

2012 Annual Meeting Issue



In this Issue:

- 2012 Election Results
- 2012 Award Winners
- Annual Meeting Program Grid
- Annual Meeting Activities of Interest
- Information on the Career Center



ASPET

On The Web

Join the conversation online!



ASPET is online! Join us on Facebook, Twitter or LinkedIn for the latest in news, discussions and events. Discuss hot topics with your peers, check out pictures from ASPET events, and find resources to help in finding a job or graduate program.

www.facebook.com/ASPETpage

www.twitter.com/ASPET

LinkedIn: Search - "ASPET"



The Pharmacologist

Contents

2012 Election Results	4
2012 Annual Meeting	
Award Winners	5
Important Dates & Info	13
Grid	14
Meet the Leadership	16
Special FDA Workshop	17
Activities for Students & Postdocs	19
WIP Career Roundtable	20
Career Center	21
Division News	22
Chapter News	
Upstate New York	24
Mid-Atlantic	25
Journals	50
Public Affairs	51
New ASPET Members	53
Members in the News	55
Staff News	56
In Sympathy	57
Membership Information	59
Membership Application	60

2012 Dues Notices

If you haven't already, please pay your 2012 dues. You can mail in your payment or renew online at www.aspet.org.

The *Pharmacologist* is published and distributed by the American Society for Pharmacology and Experimental Therapeutics.

EDITOR

Suzie Thompson

EDITORIAL ADVISORY BOARD

Stephen M. Lanier, PhD

Kenneth E. Thummel, PhD

Richard R. Neubig, PhD

COUNCIL

President

Lynn Wecker, PhD

President-Elect

John S. Lazo, PhD

Past President

James R. Halpert, PhD

Secretary/Treasurer

Mary E. Vore, PhD

Secretary/Treasurer-Elect

Edward T. Morgan

Past Secretary/Treasurer

Bryan F. Cox, PhD

Councilors

Stephen M. Lanier, PhD

Richard R. Neubig, PhD

Kenneth E. Thummel, PhD

Chair, Board of Publications Trustees

James E. Barrett, PhD

Chair, Program Committee

Scott Waldman, MD, PhD

FASEB Board Representative

Brian M. Cox, PhD

Executive Officer

Christine K. Carrico, PhD

The *Pharmacologist* (ISSN 0031-7004) is published quarterly in March, June, September, and December by the American Society for Pharmacology and Experimental Therapeutics, 9650 Rockville Pike, Bethesda, MD 20814-3995. Annual subscription rates: \$20.00 for ASPET members; \$45.00 for U.S. nonmembers and institutions; \$70.00 for nonmembers and institutions outside the U.S. Single copy: \$20.00. Copyright © 2012 by the American Society for Pharmacology and Experimental Therapeutics Inc. All rights reserved. Periodicals postage paid at Bethesda, MD. GST number for Canadian subscribers: BN:13489 2330 RT.

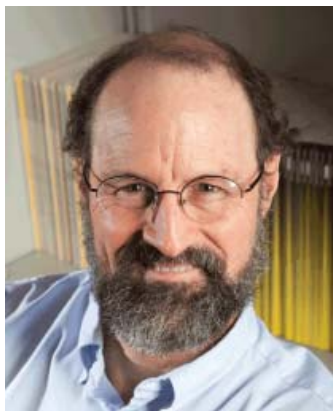
ASPET assumes no responsibility for the statements and opinions advanced by contributors to *The Pharmacologist*.

Deadlines for submission of material for publication: Issue 1, February 15; Issue 2, May 16; Issue 3, August 15; and Issue 4, November 15.

Postmaster: Send address changes to: *The Pharmacologist*, ASPET, 9650 Rockville Pike, Bethesda, MD 20814-3995.

2012 Election Results

ASPET is pleased to announce the following election winners:



PRESIDENT-ELECT **Richard R. Neubig, MD, PhD**

Dr. Neubig has been a member of ASPET since 1987. He was the founding Chair of the Molecular Pharmacology Section from 1994-1997. He played a key role in the retreat which recommended the creation of divisions and conversion of the existing sections into divisions. Dr. Neubig remained as Chair to oversee the transition of the section to the Division for Molecular Pharmacology (1997-1999) and then remained on the Executive Committee until 2002. During that period (1997-2000) he served on the Scientific Council (now Council of Division Chairs). Dr. Neubig was a member of the ASPET Scientific Program Committee for the 2002 IUPHAR meeting in San Francisco. He served on the Membership

Advisory Committee from 1999-2001 and the Goodman and Gilman Award Committee from 2002-2005. He was elected Councilor in 2009 and as senior Councilor, serves as chair of the ASPET Awards Committee for 2011-2012. Dr. Neubig has served on the Editorial Board of *Molecular Pharmacology* since 1992 and from 1996 to 2000 was an Associate Editor for that journal. Most recently he was a member of the Editorial Advisory Board of *Molecular Interventions*. He also served on the Board of Publications Trustees from 2004-2008. Dr. Neubig represents ASPET on the IUPHAR Nominating Committee. He has organized several symposia, workshops, and colloquia for the ASPET Annual Meeting. In 2009 he was the recipient of the ASPET-Astellas Award for Translational Pharmacology. Dr. Neubig is also a member of the AAAS, the Biophysical Society, and the American Society for Biochemistry and Molecular Biology.



SECRETARY/TREASURER-ELECT **Sandra P. Welch, PhD**

Dr. Welch joined ASPET in 1991 as a student member. She was Secretary/Treasurer of the Neuropharmacology Division from 2004 - 2008. She is also a member of the Behavioral Pharmacology Division and the Division for Pharmacology Education. She has been a member of the *JPET* editorial board since 1993.



COUNCILOR **Charles P. France, PhD**

Dr. France has been a member of ASPET since 1992. He was Chair of the Behavioral Pharmacology Division from 2007-2009 and served on the Division Executive Committee from 2006-2010. He is also a member of the Neuropharmacology Division. He has organized numerous symposia and served as a member of the Program Committee from 2008-2010. He served on the Editorial Board of the *Journal of Pharmacology and Experimental Therapeutics* from 1997-2008. Dr. France has organized numerous events on behalf of ASPET including Volunteer Day with Habitat for Humanity in New Orleans in 2009 and the subsequent Volunteer Days that have become a tradition on the Friday preceding the

ASPET Annual Meeting. In addition, he has organized recruitment receptions at the CPDD meetings in 2008 and 2009. Dr. France is also a member of the American College of Neuropsychopharmacology, Behavioral Pharmacology Society, College on Problems of Drug Dependence, European Behavioural Pharmacology Society, Society for Neuroscience, Society for Stimulus Properties of Drugs, Sigma Xi, and is a fellow of the American Psychological Association.

