.

**Frazier Stevenson**, *UC, Davis*

Building integration in a new medical school: University of Central Florida College of Medicine.

**Lynn M. Crespo**, *University of Central Florida*

Integrating basic sciences and patient care in Western Reserve2.

**Amy L. Wilson-Delfosse**, *Case Western Reserve University*

Design of an integrative case: Small Group Discussions

Discussants: **Amy Wilson-Delfosse**, *Case Western Reserve University*

**James P. Bruzik**, *Case Western Reserve University*

**Lynn M. Crespo**, *University of Central Florida*

**Frazier Stevenson**, *UC, Davis*

Small group presentations and panel discussion.

## **AMPK as a Novel Therapeutic Approach for the Treatment of Metabolic Disorders and Heart Disease**

(Sponsored by the Division for Cardiovascular Pharmacology and ASBMB)

Chairs: Kenneth B. Walsh and Benoit Viollet

Convention Center, Room 207

Targeting AMPK as a novel therapeutic approach for the treatment of metabolic disorders.

**Benoit Viollet**, *University of Paris*

Cardioprotective effects of adiponectin are mediated in part through AMPK.

**Kenneth Walsh**, *Boston University School of Medicine*

AMPK activation as a strategy for protecting vascular endothelial function.

**Ming-Hui Zou**, *University of Oklahoma Health Science Center*

AMPK activation projects the failing diabetic heart.

**David J. Lefer**, *Emory University*

Adiponectin induces vascular smooth muscle cell differentiation via AMPK (Abstract 577.11)

**M. Ding, R.J. Wagner, K.M. Fetalvero, Z. Kasza, R.J. Powell, K.A. Martin**, *Dartmouth College*

Metabolic and structural remodeling of heart-derived H9c2 cells by AMPK activation (Abstract 577.10)

**J.M. Dai, R. Saeedi, V. Sharma, V. Saran, H. Parsons, J. Dyck, M. Allard**, *University of British Columbia & University of Alberta*

## **Advances in Down Syndrome Neuroscience Research: Implications for Alzheimer's Disease, Dementias and Other Cognitive Disorders**

(Sponsored by the Divisions for Neuropharmacology; Behavioral Pharmacology; Drug Discovery, Drug Development, & Regulatory Affairs; Molecular Pharmacology; and Systems & Integrative Pharmacology)

Chairs: Tim A. Esbenshade and Alberto Costa

Convention Center, Room 210

Down syndrome: A genetic disorder in biobehavioral perspective.

**Lynn Nadel**, *University of Arizona*

Human chromosome 21/Down syndrome gene function: Implications for cognitive development and Alzheimer's disease.

**Kathleen Gardiner**, *University of Colorado Denver in Aurora*  
Structural and functional changes at the synapse associated with Down syndrome and Alzheimer's disease

**Craig C. Garner**, *Stanford University*  
Evidence for NMDA receptor dysfunction in Down Syndrome: implications for a potential pharmacotherapy

**Alberto Costa**, *University of Colorado Health Sciences Center*

## **A Renaissance in Marine Pharmacology: Preclinical Curiosity to Clinical Reality**

(Sponsored by the Divisions for Drug Discovery, Drug Development & Regulatory Affairs and Systems & Integrative Pharmacology)

Chairs: Keith B. Glaser and Alejandro M. Mayer

Convention Center, Room 209

Marine-sourced secondary metabolites as leads to drugs.

**David J. Newman**, *NCI, Frederick*

A fresh pipeline of marine natural product leads for the control of neuroinflammation and depression

**Mark M. Hamann**, *Triton Biopharma*

*Conus* peptides: How snail compounds can win the race.

**J. Michael McIntosh**, *University of Utah*

Harnessing marine natural products for drug discovery: Pragmatic marine microbiology.

**Guy T. Carter**, *Wyeth Research*

The pseudopterosins – Investigation into their mode of action.

**Claudia E. Moya**, *University of California, Santa Barbara*

The global marine pharmacology pipeline: Compounds with anti-infective, immune, anti-inflammatory and CNS activity.

**Alejandro M. Mayer**, *Midwestern University*

**Sunday, April 19**

**2:00 - 2:50 PM**

### **IUPHAR Lecture**

Convention Center, Room 206

Introduction: S.J. Enna

## **Seven Transmembrane Receptors**

**Robert J. Lefkowitz**, *Duke University*

**Sunday, April 19**

**3:00 - 5:30 PM**

## **Metabolomics in the Search for Biomarkers for Human Diseases**

(Sponsored by the Divisions for Clinical Pharmacology, Pharmacogenomics & Translational Medicine; Drug Metabolism; Molecular Pharmacology; and ASBMB)

Chairs: Frank J. Gonzalez and Richard B. Kim

Convention Center, Room 207

Metabolite profiling.

**Oliver Fiehn**, *University of California, Davis*

Metabolomics identifies perturbations in human disorders of propionate metabolism.

**William R. Wikoff**, *The Scripps Research Institute*  
Metabolomics in biomarker discovery: Future uses for cancer prevention.

**Young Kim**, *NCI, NIH*  
Pharmacometabolomics

**Andrew D. Patterson**, *NCI, NIH*  
LC-MS-based metabolomics of acetaminophen-induced acute toxicity (Abstract 760.4)

**C. Chen, K.W. Krausz, Y.M. Shah, J.R. Idle, F.J. Gonzalez**, *University of Minnesota, St. Paul and NCI, NIH, and Charles University, Czech Republic*

### **The Serotonin Transporter: Not Just for Neurons Anymore**

(Sponsored by the Divisions for Cardiovascular Pharmacology; Clinical Pharmacology  
Chair: A. Elizabeth Linder and Stephanie W. Watts  
Convention Center, Room 206

Plasma serotonin levels and the platelet serotonin transporter.

**Fusun Kilic**, *University of Arkansas for Medical Sciences*  
5-HT, 5-HT receptors and SERT in the pulmonary circulation.

**Barry L. Fanburg**, *Tufts University School of Medicine*  
5-HT uptake in the peripheral vasculature: Focus in veins.

**A. Elizabeth Linder**, *Michigan State University*  
A role for 5-HT in the immune response.

**John Gordon**, *University of Birmingham, United Kingdom*

Beyond Prozac: generation and characterization of SSRI insensitive transgenic mice (Abstract 942.7)

**B.J. Thompson, T. Jessen, L.K. Henry, K.L. Gamble, P.J. Chisnell, D.G. McMahon, R.D. Blakeley**,  
*Vanderbilt University*

Chronic serotonin infusion leads to prolonged fall in blood pressure in the spontaneously hypertensive rat (Abstract 932.2)

**R.P. Davis, T. Szasz, E. Linder, R. Burnett, S.W. Watts**, *Michigan State University*

### **Generating Proteomic Diversity in Xenobiotic Biotransformation with Alternative RNA Splicing**

(Sponsored by the Divisions for Toxicology; Drug Metabolism; and Molecular Pharmacology)

Chair: Curt J. Omiecinski

Convention Center, Room 208

Genome wide analysis and heritability of alternatively spliced transcripts in humans.

**Jacek Majewski**, *McGill University*

Small molecule approaches for dissecting the structure and function of the RNA spliceosome.

**Melissa S. Jurica**, *UC, Santa Cruz*

Correcting aberrant splicing patterns in human disease genes with cell penetrating morpholino oligonucleotides.

**Patrick L. Iverson**, *AVI Biopharma, Inc.*

Aberrant splicing of human P450 genes as a modifier of drug and chemotherapeutic metabolism.