2012 Annual Meeting

Award Winners



Julius Axelrod Award

Gavril W. Pasternak, MD, PhD

Dr. Gavril Pasternak has been named recipient of the 2012 Julius Axelrod Award in Pharmacology by the American Society for Pharmacology and Experimental Therapeutics (ASPET). Dr. Pasternak holds the Anne Burnett Tandy Chair in Neurology at Memorial Sloan-Kettering Cancer Center and is Professor of Neurology & Neuroscience, Pharmacology and Psychiatry at the Weill Medical School of Cornell University. He is recognized for his major contributions into the differential roles of opiate receptor subtypes in relieving pain with diminished side effects. The Julius Axelrod Award, named after the 1970 Nobel Prize winner in Physiology or Medicine, is given to recognize outstanding scientific contributions in research and mentoring in pharmacology. The award was established to honor the memory of the

eminent American pharmacologist who shaped the fields of neuroscience, drug metabolism, and biochemistry.

Dr. Pasternak received his Bachelor's degree in chemistry at Johns Hopkins where he also obtained his M.D. and Ph.D. degrees and clinical training in neurology. Following completion of his neurology residency, Dr. Pasternak joined the faculty of Memorial Sloan-Kettering Cancer Center where he has remained.

Throughout his career Pasternak's research has focused upon characterization of opiate receptors. As a graduate student at Johns Hopkins University, he was part of the team that identified and characterized opiate receptors and showed how they mediate the actions of these drugs. In his independent laboratory at Memorial Sloan-Kettering, Pasternak focused upon subtypes of opiate receptors. Three principal types of opiate receptors had been discriminated and differentiated by pharmacologic analysis and molecular cloning as mu, delta, and kappa, with the mu receptors being the principal mediators of analgesic effects of most opiates. Utilizing both ligand binding and molecular biological techniques, Pasternak uncovered several novel receptors derived by alternative splicing of the mu opiate receptor gene. His discoveries markedly altered our understanding of how opiates act and have led to novel, potent analgesics with markedly reduced side effects. One subtype of opiate receptor discovered by Pasternak responds more effectively to morphine than heroin, while another responds to heroin but not morphine. In recent research, by sculpting molecules selective for receptor subtypes, Pasternak has discovered new opiate drugs that are 100 times more potent than morphine with diminished adverse effects and do not appear to cause physical dependence.

Dr. Pasternak's accomplishments have been recognized by numerous awards including the Anne Burnett Tandy Chair in Neurology, the John Bonica Award, the S. Weir Mitchell of the American Academy of Neurology, fellowship in the American Academy of Neurology, and election to the Johns Hopkins University Society of Scholars.

2012 Annual Meeting

Award Winners



John Jacob Abel Award **Jin Zhang, PhD**

Jin Zhang, Ph.D., Associate Professor of Pharmacology and Molecular Sciences, Neuroscience, and Oncology at the Johns Hopkins School of Medicine is the recipient of the 2012 John J. Abel Award, sponsored by Pfizer. Dr. Zhang receives the John J. Abel Award as an outstanding young investigator for her contributions to cellular enzymology that have helped shape the field of pharmacology.

Dr. Zhang received a B.S. in chemistry from Tsinghua University in China. She completed her Ph.D. at the University of Chicago where she was recognized for her graduate studies on the problem of virulence in the plant pathogen *Agrobacterium tumefaciens*. Her postdoctoral studies began at the University of California at San Diego where her collaborative work is now being intensively applied in academic cell signaling labs and in the pharmaceutical industry in drug development programs. In 2003, Dr. Zhang was recruited as Assistant Professor to Johns Hopkins where she has developed a robust independent research program. She has refined the protein kinase A reporter which has allowed for greater sensitivity and temporal responsiveness, leading to several applications in neuroscience, metabolism, cell invasion, and drug screening. Her research group has recently published research that reveals the oscillatory connection between calcium signaling and protein kinase A in pancreatic β cells, providing new insights about how insulin secretion is regulated. Dr. Zhang has also developed novel fluorescent sensors for second messengers for cyclic AMP and phosphatidyl inositides. Dr. Zhang's sensors are now used in over 100 labs worldwide.

Dr. Zhang has been featured over a three month appointment as the "Ask the Expert" columnist, a high-profile feature of the journal *ACS Chemical Biology*. She has also served as an ad hoc member of a number of NIH panels. Dr. Zhang is recipient of the highly acclaimed NIH Pioneer Award and has chaired or organized several sessions at international meetings in molecular imaging. She was a Chair of the Gordon Research Conference on Signaling in 2010.



Student/Postdoc Mixer
Tuesday, April 24
9:00 - 11:30 PM
DJ, Drinks, Dancing,
Dessert & Fun!



2012 Annual Meeting

Award Winners



Pharmacia-ASPET Award for Experimental Therapeutics **Angela M. Brodie, PhD**

Dr. Angela Hartley Brodie, Ph.D., Professor in the Department of Pharmacology and Experimental Therapeutics at the University of Maryland School of Medicine, is the recipient of the 2012 Pharmacia-ASPET Award for Experimental Therapeutics. The Pharmacia-ASPET Award for Experimental Therapeutics is given annually to recognize and stimulate outstanding research in pharmacology and experimental therapeutics—basic laboratory or clinical research that has had, or potentially will have, a major impact on the pharmacological treatment of disease. This award is funded by an endowment from Pharmacia (now Pfizer) and by ASPET.

Dr. Brodie earned her Ph.D. in chemical pathology from the University of Manchester, United Kingdom. After receiving her Ph.D., she was awarded a fellowship from the NIH for postdoctoral training at Clark University and the Worcester Foundation for Experimental Biology in Massachusetts. She remained as a staff scientist and later became senior scientist at the Worcester Foundation. She would later join the University of Maryland as Research Associate Professor in the Department of Pharmacology and Experimental Therapeutics in the School of Medicine. Now Full Professor, she also has appointments in the Department of Physiology and the University of Maryland Greenebaum Cancer Center.

Dr. Brodie's major research interests are in breast cancer treatment and the development and use of aromatase inhibitors and new treatments for prostate cancer. She is an internationally recognized scientist for her pioneering research on aromatase inhibitors for treatment of breast cancer. Her discoveries have provided hope for women who were previously unresponsive to widely accepted forms of breast cancer treatment. Her pioneering studies led to the development of aromatase inhibitors that are now approved by the FDA for treatment of breast cancer. She has expanded her research to investigate inhibitors of androgen synthesis as potential agents for treating prostate cancer.

As testimony to her major research accomplishments, she has been awarded many of the leading cancer awards including the Susan G. Komen Breast Cancer Foundation's Brinker International Award for Breast Cancer Research, the Landon Award from the American Association of Cancer Research, and the Kettering Prize from the General Motors Cancer Research Foundation. Dr. Brodie is also involved in the training of graduate students and postdoctoral fellows and teaches in medical and graduate pharmacology courses. She has served on many NIH and NCI study sections as well as a reviewer and member of the integration panel for the U.S. Army Department of Defense Army Breast Cancer Program. She is also a member of the Advisory Board for the Komen Foundation.

2012 Annual Meeting

Award Winners



The Goodman & Gilman Award in Receptor Pharmacology **V. Craig Jordan, PhD**

V. Craig Jordan, OBE, Ph.D., DSc, FBPharmacoS, FMedSci Professor of Oncology and Pharmacology, and Scientific Director at the Lombardi Comprehensive Cancer Center at Georgetown University Medical Center, is recipient of the 2012 ASPET Goodman and Gillman Award in Drug Receptor Pharmacology. The biennial award was established to recognize and stimulate outstanding research in the pharmacology of biological receptors. Such research might provide a better understanding of the mechanisms of biological processes and potentially provide the basis for the discovery of drugs useful in the treatment of diseases. Dr. Jordan receives this award for his seminal contributions in developing the pioneering breast cancer drug, tamoxifen.

Dr. Jordan obtained his B.S. and Ph.D. degrees in pharmacology from the University of Leeds, England. While a faculty member at the Worcester Foundation for Experimental biology and at the University of Leeds, he advanced tamoxifen from a failed contraceptive to the treatment and prevention of breast cancer. At the University of Wisconsin Comprehensive Cancer Center where he was Director of the Breast Cancer Research and Treatment Program, he developed the practical concept of selective estrogen receptor modulation. He would later move to Northwestern University where he was Director of the Lynn Sage Breast Cancer Research Program. Shortly thereafter he would become Vice President and Research Director of Medical Sciences at the Fox Chase Cancer Center in Philadelphia. He moved to Georgetown in 2009.

A recipient of many of the highest honors in science, Dr. Jordan is a member of the National Academy of Sciences and a recipient of the Brinker International Award for Basic Science from the Susan G. Komen Foundation, the Charles F. Kettering Prize from the General Motors Cancer Research Foundation, and the American Cancer Society Medal of Honor. Queen Elizabeth II inducted him an Officer of the Most Excellent Order of the British Empire (OBE) for services to international breast cancer research. Dr. Jordan also has been honored with the St. Gallen Prize for Breast Cancer Research, considered the most prestigious breast cancer prize in the world. He is an honorary Fellow of the Royal Society of Medicine and a Fellow of the Academy of Medical Science (UK equivalent of the Institute of Medicine). He is a Fellow of the British Pharmacological Society.

*Opening & Awards Reception
Directly following the ASPET Business Meeting
Saturday, April 21
Convention Center, Center Terrace*

2012 Annual Meeting

Award Winners



The Bernard B. Brodie Award in Drug Metabolism **Yuichi Sugiyama, PhD**

Yuichi Sugiyama, Ph.D., Professor and Chair in the Department of Molecular Pharmacokinetics and Professor in the Laboratory of Pharmaceutical Regulatory Sciences at the University of Tokyo is the recipient of the 2012 Bernard B. Brodie Award. The Brodie Award recognizes Dr. Sugiyama's outstanding contributions to our understanding of human drug metabolism, transport, and to future research in the field. Dr. Sugiyama received his B.S. in pharmacy and Ph.D. in pharmaceutical sciences from the University of Tokyo.

Dr. Sugiyama is a world leader in the pharmacological and pharmaceutical sciences via integrative studies on the pharmacokinetics and membrane transport of drugs. He has spearheaded the era of physiologically-based pharmacokinetics and brought molecular aspects and inter-individual variation due to genetic polymorphism to light. His work has highlighted the importance of considering pharmacokinetic properties of new entities in drug development, using high-throughput screening methods to test large numbers of drug candidates. Over his career, Dr. Sugiyama's research has had a profound impact on how we understand drug disposition among the population, drug-drug interaction, and drug development.

He is internationally recognized by many prestigious awards including the Medal of Honor with Purple Ribbon, bestowed by the Government of Japan to the most highly honored scientists. He is also recipient of the ISSX Asian Pacific Scientific Achievement Award, AAPS (American Association of Pharmaceutical Scientists) Distinguished Pharmaceutical Scientist Award, FIP Host-Madsen Gold Medal, and the Pharmaceutical Science World Congress Research Achievement Award.

Dr. Sugiyama is coauthor of more than 570 original publications in international journals, and is among one of the world's most cited pharmaceutical scientists. He has served as an editorial board member of several international journals, including as an Editorial Committee member for *Annual Review of Pharmacology and Toxicology* (current member) and as Editor in Japan of *Pharmaceutical Research, Biopharmaceutics & Drug Disposition*, and the *AAPS PharmSci*.

**Give a Day of Service to San Diego at EB 2012
Friday, April 20**



**If you would like to volunteer,
contact Charles P France at france@uthscsa.edu,
210 567 6969 (voice), or 210 567 0104 (fax)**



2012 Annual Meeting

Award Winners



The Robert R. Ruffolo Career Achievement Award in Pharmacology

Robert J. Lefkowitz, MD

Robert J. Lefkowitz, M.D., Howard Hughes Medical Institute Investigator and James B. Duke Professor of Medicine and Biochemistry at the Duke University Medical Center, is the recipient of the 2012 Robert R. Ruffolo Career Achievement Award in Pharmacology. The award was established in recognition of the contributions made to drug discovery and development by Dr. Ruffolo to recognize the scientific achievements of scientists who are at the height of their careers and who have made significant contributions

to any area of pharmacology.

Dr. Lefkowitz received his B.A. in chemistry and M.D. from Columbia University. Following two years of house staff training in Internal Medicine at Columbia Presbyterian Medical Center and a two year fellowship at the NIH, he moved to Massachusetts General Hospital where he completed his medical residency and research and clinical training in cardiovascular disease. Upon completion of this training he was appointed Associate Professor of Medicine and Assistant Professor of Biochemistry at Duke Medical Center.

Dr. Lefkowitz is renowned for his studies in receptor biology and signal transduction, most notably the characterization of the sequence, structure, and function of the β -adrenergic and related receptors. He is also known for the discovery and characterization of the two families of proteins which regulate them, the G-protein coupled receptor kinases (GRKs) and β -arrestins. Dr. Lefkowitz's lab also cloned the genes for the β -adrenergic receptor, and then rapidly thereafter, eight other adrenergic receptors. This work has had profound implications for understanding hormone and drug receptor interactions and the mechanisms by which they are regulated. He is among the most highly cited researchers in the fields of biology, biochemistry, pharmacology, toxicology, and clinical medicine. He is also widely recognized among peers for his dedication to mentoring and his tireless devotion to his students.