**Ulrich M. Zanger**, *Dr. Margarete Fischer-Bosch Inst of Clinical Pharmacology, Stuttgart*

Alternative splicing of the human xenoreceptor, CAR, results in distinct receptor subtypes with unique biological activities.

**Curt J. Omiecinski**, *Penn State University*

### **Emerging Approaches to Treatment of Alzheimer's Disease**

(Sponsored by the Divisions for Behavioral Pharmacology; Drug Discovery, Drug Development & Regulatory Affairs; Neuropharmacology; and Systems & Integrative Pharmacology)

Chairs: Randy Strong and Greg A. Gerhardt

Convention Center, Room 210

Current status of treatment of Alzheimer's and related neurodegenerative diseases.

**Randy Strong and Greg A. Gerhardt**, *University of Texas Health Science Center Barshop Institute for Longevity & Aging*

*Studies & University of Kentucky*

Understanding angiogenic dysregulation in Alzheimer's disease: opening the door for new therapeutic strategies in AD.

**Gregory A. Jicha**, *University of Kentucky*

Pathways of amyloid-beta toxicity: Potential novel targets for intervention in Alzheimer's disease.

**Veronica Galvan**, *The Buck Institute for Aging Research*

The effect of anti-A $\beta$  interventions on tau pathology.

**Salvatore Oddo**, *University of Texas Health Science Center, San Antonio*

Steroid hormone receptor signaling and Alzheimer's disease.

**Meharvan Singh**, *University of North Texas Health Science Center, Fort Worth*

## Pharmacology Education Division Workshop: Using Human Patient Simulators to Enhance Pharmacology Education Throughout the Undergraduate Medical Curriculum

Chair: John L. Szarek

Simulation has been a mainstay in graduate medical education, but only recently has it become more common in undergraduate medical education. This workshop will help pharmacology faculty learn how simulation using patient simulators can be used as part of their repertoire of learning modalities for medical students in the first two years and beyond. The workshop will include didactic and hands-on activities on simulation modalities, the rationale for the use of simulation, simulation as a complement to the basic science curriculum, and scenario construction and debriefing.

Hands on experience using a human patient simulator.

Facilitators: **John L. Szarek**, *AT Still University* and **Robert J. Theobald, Jr.**, *AT Still University, Kirksville, MO*

The rationale for the use of simulation as a complement to the basic science curriculum.

**John L. Szarek**, *AT Still University*

Scenario construction and debriefing.

**Susan Pasquale**, *University of Massachusetts Medical School*

Adoption and implementation strategies (and coping strategies for dealing with barriers) that could be used to support using simulation for teaching pharmacology throughout the undergraduate curriculum.

**William B. Jeffries**, *Creighton University School of Medicine*

**Sunday, April 19**  
**3:30 - 6:30 PM**

## Membrane Proteins as Drug Targets

(Organized by ASBMB and co-sponsored by ASPET)

Chair: W.A. Henderson

Convention Center, Room 352

Crystal structure of SGLT reveals mechanisms of Na<sup>+</sup>/sugar co-transport (Abstract 92.1)

**J. Abramson**, *UCLA*

Filling the gap: a streamlined approach for monitoring expression and purification of membrane proteins with a periplasmic C-terminus via GFP fluorescence (Abstract 698.4)

**J.M. Hsieh, G.C. Mercado, H-Q. Bui, J. Abramson**, *UCLA*

Pharmacological probes for AMPA receptors (Abstract 92.2)

**P.M. England, UCSF**

Crystal structure of the murine voltage dependent anion channel 1 at 2.3 Å resolution (Abstract 698.5)

**R. Ujwal, D. Cascio, J-P. Colletier, S. Faham, J. Zhang, L. Toro, P. Ping, J. Abramson, UCLA**  
Phenylalanine 508 forms an intra-domain contact crucial for CFTR folding and dynamics (Abstract 698.7)

**BA.W.R. Serohijos, R. Hegedus, A. Aleksandrov, L. He, L. Cui, J.R. Riordan, N.V. Dokholyan,**  
*University of North Carolina*  
*at Chapel Hill*

Cys-loop ion channels and G-protein coupled receptors as targets for structure-inspired drug discovery (Abstract 92.3)

**W.A. Hendrickson, HHMI, Columbia University**

**Monday, April 20**

**8:30 - 9:20 AM**

### **JULIUS AXELROD LECTURE**

Convention Center, Room 206

Introduction: Susan G. Amara

### **Miscarriage at the Synapse: Brain Disorder-associated Deficits in MembraneTransport**

**Randy D. Blakely, Vanderbilt University**

**Monday, April 20**

**9:30 - 12:00 PM**

### **JULIUS AXELROD SYMPOSIUM: The Neurotransmitter End Game: Structure, Function and Regulation of Neurotransmitter Transport**

Chairs: Randy D. Blakely and Maureen K. Hahn

Convention Center, Room 206

**Preceded by the [Julius Axelrod Lecture](#)**

The end of cannabinoids as we know it: Molecular control of anandamide inactivation.

**Eric L. Barker, Purdue School of Pharmacy**

Cocaine (target) trafficking: Dopamine transporters.

**Haley E. Melikian, University of Massachusetts Medical School**

Hugging Prozac: How serotonin transporters recognize antidepressants.

**L. Keith Henry, University of North Dakota School of Medicine and Health Sciences**

Reading the labels: How phosphorylation modifies serotonin transport.

**Sammanda Ramamoorthy, Medical University of South Carolina**

Nothing sweeter than DAT: How insulin controls the dopamine transporter.

**Aurelio Galli, Vanderbilt University**

### **Regenerative Pharmacology: The New Pharmacology**

Sponsored by the Divisions for Pharmacology Education and Systems & Integrative Pharmacology; Drug Discovery, Drug Development & Regulatory Affairs)

Chairs: George J. Christ and Jack W. Strandhoy

Convention Center, Room 209

Introduction: State of regenerative pharmacology.

**George J. Christ, Wake Forest University Baptist Medical Center**

Drug delivery technologies for regenerative pharmacology.

**Grace Lim**, *Kyunpook National University, Korea*

Bio-inductive scaffolds and regenerative nanomaterials for tissue engineering.

**Mark A. Van Dyke**, *Wake Forest University Baptist Medical Center*

Tubular cardiovascular engineering: Developmental pharmacology of muscle, vessel and valves.

**Richard L. Goodwin**, *University of South Carolina*

Regeneration of a complete urinary bladder with an autologous neo-bladder replacement construct - structural, functional and pharmacological characterization.

**Tim Bertram**, *Tengion, Inc.*

## **MicroRNAs as Biological Effectors and as Pharmacological Targets in the Cardiovascular System**

(Sponsored by the Divisions for Molecular Pharmacology; Clinical Pharmacology, Pharmacogenomics & Translational Medicine; Cardiovascular Pharmacology; Drug Discovery, Drug Development & Regulatory Affairs; Systems & Integrative Pharmacology; and ASBMB)

Chair: J. David Port

Convention Center, Room 207

Role of miR-208 in regulating the expression of myosin heavy chain genes.

**Eva van Rooij**, *University of Texas Southwestern Medical Center*

Correlation between miRNA and mRNA expression in heart failure.

**J. David Port**, *University of Colorado Health Science Center*

miRNA regulation of angiotensin receptor expression.