WIP
into SHAQE
Networking
Walk

Sunday, April 22
7:00 - 9:00 AM

Meet at the Marriott Concierge Desk
Join us for coffee and breakfast afterward

2012 Annual Meeting

Award Winners



P.B. Dews Lifetime Achievement Award in Pharmacology **James E. Barrett, PhD**

James E. Barrett, Professor and Chair of the Department of Pharmacology & Physiology at Drexel University College of Medicine, is the recipient of the 2012 P.B. Dews Lifetime Achievement Award in Behavioral Pharmacology. The award is given in alternate years and honors the fundamental contributions of P.B. Dews to behavioral pharmacology. Dr. Barrett's many contributions to behavioral pharmacology built and expanded upon the many intellectual foundations laid by Peter B. Dews and the broader field of behavioral pharmacology.

Dr. Barrett's research involves nearly every major aspect of behavioral pharmacology. His numerous research accomplishments have focused on some of the most important concepts and questions in the field of behavioral pharmacology, with particular emphasis on the behavioral determinants of drug action. An important part of Dr. Barrett's research involved the concepts of environmental context and behavioral history. A landmark study of his showed that a specific behavioral history could impact the behavioral effects of drugs in an orderly and predictable fashion. Dr. Barrett has also dedicated a great deal of research to animal models of neuropsychiatric disorders, especially affective disorders.

Dr. Barrett received his B.A. in psychology from the University of Maryland and his Ph.D. in psychology and neurobiology from Penn State University. Following postdoctoral training at the Worcester Foundation for Experimental Biology, he received faculty appointments at the University of Maryland and Uniformed Services University of the Health Sciences in Bethesda, MD. He moved to the pharmaceutical industry, first at Lederle Laboratories where he was Director of Central Nervous System Research. His move to Wyeth followed its merger with Lederle where he was Vice President of Neuroscience Discovery Research. He has also held positions as Chief Scientific Officer and President of Research at Adolor Corporation and served as Vice President of Research and Development at Memory Pharmaceuticals. Dr. Barrett has published more than 275 scientific articles, books, and abstracts. He has served on numerous NIH review committees and serves on several editorial boards. He was a past President of the American Society for Pharmacology and Experimental Therapeutics (ASPET) and currently serves as Chair of ASPET's Board of Publications Trustees. For several years, he was a member of the Scientific Advisory Board of the New England Regional Primate Research Center at Harvard Medical School. He is Past President of the Behavioral Pharmacology Society and has served on the board and committees of the Federation of American Societies for Experimental Biology (FASEB). Throughout his career, Dr. Barrett has also been recognized by many colleagues for his great commitment and dedication to teaching and mentoring. Now at Drexel, he established a Masters Program in Drug Discovery and Development to help more fully instruct students on pharmaceutical industry career development.

American Society for Pharmacology and Experimental Therapeutics

Visit us at Booth 801 - 805

At the ASPET Store this year:

- ASPET T-Shirts, including a new design for EB 2012
- ASPET Baseball Caps
- ASPET Stuffed Donkeys
- ASPET Ornaments
- Centennial Wine Glasses
- Centennial Compendiums



Stop by the ASPET Booth to meet some members of our Council and Journal Editors. Also, get your FREE "I Like Pharmacology" keychain!

Sign up for ASPET Membership at EB to get:

- 50% off dues for 2012, students free for the first year
- Free online access to ASPET journals
- Reduced page charges to publish with ASPET
- Reduced EB registration fees
- Travel and best abstract award opportunities
- Plus much more!

asp^et 

www.aspet.org

Photo courtesy of
Corporate Helicopters

2012 Annual Meeting

Important Dates & Info

Important Dates:

March 23, 2012:

Hotel Reservation Deadline

Reserve your housing at www.experimentalbiology.org

Need to share a room for the meeting? Find someone with similar interests on the EB Room Share Board at <http://experimentalbiology.org/eb/pages/roomshare/roomsharing.asp>

April 6, 2012:



Child Care Registration Deadline

Camp EB will be available each day of the meeting, so you don't have to worry about leaving the kids at home! Register for Camp EB at:

http://www.accentregister.com/events/ch_events.asp?eld=6316

Important Reminders:

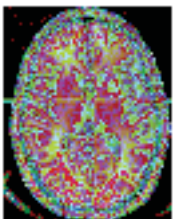
Don't forget to use the **EB Itinerary Builder** for to create your schedule for the meeting. <http://experimentalbiology.org/EB/pages/Itinerary-Builder-Program.aspx>

EB Mobile App - to help you organize your schedule and check sessions on your mobile device. Download at www.experimentalbiology.org

Give a Day of Service to San Diego - Friday, April 20. ASPET members are invited to volunteer their time to give back to the San Diego community. If you plan to volunteer, please contact Charles P France at france@uthscsa.edu, 210 567 6969 (voice), or 210 567 0104 (fax) at your earliest convenience.

The **San Diego Padres** are excited to offer discounted tickets to EB 2012 attendees. The offer includes tickets at up to 25% off for select sections and dates. To purchase tickets, visit padres.com/promo and enter the promo code: BIOLOGY

New this year, ASPET will be holding a **Closing Reception** on Wednesday, April 25 at the Marriott Poolside Terrace. Be sure to come by to enjoy the the last reception and social gathering at EB 2012!



Scicurious will be ASPET's Official Meeting Blogger at EB 2012! Follow the action in San Diego with Scicurious's blogs, *The Scicurious Brain* (<http://blogs.scientificamerican.com/scicurious-brain/>) and *Neurotic Physiology* (<http://scintopia.org/blogs/scicurious/>).

American Society for Pharmacology and Experimental Therapeutics at Experimental Biology 2012 – San Diego, CA

All rooms listed are in the San Diego Convention Center unless otherwise noted.