**Terry Elton**, *The Ohio State University*

miR and mRNA profiles in clinical and experimental heart disease

**Gerald W. Dorn II**, *Washington University*

## **The Role of Nuclear Receptors in Lipid Homeostasis**

(Sponsored by the Divisions for Toxicology; Clinical Pharmacology, Pharmacogenomics & Translational Medicine; Cardiovascular Pharmacology; and Drug Metabolism)

Chair: Jean-Marc Pascussi and Curt J. Omiecinski

Convention Center, Room 208

Nuclear receptor regulation of bile acid homeostasis.

**John Chiang**, *Northeastern Ohio Universities College of Medicine*

Farnesoid X receptor modulates renal lipid metabolism, fibrosis, and diabetic nephropathy.

**Moshe Levi**, *University of Colorado Health Sciences Center*

The nuclear receptor CAR and its role in energy homeostasis.

**Jodi Maglich**, *Pfizer Global R & D*

Crosstalk of CAR and PXR activation as an effector of lipid metabolism and glucose homeostasis.

**Jean-Marc Pascussi**, *INSERM U632, Montpellier, France*

## **The Role of Insulin and Leptin in Drug Addiction and Mood**

(Sponsored by the Divisions for Behavioral Pharmacology; Neuropharmacology; and Systems & Integrative Pharmacology)

Chairs: Charles P. France and Lynette C. Daws

Convention Center, Room 210

Insulin, leptin, and food reward.

**Dianne P. Figlewicz Lattemann**, *University of Washington Health Science Center*

The role of leptin signaling in emotional behavior.

**Xin-Yun Lu**, *University of Texas Health Science Center at San Antonio*

DAT depends on what you eat: Neurochemical and behavioral effects of amphetamine are dependent on insulin status.

**Lynette C. Daws**, *University of Texas Health Science Center at San Antonio*



The role of leptin on human body weight regulation, endocrine function, and neurobehavioral outcomes.  
**Gilberto Paz-Filho**, *University of Miami School of Medicine*

**Monday, April 20**

**9:55 - 12:30 PM**

## **Tyrosine Kinases in Cancer**

(Organized by ASBMB and co-sponsored by ASPET)

Chair: M.A. Lemmon

Convention Center, Room 357

Tyrosine kinase mechanisms and pathways (Abstract 198.1)

**P. Cole**, *Johns Hopkins University*

Significance of activation loop phosphorylation in protein kinase A studied by H/D exchange and X-ray crystallography (Abstract 709.9)

**J.M. Steichen, M.P. Kuchinskas, G.H. Iyer, S. Li, V.L. Woods, S.S. Taylor**, *UCSD*

Negative cooperativity in the EGF receptor (Abstract 198.2)

**L.J. Pike**, *Washington University School of Medicine*

Rotation/twist model of the EGF/ErB receptor family activation (Abstract 884.3)

**I.N. Maruyama**, *Okinawa Institute of Science and Technology*

ErbB2/HER2/Neu resembles an autoinhibited invertebrate EGF receptor (Abstract 884.3)

**D. Alvarado, D.E. Klein, M.A. Lemmon**, *University of Pennsylvania School of Medicine*

Structural aspects of extracellular ECFR signaling (Abstract 198.3)

**K.M. Ferguson**, *University of Pennsylvania School of Medicine*

**Monday, April 20**

**2:30 - 5:30 PM**

## **Cardiovascular Pharmacology Division Junior Scientists' Competition and Benedict R. Lucchesi Distinguished Award Lecture in Cardiac Pharmacology**

Chairs: Brandon T. Larsen, Erin R. Harleton, and Biny K. Joseph

Convention Center, Room 210

Introduction and recognition of applicants

**Brandon T. Larsen**, *Medical College of Wisconsin*

*Graduate Student Presentations*

Antiarrhythmic drug induced internalization of the atrial specific K<sup>+</sup> channel, Kv1.5

**S.M. Schumacher**, *University of Michigan (Advisor: J.R. Martens)*

Cardiac myocyte-specific caveolin-3 overexpression modulates ANP production and attenuates cardiac hypertrophy in vivo

**Y. Horikawa**, *UCSD (Advisor: D.M. Roth)*

Thromboxane synthase inhibition blunts the development of pulmonary hypertension and vascular remodeling in hypoxic neonatal piglets

**D.K. Hirehallur-S.**, *University of Arkansas for Medical Science (Advisor: N.J. Rusch)*

Insulin inhibits low pO<sub>2</sub>-induced ATP release from human erythrocytes (RBCs): Implications for vascular control in pre-diabetes

**M. Hanson**, *St. Louis University (Advisor: R. Sprague)*

*Postdoctoral Scientist Presentations*

Intracellular calcium silences L-type CA<sub>2</sub><sup>+</sup> channels in rat small mesenteric veins

**K. Thakali**, *University of Arkansas for Medical Science (Mentor: N.J. Rusch)*

GPR30 activation in salt-sensitive mRen2.Lewis females induces beneficial effects independent of alterations in blood pressure

**S.H. Lindsey**, *Wake Forest University School of Medicine (Mentor: M.C. Chappell)*

Graduate Student Runner-up Posters

Posters will be displayed by the three primary runners-up selected on Sunday, April 19 at the Graduate Student-Postdoc Best Abstract Competition

Postdoctoral Scientist Runner-up Poster

Engineered HGF/SF variants promote angiogenesis

**S. Roy**, *Harvard-MIT Division of Health Science and Technology (Mentor: S. Sengupta)*

**Benedict R. Lucchesi Distinguished Award Lecture in Cardiac Pharmacology:** Regulation of cardiac hypertrophy and heart failure through Gq, calcium & CaM kinase II

**Joan Heller Brown**, *UCSD*

**4:30 - 5:30 pm**

**Monday, April 20**

**3:00 - 5:30 PM**

**Behavioral Pharmacology Division Symposium: Pharmacological Imaging in Behavioral Pharmacology and Drug Development**

Chairs: Leonard L. Howell and Mike A. Nader  
Convention Center, Room 207

Pharmacological MRI in awake rats: application for drug discovery and development.

**Chih-Liang Chin**, *Abbott Laboratories*

Pharmacological MRI studies of the dopaminergic system in rhesus monkeys.

**Zhiming Zhang**, *University of Kentucky*

Functional neuroimaging and cocaine medication development in nonhuman primates.

**Leonard L. Howell**, *Emory University*

PET studies of stimulant drugs in humans.

**Joanna S. Fowler**, *Brookhaven National Laboratories*

**Drug Discovery, Development and Regulatory Affairs Division Symposium: New Insights into Pain Signaling Pathways**

Chairs: Anindya Bhattacharya and Mike F. Jarvis  
Convention Center, Room 208

Cannabinoid receptor signaling.

**Kenneth Mackie**, *Indiana University;*

Nav1.7 sodium channels: role in pain mechanisms and targeting by neurotoxins.

**Theodore R. Cummins**, *Indiana University-Purdue University School of Medicine;*

Neuro-glial interactions in pain states: opportunities for novel drug targets.

**Joyce A. Deleo**, *Dartmouth Medical School;*

Calcitonin gene-related peptide (CGRP) receptor antagonists for migraine - challenges and promises.

**Christopher Salvatore**, *Merck Research Laboratories*

GTP cyclohydrolase, tetrahydrobiopterin and pain.

**Michael L. Costigan**, *Harvard Medical School*

**Molecular Pharmacology Division Postdoctoral Award Finalists**

Chair: Michel Bouvier

Convention Center, Room 206

Protein kinase A and Epac are pro- and anti-apoptotic mediators, respectively, in chronic lymphocytic leukemia

**F. Murray**, *UCSD (Advisor: P. Insel)*

Regulation of AGS3 and G<sub>α</sub> 1 interaction in living cells.

**S.S. Oner**, *Medical University of South Carolina (Advisor: S. Lanier)*  
PKC  $\alpha$  regulation of TRPM2 channel activation of Ca<sup>2+</sup> entry in endothelial cells.

**C. Hecquet**, *University of Illinois at Chicago (Advisor: A. Malik)*

**Keynote Lecture:** Ligand-biased signaling: Exploring the molecular determinants of the multiple dimensions of drug efficacy

**Michel M. Bouvier**, *University of Montréal*

## **Toxicology Division Symposium: The Nrf2-Keap1 System: An Emerging Key Regulator in the Defense Against Oxidative Stress, Chemical Toxicity and Disease**

Chair: Qiang Ma and Masayuki Yamamoto  
Convention Center, Room 209

Nrf2: Key to defense against oxidants, electrophiles, radiation and inflammation.

**Paul Talalay**, *Johns Hopkins School of Medicine*

Environmental lung disease and the role of Nrf2.

**Steven R. Kleeberger**, *NIEHS, NIH, Research Triangle Park, NC*

Defense against toxic metals and hyperglycemia by Nrf2.

**Qiang Ma**, *NIOSH, CDC*

Nrf1 and Nrf2 interplay in regulation of stress response.

**Jefferson Y. Chan**, *University of California-Irvine, School of Medicine*

**Keynote Address:** Molecular basis for the Nrf2-Keap1 system function.

**Masayuki Yamamoto**, *Tohoku University School of Medicine, Sendai, Japan*

**Tuesday, April 21**

**8:00 - 10:00 AM**

## **ASPET's Women in Pharmacology Committee and APS' Women in Physiology Committee Workshop: Pathways to Leadership: Developing Critical Skills**

Chairs: Andria Lee del Tredici, Holly Brevig, Barbara Alexander  
Convention Center, Room 346

Opportunity knocks...(Should I answer?)

**Kimberly E. Vanover**, *Intra-Cellular Therapeutics, Inc.*

Surviving hurricane Katrina and embracing new challenges.

**Patricia Molina**, *LSU Health Science Center, New Orleans*

Pleasures and perils of joint appointments

**Alice M. Young**, *Texas Tech University Health Science Center*

The long and winding road of career development

**Lois D. Lehman-McKeeman**, *Bristol-Myers Squibb*

**Tuesday, April 21**

**8:30 - 9:20 AM**

## **TORALD SOLLMANN LECTURE**

Convention Center, Room 206

Introduction: Joe A. Beavo

## **Mentors, Methods and Manuscripts**

**S. J. Enna**, *University of Kansas Medical Center*

**Tuesday, April 21**  
**9:30 - 12:00 PM**

### **All Presidents' Symposium on Integrative Pharmacology**

(Sponsored by all ASPET Divisions)

Chair: Dennis C. Marshall and Bill W. Fleming

Convention Center, Room 206

From integrative to molecular pharmacology and back.

**Elaine Sanders-Bush**, *Vanderbilt University Medical Center*

Integrative pharmacology: The validation of biochemical and molecular findings.

**Sam J. Enna**, *University of Kansas Medical Center*

Experimental basis of integrative pharmacology.

**David B. Bylund**, *University of Nebraska Medical Center*

Integrative pharmacological models in understanding neuroplasticity.

**James E. Barrett**, *Drexel University College of Medicine*

Integrative pharmacology: Oxidative stress, gender and aging.

**Sue P. Duckles**, *University of California-Irvine, College of Medicine*

### **Exposure to Environmental Agent Alters Epigenetic Homeostasis**

(Sponsored by the Divisions for Toxicology and Drug Metabolism)

Chairs: Max Costa and Mary E. Vore

Convention Center, Room 208

Chromatin remodeling by chromium.

**Alvaro Puga**, *University of Cincinnati*

Differentiation of ES cells induced by epigenetic regulation of Pax6.

**Luo Lu**, *UCLA*

Epigenetic effects of nickel exposure.

**Max Costa**, *New York University School of Medicine*

Identifying genome-wide DNA methylation patterns and histone modifications in response to benzo[a]pyrene exposure.

**David I. Rodenhiser**, *University of Western Ontario*

Programming ontogenic expression of P450 genes in mouse liver development by epigenetic mechanisms.

**Xiao-Boo Zhang**, *University of Kansas Medical Center*

### **Discovery and Development of Oligonucleotide Therapeutics**

(Sponsored by the Divisions for Drug Discovery, Drug Development & Regulatory Affairs and Molecular Pharmacology)

Chair: Tom J. Parry

Convention Center, Room 207

Oligonucleotide therapeutics: Past, present and future.

**James D. Thompson**, *Quark Pharmaceuticals, Inc.*

Special issues in the discovery and development of RNAi therapeutics.

**Pamela A. Pavco**, *RXi Pharmaceuticals, Inc., Worcester, MA*

Progress in developing siRNAs as drugs. **Christina Gamba-Vitalo**, *Alnylam Pharmaceuticals*

Pharmacokinetics of oligonucleotide therapeutics.

**Patrick L. Iversen**, *AVI BioPharma, Inc., Corvallis, OR*

## Targeting Drug Metabolizing Enzymes for Effective Chemopreventive Approaches

(Sponsored by the Divisions for Drug Metabolism; Clinical Pharmacology, Pharmacogenomics & Translational Medicine; Drug Discovery, Drug Development & Regulatory Affairs; Systems & Integrative Pharmacology; and Toxicology)

Chairs: Hollie Swanson and Emily E. Scott

Convention Center, Room 209

Inhibitors of cytochrome P45017 alpha as agents for prostate cancer therapy.

**Vincent C. Njar**, *University of Maryland School of Medicine*

Chemoprevention of PAH-dependent transplacental cancer in a mouse model: Role of Cyp1b1

**David Williams**, *Oregon State University*

Targeting Nrf2, phase I and phase II metabolizing enzymes for effective chemoprevention strategies.

**Ah-Ng Tony Kong**, *Rutgers University School of Pharmacy*

Cytochrome P450 prodrugs in cancer therapy - Targeting tumor cells and tumor-associated endothelial cells.

**David J. Waxman**, *Boston University*

## Receptor Signaling and Regulation in Neuropsychiatric Research

(Sponsored by the Divisions for Neuropharmacology; Behavioral Pharmacology; Molecular Pharmacology; and ASBMB)

Chair: Laura M. Bohn

Convention Center, Room 210

Fine tuning receptor responsiveness.

**Marc G. Caron**, *Duke University Medical Center*

When two receptors become three.

**Lakshmi Devi**, *Mount Sinai School of Medicine*

Serotonin receptor signaling via  $\beta$ -arrestins.

**Laura M. Bohn**, *The Scripps Research Institute, Jupiter, FL*

Dopamine receptor signaling via  $\beta$ -arrestins.

**Martin Beaulieu**, *University of Laval*

Characterization of sorting nexin-25, a D<sub>1</sub> and D<sub>2</sub> dopamine receptor interacting protein that regulates receptor expression and trafficking in HEK293 cells.