ASPET Booths 801-805

Exhibits 9:00 AM – 4:00 PM Sunday-Tuesday

Saturday, 4/21	Sunday AM, 4/22	Sunday PM, 4/22	Monday AM, 4/23	Monday PM, 4/23	Tues AM, 4/24	Tues PM, 4/24	Wed AM, 4/25	Wed PM, 4/25
Behavioral Pharmacology Meeting 8:00 AM – 6:00 PM San Diego Marriott, Marina Ballroom Salon F Separate, pre-registration required	WIP Into Shape Networking Walk 7:00 AM – 9:00 AM Marriott, meet at Concierge Desk Diversity Committee Mentoring Breakfast 7:30 AM – 9:00 AM Marriott, Anaheim	JULIUS AXELROD AWARD LECTURE: From farm to pharm: A journey with Serotonin <i>E. Sanders-Bush</i> 2:00 PM – 3:00 PM Room 2	NEU, MP Location, location, location: The role of membrane microdomains in dopamine transporter function & trafficking <i>H. Khoushbouei, H. Melikian</i> 9:30 AM – 12:00 PM Room 2	P.B. DEWS AWARD LECTURE: Drugs of abuse: Behavioral determinants of pharmacological plasticity <i>J. Barrett</i> 2:00 PM – 3:00 PM Room 2	J.J. ABEL LECTURE: Spatiotemporal regulation of protein kinases in living cells <i>J. Zhang</i> 8:30 AM – 9:30 AM Room 2	CARDIOVASCULAR PHARMACOLOGY DIVISION Trainee Showcase 2:30 PM – 4:30 PM Room 2	RAY FULLER LECTURE: Fulfilling the promise of molecular medicine in autism spectrum disorders <i>M. Bear</i> 8:30 AM – 9:30 AM Room 2	NEU, BEH, MP Discovery of protein kinase inhibitors for CNS disorders: Opening new avenues for unmet needs <i>M. Gnegy, D. Watterson</i> 3:00 PM – 5:30 PM Room 3
Diversity Committee Workshop: Building a career in pharmacology: A focus on health disparities <i>M.I. Davila-Garcia</i> 12:00 PM – 2:30 PM Room 2	MP Emerging concepts in G protein dependent PLC regulation & physiology <i>A. Smrcka</i> 9:30 AM – 12:00 PM Room 2	JULIUS AXELROD SYMPOSIUM: Novel insights into the regulation of serotonin function <i>E. Sanders-Bush</i> 3:00 PM – 5:30 PM Room 2	BEH, NEU, TOX Cognitive enhancement to improve treatment outcome & quality of life associated with neuropathologies <i>R. Gould, M. Nader</i> 9:30 AM – 12:00 PM Room 3	BEHAVIORAL PHARMACOLOGY DIVISION The behavioral pharmacology of drugs of abuse & drug dependence: A tribute to Steve Holtzman & Bob Schuster <i>L. Dykstra, C. Paronis</i> 3:00 PM – 5:30 PM Room 2	CVP, ISTCP Membrane rafts in endothelial signaling <i>I. Levitan, P.-L. Li</i> 9:30 AM – 12:00 PM Room 2	PAUL VANHOUTTE DISTINGUISHED AWARD LECTURE: Nitric oxide in metabolic cardiovascular disease <i>R. Cohen</i> 4:30 PM – 5:30 PM Room 2	RAY FULLER SYMPOSIUM: Progress toward autism drug discovery <i>M. Bear</i> 9:30 AM – 12:00 PM Room 2	MP, ISTCP, NEU, TOX, CVP Steroid signaling via G protein-coupled receptors <i>E. Prossnitz</i> 3:00 PM – 5:30 PM Room 4
Diversity Graduate Student Colloquium: Communication 2:45 PM – 5:15 PM <i>L. Schrott, J.S. Fedan, M.J. Seminerio</i> Room 2	DDDRA, MP, NEU, BEH, ISTCP Pharmacology & therapeutic potential of histamine H3 & H4 receptor ligands <i>R. Thurmond</i> 9:30 AM – 12:00 PM Room 3	BEH, DDDRA, NEU The behavior of pain <i>T. Martin</i> 3:00 PM – 5:30 PM Room 3	MP, NEU, ISTCP Toll-like receptors in neuroplasticity & disease <i>M. Mattson</i> 9:30 AM – 12:00 PM Room 3	B.B. BRODIE AWARD LECTURE: Drug transporters: Roles in new drug discovery and development <i>Y. Sugiyama</i> 2:00 PM – 3:00 PM Room 3	MP, NEU, ISTCP Toll-like receptors in neuroplasticity & disease <i>M. Mattson</i> 9:30 AM – 12:00 PM Room 3	NEUROPHARMACOLOGY DIVISION Postdoctoral Award Finalists 3:00 PM – 5:30 PM Room 3	MP, DDDRA Protein-protein interaction (PPI) interfaces as therapeutic targets: Promises & challenges <i>H. Fu</i> 9:30 AM – 12:00 PM Room 3	MP, ISTCP, NEU, TOX, CVP Steroid signaling via G protein-coupled receptors <i>E. Prossnitz</i> 3:00 PM – 5:30 PM Room 4
				DRUG METABOLISM DIVISION James A. Gillette Best Paper Award & Platform Session 3:00 PM – 5:30 PM Room 3	NEU BUSINESS MEETING 5:45 PM – 6:45 PM Room 3	NEU BUSINESS MEETING 5:45 PM – 6:45 PM Room 3		
2012 TEACHING INSTITUTE: Use of social media in pharmacology education <i>L. Crespo</i> 12:00 PM – 2:30 PM Room 3	BEH, NEU Neuropsychological correlates of stimulant treatment for ADHD in adolescents & adults <i>C. Adavakat</i> 9:30 AM – 12:00 PM Room 4	DM, ISTCP, TOX Role of nuclear receptors in lipid dysregulation & obesity-related diseases <i>J. Chiang, H. Swanson</i> 3:00 PM – 5:30 PM Room 5A	NEU, BEH The Nociceptin/orphanin FQ-NOP receptor system: Neurobiology, pharmacology & therapeutic opportunities <i>G. Calo</i> 9:30 AM – 12:00 PM Room 4	PUBLIC AFFAIRS WORKSHOP: FDA's strategy to develop and validate new anticancer and cancer prevention agents and pathways 1:00 PM – 2:50 PM Room 4	NEU, BEH The Nociceptin/orphanin FQ-NOP receptor system: Neurobiology, pharmacology & therapeutic opportunities <i>G. Calo</i> 9:30 AM – 12:00 PM Room 4	MP, NEU Regulation of TRP channels <i>M. Zhu</i> 3:00 PM – 5:30 PM Room 4	DM, TOX, DDDRA NADH-CYP450 oxidoreductase: Roles in physiology, pharmacology and toxicology <i>T. Porter, D. Riddick</i> 9:30 AM – 12:00 PM Room 4	DDDDA Clinical pipeline of marine natural products: The odyssey continues <i>K. Glaser, A. Mayer</i> 3:00 PM – 5:30 PM Room 5A

American Society for Pharmacology and Experimental Therapeutics at Experimental Biology 2012 – San Diego, CA

All rooms listed are in the San Diego Convention Center unless otherwise noted.

Saturday, 4/21	Sunday AM, 4/22	Sunday PM, 4/22	Monday AM, 4/23	Monday PM, 4/23	Tues AM, 4/24	Tues PM, 4/24	Wed AM, 4/25	Wed PM, 4/25
	TOX, DM, ISTCP Role of pharmacogenetics in oncology <i>E.P. Black, H. Swanson</i> 9:30 AM – 12:00 PM Room 5A	CVP, ISTCP Emerging role of heme oxygenase in cardiovascular & metabolic disease <i>N. Abraham</i> 3:00 PM – 5:30 PM Room 5B CVP BUSINESS MEETING 5:45 PM – 6:45 PM Room 5B	DPE, BEH The real world of therapeutic drugs: Bench to boardroom, the bedside & beyond <i>P.K. Rangachari</i> 9:30 AM – 12:00 PM Room 5A	MOLECULAR PHARMACOLOGY DIVISION Postdoctoral scientist award finalists 3:00 PM – 5:30 PM Room 4	TOX, DM, DDDRA From structure to knockout: Common themes between CYPs & ABC transporters <i>M. Vore</i> 9:30 AM – 12:00 PM Room 5A TOX BUSINESS MEETING 5:45 PM – 6:45 PM Room 5A	TOXICOLOGY DIVISION The utilization of genetically modified mice to determine mechanisms of toxicity <i>J. Hinson</i> 3:00 PM – 5:30 PM Room 5A TOX BUSINESS MEETING 5:45 PM – 6:45 PM Room 5A	ISTCP, TOX, NEU Opioid-induced bowel dysfunction <i>H. Akbarali</i> 9:30 AM – 12:00 PM Room 5A	ISTCP Applications of biomaterials & drug delivery systems for enhancing tissue engineering & regeneration <i>K.-E. Andersson, G. Christ</i> 3:00 PM – 5:30 PM Room 5B
ASPET Business Meeting 6:00 PM – 7:30 PM Ballroom 20BC	NEU, TOX, MP, DDDRA Multi target agents: The Yin & Yang of rational drug discovery <i>A. Cross, M. Wood</i> 9:30 AM – 12:00 PM Room 5B	DPE Adapting TBL techniques to teach pharmacology to graduate, professional & medical students <i>R.S. Kumar</i> 3:00 PM – 5:30 PM San Diego Marriott, Hall 5	DRUG DISCOVERY, DEVELOPMENT & REGULATORY AFFAIRS DIVISION Mitochondrial dysfunction in human disease <i>R. Davis, M. Williams</i> 9:30 AM – 12:00 PM Room 5B	INTEGRATIVE SYSTEMS, TRANSLATIONAL & CLINICAL PHARMACOLOGY DIVISION Young investigator Platform Awards Session 3:00 PM – 5:30 PM Room 5A ISTCP BUSINESS MEETING 5:45 PM – 6:45 PM Room 5A	BEH, DDDRA, NEU Models of affective disorders & pharmacological interventions: The influence of etiology in treatment approach <i>M. Nader, L. Howell</i> 9:30 AM – 12:00 PM Room 5B	DDDRA, TOX, MP Targeting PI3K for human diseases <i>T. Rao</i> 3:00 PM – 5:30 PM Room 5B		
Opening Reception 7:30 PM – 9:30 PM Center Terrace	DPE Building a pharmacology course from scratch: Benefits & pitfalls of a cut & paste pharmacology course <i>J. Szarek</i> 9:30 AM – 12:00 PM San Diego Marriott, Hall 5	Graduate Student/Postdoc Best Abstract Competition 6:30 PM – 8:30 PM San Diego Marriott, Hall 3/4	DDRA BUSINESS MEETING 12:15 PM – 1:15 PM Room 5B	PHARMACOLOGY EDUCATION DIVISION Strategies for pharmacology in integrated medical school curricula: Best practices for enhancing involvement of our discipline 3:00 PM – 5:30 PM Room 5B DPE BUSINESS MEETING 5:45 PM – 6:45 PM Room 5B MP BUSINESS MEETING 7:00 PM – 9:00 PM Marriott, Presidio		Women in Pharmacology Career Roundtable 1:00 PM – 3:00 PM Room 12		ASPET Closing Reception 6:00 PM – 8:00 PM San Diego Marriott, Poolside Terrace

Posters will be displayed 7:30 AM – 6:00 PM Sunday and Monday, 7:30 AM – 4:00 PM Tuesday, and 7:30 AM – 5:30 PM Wednesday. AUTHORS MUST BE PRESENT BY THEIR BOARDS 12:30 PM – 2:45 PM.

Sunday Poster Sessions

Drugs of abuse-Cocaine
Drugs of abuse-Depressants/Cannabinoids
Monoamines/behavior
Pharmacology of pain
GPCR signaling
GRKs and Arrestins
cAMP signaling & compartmentation
Phosphoinositide signaling
Systems pharmacology/toxicology-Asthma & COPD
Endothelium & ion channels
Endothelial mechanisms
Pharmacology of neuroprotection
Mechanisms of gene expression
Developmental Pharmacology/Toxicology

Monday Poster Sessions

GPCR Ligand development
GPCR modifications & trafficking
AGS/RGS Proteins
Kinases & phosphatases
Endothelium dysfunction
Vascular cell proliferation & angiogenesis
Peripheral & central vascular pcoi
Neurotransmission
Neurotransmitter transporters
Neuronal & glial growth/differentiation
Alzheimer's disease approaches
Pharmacology of learning & memory
Clinical pharmacology & toxicology
Pharmacokinetics/pharmacodynamics
Phase I/Phase II drug metabolism
Drug discovery and development
Mechanisms of cell injury/death

Tuesday Poster Sessions

Cancer chemotherapy & mechanisms of toxicity I
Cancer chemotherapy & mechanisms of toxicity II
Corticotrophin-releasing factor
Drugs of abuse-amphetamines & other stimulants
Drugs of abuse-opioids
Drug-behavioral interactions
Physiology/behavior
CNS pharmacology - Neurotransmitter receptors
Neuropsychiatric disorders
Neurotoxicology-General
Transporters
Signal transduction/ion channels
Smooth muscle pharmacology
Mechanisms of toxicity
Renal pharmacology/toxicology

Wednesday Poster Sessions

Cardioprotection
Vascular systems pharmacology
Cardiovascular pharmacology-Thrombosis
Targeting myocardial function
Pharmacology & women's health
Immune cell pharmacology
Pharmacology of immunity
Regenerative pharmacology
Pharmacoprotoemics
Opioid/cannabinoid therapeutics
Natural products
All Late-breaking abstracts

2012 Annual Meeting

Meet the Leadership

Stop by the ASPET Booth in the Exhibit Hall, Booth 801-805 for an informal "Meet & Greet" with some of ASPET's leadership. This is your chance to get to know some members of Council and the journals' Editorial Boards. ASPET members are encouraged to talk about the society, any ideas or questions you have, or anything else you have on your mind!

Sunday, April 22

12:00 - 12:30PM



Charles P. France, PhD - Councilor

Dr. France was just elected to Councilor in 2012, but he has also served as the Chair of the Behavioral Pharmacology Division, on the Council of Division Chairs, and on the Editorial Board for *JPET*.



James E. Barrett, PhD - Chair of the Board of Publications Trustees

Dr. Barrett is currently the Chair of the BPT, serves on the Finance Committee & Long Range Planning Committee. He is a past President and a past FASEB Board member

Monday, April 23

12:00 - 12:30PM



Edward T. Morgan, PhD - Secretary/Treasurer-Elect

Dr. Morgan is currently the Secretary/Treasurer-Elect. He is also on the Board of Publications Trustees and is the editor of *DMD*. He also represents ASPET on FASEB's Publications & Communications Committee.