**R.B. Free; Y. Namkung, L.A. Hazelwood, D.M. Cabrera, D.R. Sibley**, *NINDS, NIH*

**Tuesday, April 21**

**2:00 - 5:30 PM**

## Drug Metabolism Division Early Career Achievement Award Lecture and Platform Session: Biotransformation and Drug Transport

Chairs: Thomas Kocarek and Jeffrey Stevens

Convention Center, Room 209

**Early Career Achievement Award Lecture:** Nuclear receptors in drug metabolism: A decade of orphan brother actions.

**Xie Wen**, *University of Pittsburgh*

Contribution of the N-glucuronidation pathway to the overall in vitro metabolic clearance of midazolam in humans (Abstract 372.1)

**S. Klieber, S. Hugla, R. Ngo, C. Arabeyre-Fabre, V. Meunier, F. Sadoun, O. Fedeli, M. Rival, M. Bourrie, F. Guillou, P. Maurel, G. Fabre**, *Sanofi-Aventis, Montpellier and Toulouse and INSERM U632, Montpellier*

Kinetics and molecular interactions in the rapid disulfation of raloxifene by human sulfotransferase 1E1

(Abstract 750.8)

**I.T. Cook, S.N. Kadlubar, C.N. Falany**, *University of Alabama at Birmingham and University of Arkansas for Medical Science*

A cytochrome P450-derived epoxygenated metabolite of anandamide is a potent, cannabinoid receptor 2 selective agonist (Abstract 749.4)

**N.T. Snider, J.A. Nast, P.F. Hollenberg**, *University of Michigan*

Functional interactions between CYP1A2 and CYP2B4 require other enzymes to reside in the same phospholipid vesicle (Abstract 749.3)

**J.R. Reed, W.L. Backes**, *LSU Health Science Center, New Orleans*

Association of breast cancer resistance protein/ABCG2 phenotypes and novel promoter and intron 12 single nucleotide polymorphisms (Abstract 372.7)

**B. Poonkuzhali, J. Lamba, S. Strom, S. Sparreboom, K. Thummel, PI Watkins, E. Schuetz**, *St. Jude Children's Research Hospital, University of Pittsburgh, University of Washington and University of North Carolina at Chapel Hill*

Characterization of AS(GS)3 and (GS2AsSe) transport by the human multidrug resistance protein 2 (MRP2/ABCC2) (Abstract 747.1)

**M.W. Carew, E.M. Leslie**, *University of Alberta*

Role of the Toll-like receptor adaptor protein, TIRAP in the regulation of gene expression of hepatic drug metabolizing enzymes (Abstract 752.1)

**R. Ghose, T. Guo**, *University of Houston*

Dynamic DNA and histone methylation influences the ontogeny of xenobiotic metabolizing genes during postnatal mouse liver maturation (Abstract 752.4)

**S.N. Hart, Y. Li, Y. Cui, C. Klaasen, X-b. Zhong**, *University of Kansas Medical Center*

**Tuesday, April 21**

**3:00 - 5:30 PM**

## **Neuroplastic and Neurodegenerative Changes Associated with Drug Abuse and Addiction**

(Sponsored by the Divisions for Neuropharmacology; Behavioral Pharmacology; Systems & Integrative Pharmacology; and Toxicology)

Chair: Jean Lud Cadet

Convention Center, Room 210

Clinical neurobiology of marijuana addiction

**K. Bolla**, *Johns Hopkins University*

Transcriptional responses to reinforcing effects of cocaine in the hippocampus and cortex.

**Irina N. Krasnova**, *NIDA, NIH*

Biochemical and molecular consequences of repeated injections of methamphetamine.

**Jean Lud Cadet**, *NIDA, NIH*

Role of microglial activation in drug-induced neurodegeneration.

**Donald M. Kuhn**, *Wayne State University*

Opiates, psychostimulants and adult hippocampal neurogenesis: Insight for addiction.

**Amelia Eisch**, *University of Texas Southwestern Medical Center*

## **Clinical Pharmacology, Pharmacogenomics and Translational Pharmacology Division Symposium: Translational Clinical Pharmacology Research: Emerging Frontiers**

Chair: Richard Kim

Convention Center, Room 207

In vivo probe drugs for assessing drug interaction potential for drugs in development.

**Joseph W. Polli**, *GlaxoSmithKline*



Monitoring the anti-cancer effects and chemosensitizing abilities of novel cyclotides from *Psychotria Leptothyrsa* (Abstract 756.10)

**S.L. Gerlach, U. Göransson, D. Mondal**, *Tulane University and Uppsala University, Sweden*  
Drug uptake transporters and cancer therapy: Bench to bedside.

**Richard H. Ho**, *Vanderbilt University*  
Phosphodiesterase 7 (PDE $\alpha$ ) and PDE4/7 inhibitors kill chronic lymphocytic leukemia cells via a cAMP-mitochondrial-dependent pathway (Abstract 761.10)

**A.C. Zahno, F. Murray, L. Zhang, L. Rassenti, H. Cottam, T. Kipps, P.A. Insel**, *UCSD*  
Delivery of Personalized Medicine: Examples from the University of Western Ontario.

**Richard B. Kim**, *University of Western Ontario*

## Neuropharmacology Division Postdoctoral Scientist Award Finalists

Chair: Christian C. Felder

Convention Center, Room 206

**Keynote Address:** Perspectives on the postdoctoral experience in the pharmaceutical industry  
**Christian C. Felder**, *Eli Lilly and Co.*

### Postdoctoral Scientist Award Presentations

Caveats of proteomics approaches in identifying novel spinophilin interacting proteins (Abstract 581.9)

**A.J. Baucum II, A-J.L. Ham, R.J. Colbran**, *Vanderbilt University*

Reduced microscopic GABAR sensitivity in rat hippocampal CA1 neurons during benzodiazepine withdrawal is reversed by CaMKII inhibition (Abstract 760.13)

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Ex vivo and in vivo changes in function of the serotonin 2C receptor due to RNA editing (Abstract 842.2)

**C.E. Canal, e. E. Watt, E. Sanders-Bush**, *Vanderbilt University*

Beyond Prozac: generation and characterization of SSRI insensitive transgenic mice (Abstract 942.7)

**B.J. Thompson, T. Jessen, L.K. Henry, K.L. Gamble, P.J. Chisnell, D.G. McMahon, R.D. Blakel**, *Vanderbilt University and University of North Dakota*

## Systems and Integrative Pharmacology Division Young Investigator Platform

Chairs: David B. Bylund and Dennis C. Marshall

Convention Center, Room 208

Studies of tissue regeneration in a rat bladder model in vivo (Abstract 939.1)

**D. Burmeister, T. Aboushwareb, K-E. Andersson, G.J. Christ**, *Wake Forest University School of Medicine*

Does Caveolin-1 knockout affect matrix metalloproteinase-2 activity and contractile function in the isolated working mouse heart? (Abstract 812.3)

**A.K. Chow, E. Daniel, R. Schultz**, *University of Alberta*

Molecular evidence for the involvement of calcium sensitization in serotonin-induced cerebrovascular constriction (Abstract 931.1)

**A. El-Uazbi, R.P. Johnson, K. Takeya, E.J. Walsh, M.P. Walsh, W.C. Cole**, *University of Calgary*  
Hypothalamic disinhibition stimulates retrotrapezoid nucleus chemosensitive neurons in vivo (Abstract 946.2)

**M.G. Fortuna, R.L. Stornetta, G.H. West, P.G. Guyenet**, *University of Virginia*

Disruption of the phosphodiesterase 8B gene alters the hypothalamic-pituitary-adrenal axis

(Abstract582.4)