Brian M. Cox, PhD - FASEB Board Representative

Dr. Cox is currently the FASEB Board Representative for ASPET. He also serves on the *JPET* Editorial Board. He was also a past President and a past Chair of the BPT.

12:30 - 1:00PM



Stephen M. Lanier, PhD - Councilor

Dr. Lanier serves ASPET as a Councilor. He is also a member of several committees including the Long Range Planning Committee & *The Pharmacologist* Advisory Committee.

1:30 - 2:00PM



Michael F. Jarvis, PhD - Editor of JPET

Dr. Jarvis serves as the Editor of *JPET* and is also on the Board of Publications Trustees. He is also a Past Chair of the Division of Drug Discovery, Development and Regulatory Affairs.

Tuesday, April 24

12:00 - 12:30PM



Lynn Wecker, PhD - President

Dr. Wecker is the current President of ASPET. She was also a past Secretary/Treasurer. She also serves on the Investment Subcommittee and is the incoming Treasurer for FASEB.



James R. Halpert, PhD - Past-President

Dr. Halpert is currently the Past-President of ASPET. He is also the Chair of the Council of Division Chairs and serves on the Scientific Advisory Board for *DMD*. He is a past Editor of *DMD*.

12:30 - 1:00PM



Richard R. Neubig, MD, PhD - President-Elect

Dr. Neubig was just elected to President in this year's election. He currently serves as Councilor on the ASPET Council and is on the Editorial Board for *Molecular Pharmacology*. He is also a past member of the BPT.

**Exhibit Hall
Booth 801-805
ASPET Staff will also be on hand to answer any questions and hear your thoughts! We look forward to seeing you there!**

2012 Annual Meeting

Special Workshop

FDA Workshop: FDA's Strategy to Develop and Validate New Anticancer and Cancer Prevention Agents and Pathways

Sponsored by the ASPET Public Affairs Committee and the ASPET Division of Drug Discovery, Drug Development and Regulatory Affairs

Monday, April 23

1:00-2:50 pm

**San Diego Convention Center
Room 4**

This special interactive workshop intended for all translational investigators focuses on FDA's strategic planning to develop and validate new anticancer and cancer prevention agents and pathways. Leading FDA scientists will explain their role in understanding and improving the process of cancer drug development and how the development and validation process for new anticancer and cancer prevention agents can be made available to patients at an accelerated rate. This workshop will help investigators understand the broad framework of cancer drug development strategies.

1:00-1:05

Chair Opening Remarks

Speaker: Kenneth Tew, PhD, DSc, Medical University of South Carolina

1:05-1:35

Pitfalls in Oncology Development

Speaker: Katherine Delorenzo, MD, FDA

1:35-2:05

Oncology Drug Development

Speaker: Stacy Shord, PharmD, FDA

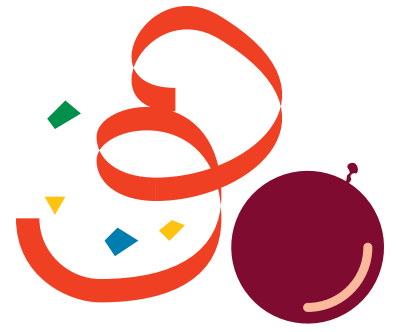
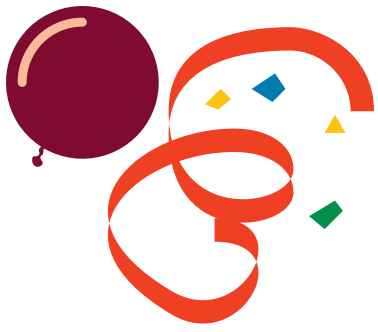
2:05-2:35

Bridging the Gap Between Drug Discovery & Clinical Trials: non-clinical development of oncology drugs

Speaker: Haleb Saber, PhD, FDA

2:35

Questions and Concluding Remarks



**Join Us for the
Closing Reception
at the
Marriott Poolside Terrace
Wednesday, April 25, 2012
6:00 PM - 8:00 PM**

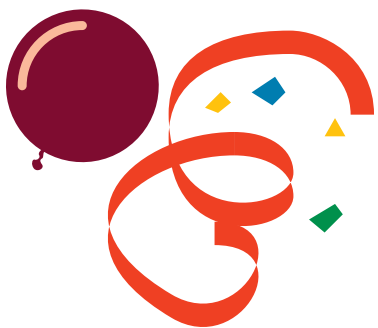
Featuring:

**Pasta Station with
Fusilli Pasta, Rock Shrimp "Scampi Style", Braised Short Rib
and Orecchiette Penne Pasta, Bloomsdale Spinach, Sundried
Tomatoes and Harissa Oil**

Cash Bar with Beer & Wine

Two Caricature Artists

See You There!



2012 Annual Meeting

Activities for Students & Post-Docs

Saturday, April 21

Diversity Committee Workshop: Building a Research Career in Pharmacology: A Focus on Health Disparities
12:00 – 2:30 PM.....Convention Center, Room 2

Graduate Student Colloquium: Communication
2:45 – 5:15PM.....Convention Center, Room 2

ASPET Business Meeting
6:00 – 7:30 PM.....Convention Center, Ballroom 20D

Opening & Awards Reception
7:30 – 9:30 PM.....Convention Center, Center Terrace

Sunday, April 22

WIP Into Shape Networking Walk
7:00 - 9:00 AM.....Marriott (Concierge Desk)

Diversity Mentoring Breakfast
7:30 - 9:30 AM.....Marriott, Anaheim

Student/Postdoc Best Abstract Competition
6:30 – 8:30 PM.....Marriott, Marriott Hall Salons 3/4
(Open to presenters to set up at 5:00 PM)

Monday, April 23

Division Mixer: Joint Drug Discovery, Development & Regulatory Affairs, Integrative Systems, Translational & Clinical Pharmacology, & Pharmacology Education
7:00 - 9:00 PM.....Marriott, Solana

Division Mixer: Molecular Pharmacology
7:00 - 9:00 PM.....Marriott, Presidio I/II

Y.E.S. Young Experimental Scientist Mixer
9:00 - 11:30 PM.....Marriott, Marriott Hall Salon 3

Tuesday, April 24

WIP Career Roundtable
1:00 - 3:00PM.....Convention Center, Room 12

Division Mixer: Cardiovascular Pharmacology
6:00 - 9:00 PM.....Marriott, Santa Rosa

Division Mixer: Joint Drug Metabolism & Toxicology
7:00 - 9:00 PM.....Marriott, Balboa

Division Mixer: Neuropharmacology
7:00 - 9:00 PM.....Marriott, Solana

ASPET Student/Post-Doc Mixer
9:00 - 11:30 PM.....Marriott, Marriott Hall Salon 2

Wednesday, April 25

ASPET Closing Reception
6:00 - 8:00 PM.....Marriott, Poolside Terrace

Saturday - Wednesday April 21 – April 25

All in the Convention Center

FASEB Internet/Cyber Café
.....Sails Pavillion

FASEB Career Resources Center/Placement Service (Open Saturday - Tuesday)
.....Hall D

FASEB Career Development Seminars & Workshops Topics Covered: Resume Writing, References, Job Search, Interviewing, Networking, Business Correspondence, Grant Writing, Life/Career Planning, Career Development, Getting Tenure (See Program for Schedule)
.....Hall D

Message Center/Free Literature
.....Lobby



2012 Annual Meeting

WIP Career Roundtable

Women in Pharmacology Committee Career Round-Table



Have you ever wondered:
What career options are open to me?
How should I network?
What is it like to run your own lab?
What is it like to work in the
pharmaceutical industry?