**L-C.L. Tsai, M. Shimizu-Albergine, J.A. Beavo**, *University of Washington*  
CD38 prevents morphine-tolerance development in mouse distal colon (Abstract 590.6)

**G. Ross, W. Dewey, H. Akbarali**, *Virginia Commonwealth University*  
COX mediates impaired estrogen-induced relaxation in resistance arteries from postpartum rats (Abstract 932.3)

**C.R. Royal and R.E. White**, *Medical College of Georgia*

**Keynote Presentation:** iPharm: The key role of integrative pharmacology in 21<sup>st</sup> century drug discovery  
**Michael Williams** *Cephalon, Inc.*

**Tuesday, April 21**

**3:30 - 6:00 PM**

### **Transmembrane Signaling by GPCR**

(Organized by ASBMB and co-sponsored by ASPET)

Chair: Heidi E. Hamm

Convention Center, Room 357

How do GPCRs catalyze G protein activation? (Abstract 330.1)

**H.E. Hamm**, *Vanderbilt University*

Structure of an activated G protein-coupled receptor kinase reveals its receptor-docking domain (Abstract 879.10)

**J.J.G. Tesmer, P. Singh, C-c. Huang**, *University of Michigan*

Two crystal structures of the beta2-adrenergic receptor (Abstract 330.2)

**W.I. Weiss**, *Stanford University*

Biased agonism reveals new G protein-independent AT 1a receptor signals (Abstract 880.2)

**R.T. Kendall, M-H. Lee, H.M. El-Shewy, M.G. Janceh, D.K. Luttrell, L.M. Luttrell**, *Medical University of South Carolina and*

*Ralph H. Johnson VA Medical Center*

GIV is a non-receptor GEF for G<sub>oi</sub> with a unique motif that regulates Akt signaling (Abstract 879.1)

**M. Garcia-marcos, P. Ghosh, J. Ear, M.G. Farquhar**, *UCSD*

G protein coupled receptor heterodimerization leads to distinct signaling (Abstract 330.3)

**L.A. Devi**, *Mount Sinai School of Medicine*

**Wednesday, April 22**

**8:00 - 10:30 AM**

### **Virally-encoded G Protein Coupled Receptors as New Drug Targets?**

(Sponsored by the Division for Molecular Pharmacology)

Chairs: Rob Leurs and Sergio Lira

Convention Center, Room 210

Viral mimicry of G protein coupled receptor signaling.

**Rob Leurs**, *Vrije University, The Netherlands*

HHV-8 encoded GPCR ORF74 and its role in viral oncogenesis.

**J. Silvio Gutkind**, *NIDCR, NIH*

HCMV-encoded GPCR US28 as oncomodulating GPCR

**Maritne J. Smit**, *Vrije University, The Netherlands*

Transgenic mouse models to dissect the role of viral GPCRs in pathogenesis.

**Sergio A. Lira**, *Mount Sinai School of Medicine*

Functional analysis of HCMV-encoded GPCRs using mutant CMV viruses.

**William E. Miller**, *University of Cincinnati College of Medicine*



## **Therapeutics in Autoimmunity: Treatment Successes and Side Effects as a Tool of Elucidating Pathogenic Pathways**

(Sponsored by the Committee on Women in Pharmacology and the Divisions for Clinical Pharmacology, Pharmacogenomics & Translational Medicine; Drug Discovery, Drug Development & Regulatory Affairs; and Systems and Integrative Pharmacology)

Chairs: Carol A. Paronis and Cornelia M. Weyand

Convention Center, Room 207

The making and breaking of the immune system in rheumatoid arthritis - going beyond anti-inflammatory therapy.

**Cornelia M. Weyand**, *Emory University School of Medicine*

Mechanisms of action of methotrexate in rheumatoid arthritis - implications for understanding pathogenic pathways in autoimmunity.

**Bruce N. Cronstein**, *New York University School of Medicine*

Treating autoimmune arthritis through selective tyrosine kinase inhibition.

**William H. Robinson**, *Stanford University*

Pharmacogenomics in rheumatoid arthritis - deciphering disease pathways through better understanding of intended and unintended drug effects.

**S. Lou Bridges**, *University of Alabama at Birmingham*

## **Endothelial Progenitor Cells and Cardiovascular Disease - From Bench to Bedside**

(Sponsored by the Divisions for Systems & Integrative Pharmacology; Cardiovascular Pharmacology; Drug Discovery, Drug Development & Regulatory Affairs; and Molecular Pharmacology)

Chair: Alex Chen

Convention Center, Room 208

Oxidative stress and EPC dysfunction in salt-sensitive hypertension

**Alex F. Chen**, *University of Pittsburgh*

Role of osteopontin in EPC dysfunction in diabetes mellitus.

**Timothy O'Brien**, *National University of Ireland*

EPC and vascular injury.

**Zvonimir S. Katusic**, *Mayo Clinic and Foundation*

EPC therapies for cardiovascular disease – current perspective.

**Douglas W. Losordo**, *Northwestern University*

## **Gases as Neuromodulators in Sensing: From Nitric Oxide to Hydrogen Sulfide**

(Sponsored by the Divisions for Neuropharmacology; Cardiovascular Pharmacology; Molecular Pharmacology; Systems & Integrative Pharmacology; and Toxicology)

Chair: Atsufumi Kawabata and Philip K. Moore

Convention Center, Room 206

Neuronal roles for gasotransmitters.

**Phillip K. Moore**, *King's College London*

Roles for nitric oxide in itching and the development of herpetic and postherpetic neuralgia.

**Yasushi Kuraishi**, *University of Toyama*

Hydrogen sulfide as a neuromodulator in the colon.

**Michael Schemann**, *Technical University Munich*

Hydrogen sulfide and pain

**Atsufumi Kawabata**, *Kinki University of Pharmacy, Higashi-Osaka*

Exposure to nitrous oxide increases levels of nitric oxide metabolites and  $\beta$ -endorphin in ventricular cisternally-perfused rats. (Abstract 742.3)

**L.M. Zelinski, Y. Ohgami, R.M. Quock**, *Washington State University*

Nitroxyl (HNO) exerts antioxidant actions in carotid arteries of mice (Abstract 936.5)

**R.M. Ravi, A.A. Miller, M. Bullen, R.H. Ritchie, C.G. Sobey, B. K. Kemp-Harper**, *Monash University and Baker IDI Heart & Diabetes Institute, Melbourne, Australia*

## **Regulation of Xenobiotic Metabolizing Enzymes in Humans: Implications for the Propagation of Health and Disease**

(Sponsored by the Divisions for Drug Metabolism; Clinical Pharmacology, Pharmacogenomics & Translational Medicine; and Drug Discovery, Drug Development & Regulatory Affairs)

Chairs: Charles N. Falany and Melissa Runge-Morris  
Convention Center, Room 209

Hepatic sterol metabolism: Regulation of human hepatic hydroxysteroid sulfotransferase (SULT2A1) by nuclear receptor networks.

**Melissa Runge-Morris**, *Wayne State University*

Genetic polymorphisms in human xenobiotic metabolizing enzymes and cancer risk in steroidogenic tissues.

**Susan A. Nowell Kadlubar**, *University of Arkansas for Medical Sciences*

Genetic polymorphisms affecting xenobiotic metabolism and regulation: Implications for drug therapy and drug-drug interactions in humans.

**Erin G. Schuetz**, *St. Jude Children's Research Hospital*

Induction of sulfotransferase (SULT2B1b) expression in cystic fibrosis liver disease.

**Charles N. Falany**, *University of Alabama at Birmingham*

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## **Division Sessions**

**Sunday, April 19**  
**3:00 - 5:30 PM**

### **Pharmacology Education Division Workshop: Using Human Patient Simulators to Enhance Pharmacology Education Throughout the Undergraduate Medical Curriculum**

Chair: John L. Szarek  
Hilton Hotel, Melrose Room

Simulation has been a mainstay in graduate medical education, but only recently has it become more common in undergraduate medical education. This workshop will help pharmacology faculty learn how simulation using patient simulators can be used as part of their repertoire of learning modalities for medical students in the first two years and beyond. The workshop will include didactic and hands-on activities on simulation modalities, the rationale for the use of simulation, simulation as a complement to the basic science curriculum, and scenario construction and debriefing.

Hands on experience using a human patient simulator.

Facilitators: **John L. Szarek**, *AT Still University* and **Robert J. Theobald, Jr.**, *AT Still University, Kirksville, MO*

The rationale for the use of simulation as a complement to the basic science curriculum.

**John L. Szarek**, *AT Still University*  
Scenario construction and debriefing.

**Susan Pasquale**, *University of Massachusetts Medical School*  
Adoption and implementation strategies (and coping strategies for dealing with barriers) that could be used to support using simulation for teaching pharmacology throughout the undergraduate curriculum.

**William B. Jeffries**, *Creighton University School of Medicine*

**Monday, April 20**  
**2:30 - 5:30 PM**

### **Cardiovascular Pharmacology Division Junior Scientists' Competition and Benedict R. Lucchesi Distinguished Award Lecture in Cardiac Pharmacology**

Chairs: Brandon T. Larsen, Erin R. Harleton, and Biny K. Joseph  
Convention Center, Room 210

Introduction and recognition of applicants

**Brandon T. Larsen**, *Medical College of Wisconsin*

#### Graduate Student Presentations

Antiarrhythmic drug induced internalization of the atrial specific K<sup>+</sup> channel, Kv1.5

**S.M. Schumacher**, *University of Michigan (Advisor: J.R. Martens)*

Cardiac myocyte-specific caveolin-3 overexpression modulates ANP production and attenuates cardiac hypertrophy in vivo

**Y. Horikawa**, *UCSD (Advisor: D.M. Roth)*

Thromboxane synthase inhibition blunts the development of pulmonary hypertension and vascular remodeling in hypoxic neonatal piglets

**D.K. Hiremathur-S.**, *University of Arkansas for Medical Science (Advisor: N.J. Rusch)*

Insulin inhibits low pO<sub>2</sub>-induced ATP release from human erythrocytes (RBCs): Implications for vascular control in pre-diabetes

**M. Hanson**, *St. Louis University (Advisor: R. Sprague)*

#### Postdoctoral Scientist Presentations

Intracellular calcium silences L-type Ca<sup>2+</sup> channels in rat small mesenteric veins

**K. Thakali**, *University of Arkansas for Medical Science (Mentor: N.J. Rusch)*

GPR30 activation in salt-sensitive mRen2.Lewis females induces beneficial effects independent of alterations in blood pressure

**S.H. Lindsey**, *Wake Forest University School of Medicine (Mentor: M.C. Chappell)*

#### Graduate Student Runner-up Posters

Posters will be displayed by the three primary runners-up selected on Sunday, April 19 at the Graduate Student-Postdoc Best Abstract Competition

#### Postdoctoral Scientist Runner-up Poster

Engineered HGF/SF variants promote angiogenesis

**S. Roy**, *Harvard-MIT Division of Health Science and Technology (Mentor: S. Sengupta)*

**Benedict R. Lucchesi Distinguished Award Lecture in Cardiac Pharmacology:** Regulation of cardiac hypertrophy and heart failure through Gq, calcium & CaM kinase II

**Joan Heller Brown**, *UCSD*

**Monday, April 20**  
**3:00 - 5:30 PM**

### **Molecular Pharmacology Division Postdoctoral Award Finalists**

Chair: Michel Bouvier  
Convention Center, Room 206

Protein kinase A and Epac are pro- and anti-apoptotic mediators, respectively, in chronic lymphocytic leukemia

**F. Murray**, *UCSD (Advisor: P. Insel)*

Regulation of AGS3 and G<sub>α</sub> 1 interaction in living cells.

**S.S. Oner**, *Medical University of South Carolina (Advisor: S. Lanier)*

PKC  $\alpha$  regulation of TRPM2 channel activation of Ca<sup>2+</sup> entry in endothelial cells.

**C. Hecquet**, *University of Illinois at Chicago (Advisor: A. Malik)*

**Keynote Lecture:** Ligand-biased signaling: Exploring the molecular determinants of the multiple dimensions of drug efficacy

**Michel M. Bouvier**, *University of Montréal*

### **Drug Discovery, Development and Regulatory Affairs Division Symposium: New Insights into Pain Signaling Pathways**

Chairs: Anindya Bhattacharya and Mike F. Jarvis  
Convention Center, Room 208

Cannabinoid receptor signaling.

**Kenneth Mackie**, *Indiana University;*

Nav1.7 sodium channels: role in pain mechanisms and targeting by neurotoxins.

**Theodore R. Cummins**, *Indiana University-Purdue University School of Medicine;*

Neuro-glial interactions in pain states: opportunities for novel drug targets.

**Joyce A. Deleo**, *Dartmouth Medical School;*

Calcitonin gene-related peptide (CGRP) receptor antagonists for migraine - challenges and promises.

**Stefanie A. Kane**, *Merck Research Laboratories*

GTP cyclohydrolase, tetrahydrobiopterin and pain.

**Michael L. Costigan**, *Harvard Medical School*

### **Toxicology Division Symposium: The Nrf2-Keap1 System: An Emerging Key Regulator in the Defense Against Oxidative Stress, Chemical Toxicity and Disease**

Chair: Qiang Ma  
Convention Center, Room 209

Nrf2: Key to defense against oxidants, electrophiles, radiation and inflammation.

**Paul Talalay**, *Johns Hopkins School of Medicine*

Environmental lung disease and the role of Nrf2.

**Steven R. Kleeberger**, *NIEHS, NIH, Research Triangle Park, NC*

Defense against toxic metals and hyperglycemia by Nrf2.

**Qiang Ma**, *NIOSH, CDC*

Nrf1 and Nrf2 interplay in regulation of stress response.

**Jefferson Y. Chan**, *University of California-Irvine, School of Medicine*

**Keynote Address:** Molecular basis for the Nrf2-Keap1 system function.

**Masayuki Yamamoto**, *Tohoku University School of Medicine, Sendai, Japan*

## Behavioral Pharmacology Division Symposium: Pharmacological Imaging in Behavioral Pharmacology and Drug Development

Chairs: Leonard L. Howell and Mike A. Nader  
Convention Center, Room 207

Pharmacological MRI in awake rats: application for drug discovery and development.

**Chih-Liang Chin**, *Abbott Laboratories*

Pharmacological MRI studies of the dopaminergic system in rhesus monkeys.

**Zhiming Zhang**, *University of Kentucky*

Functional neuroimaging and cocaine medication development in nonhuman primates.

**Leonard L. Howell**, *Emory University*

PET studies of stimulant drugs in humans.

**Joanna S. Fowler**, *Brookhaven National Laboratories*

**Tuesday, April 21**

**2:00 - 5:30 PM**

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In vivo probe drugs for assessing drug interaction potential for drugs in development.

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*and University of North Dakota*

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## Lectures

**Sunday, April 19**

**8:30 - 9:20 AM**

### **RAY FULLER LECTURE IN THE NEUROSCIENCES**

Convention Center, Room 206

Lecturer: **Henry A. Lester**, *Caltech*

**Changes in the Brain During Chronic Exposure to Nicotine**



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**Sunday, April 19**  
**2:00 - 2:50 PM**

**IUPHAR LECTURE**

Convention Center, Room 206



Lecturer: **Robert Lefkowitz**, *Duke University*  
**Seven Transmembrane Receptors**

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**Monday, April 20**  
**8:30 - 9:20 AM**

**JULIUS AXELROD AWARD LECTURE**

Convention Center, Room 206



Lecturer: **Randy D. Blakely**, *Vanderbilt University*  
**Miscarriage at the Synapse: Brain Disorder-associated Deficits in Membrane Transport**

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**Monday, April 20**  
**4:30 - 5:30 PM**

**BENEDICT R. LUCCHESI DISTINGUISHED AWARD LECTURE IN CARDIAC PHARMACOLOGY**

Convention Center, Room 210



Lecturer: **Joan Heller Brown**, *University of California, San Diego*  
**Regulation of Cardiac Hypertrophy and Heart Failure through Gq, Calcium and CaM Kinase II**



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**Tuesday, April 21**  
**8:30 - 9:20 AM**

**TORALD SOLMANN AWARD LECTURE**

Convention Center, Room 206



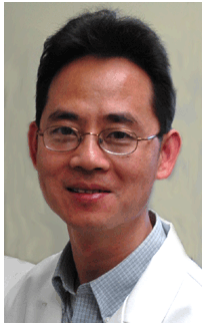
Lecturer: **Sam J. Enna**, *University of Kansas Medical Center*  
**Mentors, Methods and Manuscripts**

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**Tuesday, April 21**  
**2:00 - 2:50 PM**

**DRUG METABOLISM EARLY CAREER ACHIEVEMENT AWARD LECTURE**

Convention Center, Room 209



Lecturer: **Wen Xie**, *University of Pittsburgh*  
**Nuclear Receptors in Drug Metabolism: A Decade of Orphan  
Brother Actions**

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## Special Sessions

**Saturday, April 18**

**12:30 - 3:00 PM**

### **2009 Teaching Institute: Threading New Concepts into Existing Curriculum: Experiences with Genomics**

Chair: George A. Dunaway  
Convention Center, Room 207

Curricular threads in medical school curricula.

**Phillip R. Musich**, *East Tennessee State University*

Experience with introduction of genomics into medical biochemistry.

**Phillip R. Musich**, *East Tennessee State University*

Experience with introduction of genomics into medical pharmacology.

**George A. Dunaway**, *Southern Illinois University*

Development and use of clinical scenarios to introduce pharmacogenomics.

**George A. Dunaway**, *Southern Illinois University*

Resources for learning and curricular integration of genomics.

**Phillip R. Musich**, *East Tennessee State University*

### **Diversity Committee Symposium: ASPET Travel Fellows: Lessons Learned Along the Way:**

#### **Career Choices from Past Travel Awardees**

Chairs: Gonzalo E. Torres and Dolores Shockley  
Convention Center, Room 208

The goal of this symposium is to present and discuss career options taken by past fellows and travel awardees. The stories are of scientists who made the decision to either stay in academia or leave academic research and forged paths to alternative career options related to science. These stories will focus on how these scientists got to where they are today and what they have learned along the way. After the talks, there will be an open session with questions and discussion from the audience.

Career options in science.

**Gonzalo E. Torres**, *University of Pittsburgh*

A career path outside the bench as a medical science liaison.

**Shola Adewale**, *Eisia Inc.*

Scientific regulatory and policy writing in the government: Desktop, an alternative to Benchtop.

**Michelle D. Walker**, *Drug Enforcement Administration*

Career opportunities in biomedical research: The academic perspective.

**Chantal A. Rivera**, *Louisiana State University Health Sciences Center*

Closing remarks

**Dolores C. Shockley**, *Meharry Medical College*

## 3:15 - 5:45 PM

### Graduate Student-Postdoctoral Colloquium: Mentoring: It Goes Both Ways

Chair: Sarah H. Lindsey

Convention Center, Room 209

The success of graduate or post-graduate research experiences depends largely on a positive relationship between the trainee and mentor. This colloquium, based on a program developed by Chris Pfund at the Wisconsin Program for Scientific Teaching, is focused on helping participants improve the efficiency and effectiveness of their current mentor/mentee relationship and learn how to become effective research mentors themselves. Discussions will focus on different mentoring styles and strategies for developing confidence and independence, establishing expectations and improving communication skills.

Entering mentoring: Learning to become an effective research mentor.

**Chris E. Pfund**, *University of Wisconsin Program for Scientific Teaching*

Session 1: Learning to communicate

Session 2: Goals and expectations

Session 3: The elements of good mentoring

Pulling it all together: Pharmacologists helping pharmacologists.

**Stephanie Watts**, *Michigan State University*

## Tuesday, April 21

### 8:00 - 10:00 AM

### ASPET's Women in Pharmacology Committee and APS' Women in Physiology Committee Workshop: Pathways to Leadership: Developing Critical Skills

Chairs: Andria Lee del Tredici, Holly Brevig, Barbara Alexander

Convention Center, Room 346

Opportunity knocks...(Should I answer?)

**Kimberly E. Vanover**, *Intra-Cellular Therapeutics, Inc.*

Surviving hurricane Katrina and embracing new challenges.

**Patricia Molina**, *LSU Health Science Center, New Orleans*

Pleasures and perils of joint appointments

**Alice M. Young**, *Texas Tech University Health Science Center*

The long and winding road of career development

**Lois D. Lehman-McKeeman**, *Bristol-Myers Squibb*

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## Satellite Meetings

FRIDAY & SATURDAY, April 17-18

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### G-Protein Targets Colloquium

Room: Convention Center 204 A/B/C

(Separate, Advance Registration Required)

Chairs: Alan V. Smrcka and Theresa Filtz

SATURDAY, April 18

### Behavioral Pharmacology Society Meeting

Room: Convention Center 201

(Separate, Advance Registration Required)

Contact Nancy Ator: ator@jhmi.edu or 410-550-2773

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## Public Affairs Session

### EB 2008 Public Affairs Session

Monday, April 20

5:00 - 6:30 pm

### ***Evolution of Creationism***

(Co-Sponsors: ASPET, ASBMB and APS)  
Convention Center, La Louisiane Ballroom

#### Speakers

Chair, Greg Petsko, Brandeis University

**Barbara Forrest**, Southeastern Louisiana University, author of *Creationism's Trojan Horse*

**Judge John E. Jones**, Federal Judge who presided at the Kitzmiller v. Dover trial in 2005

**Ken Miller**, Brown University, author of *Finding Darwin's God* and other books on the battle over teaching evolution

**Eugenie Scott**, Executive Director of the National Center for Science Education, Oakland, California, and author of

*Evolution versus Creationism* (a second edition of which is soon to be published)

**Public Affairs Symposium**

Monday, April 20

5:45 - 7:15 pm

**Improving NIH Peer Review: Maintaining the National Strategic Value of Peer Review**

Sponsored by APS, AAA, ASPET  
Convention Center, Room 255/256/257

Chair: V.M. Miller

Speaker: Tony Scarpa, CSR, NIH