*Come get answers to your career development
questions in an informal environment!*



Date: Tuesday, April 24
Time: 1:00 - 3:00 PM
San Diego Convention Center
Room 12



**The following speakers will be present to talk to you personally
about life in industry, academia, and other fields:**

**Representing Academia - Martha I. Davila-Garcia (Howard University) &
Margarita Dubocovich (University of Buffalo)**

Representing Industry - Jelveh Lamah (Genoptix Medical Laboratory)

Representing Research Institutes - Laura Bohn (Scripps Research Institute)

**Representing New Hires - Richard Wainford (Boston University) &
Jun-Xo Li (University of Buffalo)**

Representing Associations - Christie Carrico (ASPET)

Career Center

New Features Coming Soon!

Have you visited ASPET's new Career Center yet? If not, you need to check it out! <http://careers.aspet.org/> Last fall, we launched a brand new Career Center on the ASPET website to bring you a more user friendly experience. We have teamed up with Boxwood Technologies and the National Healthcare Career Network to offer our members the best Career Center resources available, including:

- Access to hundreds of jobs across the country – as part of the National Healthcare Career Network, you not only have access to jobs posted to the ASPET Career Center, but to jobs posted by over 250 other professional associations and societies in the health-care industry.
- Free and confidential CV posting – make your CV available to employers, confidentially if you choose.
- Job search control – quickly and easily find relevant job listings and sign up for automatic email notification of new jobs that match your criteria.
- Easy job application – apply online and create a password-protected account for managing your job search
- Saved jobs capability – save up to 100 jobs to a folder in your account so you can come back and apply when you are ready to apply.
- Document saving – save up to 5 documents to your profile (CV, cover letter, portfolio, etc.)



We are also currently working on bringing even more useful features to our site. Coming soon, we will be providing a professional resume and cover letter writing service for all job seeker levels. We will keep you informed of when that will be available.

If your department is currently looking to fill a position, be sure to consider posting to the ASPET Career Center as well. Our site is geared for employers to recruit the most qualified candidates more cost effectively. Our Career Center is:

- Easy to use – get everything you need with a few simple clicks. A customer service team is always available if you need assistance.
- Search resume database – because ASPET and the National Healthcare Career Network represent the most qualified pharmacology professionals, our resume database gives you access to the best possible job seekers.
- Automatic notification – set the criteria for your ideal candidate and receive emails daily when new resumes are a match.
- Job activity tracking – see how many candidates are viewing your jobs, applying online, or forwarding to friends and colleagues.
- Online job posting information – manage your job postings online, anytime. Add, edit, copy, and delete, company postings right from your desk.



Whether you are a job seeker or an employer, the ASPET Career Center is the place to bookmark for all your career needs. Visit us today!

Division News

Division for Drug Metabolism

Chair-Elect:



Jeffrey P. Jones, PhD

Secretary/Treasurer-Elect:



Nina Isoherranen, PhD

Division for Integrative Systems, Translational, & Clinical Pharmacology

Chair-Elect:



Ismail Laher, PhD

Secretary/Treasurer-Elect:



Michael A. Holinstat, PhD

Division for Molecular Pharmacology

Chair-Elect:



John J. Tesmer, PhD

Secretary/Treasurer-Elect:



Rennolds S. Ostrom, PhD

Division News

Division for Neuropharmacology

Chair-Elect:



Laura M. Bohn, PhD

Secretary/Treasurer-Elect:



Lakshmi A. Devi, PhD

Division for Toxicology

Chair-Elect:



Rick G. Schnellman, PhD

Secretary/Treasurer-Elect:



Laura James, MD

Have you joined a Division?

Take full advantage of ASPET Membership by joining a Division!

- Participate in creating the scientific program for the annual meeting.
- Network with people in your field at mixers and divisional programming at the annual meeting.
- Participate in running the division and planning its activities.
- Receive special notices and newsletters about items and activities of interest in your field.

Chapter News

Upstate New York Pharmacology Society

University at Buffalo
Center for the Arts
May 14, 2012

2012 Inaugural Annual Meeting Program

Morning Session

8:00 – 8:15	Registration & Poster Setup Continental Breakfast Atrium, Center for the Arts	1:30 – 2:10	Cheryl Frye, Ph.D., University at Albany “Steroids: Therapeutics Challenge and Promise”
8:15 – 1:30	Poster presentations and judging Coffee and bagels Atrium, Center for the Arts	2:10 – 2:50	Steven Hill, Ph.D., Tulane University “Melatonin and Peripheral Clocks in the Regulation of Breast Cancer Cell Invasion”
8:40	UNYPS Welcome Screening Room, Center for the Arts	2:50 – 3:30	Richard Miller, Ph.D., Northwestern University “Chemokine Signaling in Neural Development and Neuropathology”
8:45 – 10:15	President: Margarita I. Dubocovich, PhD Graduate Student Presidential Symposium Moderator: Carlos Feleder, M.D., Ph.D.	3:30 – 4:00	Refreshment Break Atrium, Center for the Arts UNYPS Business Meeting
10:15 – 11:15	Poster sessions and Break	4:00 – 5:00	Keynote Address Screening Room, Center for the Arts Moderator: Margarita I. Dubocovich, PhD
11:15 – 12:15	Junior Scientist Symposium Moderator: Jean Bidlack, Ph.D.		Michel Bouvier, Ph.D., F.C.A.H.S. Université de Montréal “Harnessing the Functional Selectivity of GPCR for Drug Discovery: A Technical Challenge Opening New Opportunities”
12:15 – 1:30	Lunch, Poster viewing Atrium, Center for the Arts		Awards Presentation Screening Room, Center for the Arts Moderator: Aiming Yu, Ph.D.
1:30 – 3:30	Symposium: Signal Transduction Systems as Targets for Drug Discovery Screening Room, Center for the Arts Moderator: Peter Bradford, Ph.D.	5:00 – 5:15	

Afternoon Session

Additional information and abstract submission forms:
www.aspet.org/Upstate_NY_Pharmacology

Chapter News

Mid-Atlantic Pharmacology Society

Mid-Atlantic Pharmacology Society (MAPS)

Annual Meeting Report

October 27, 2011

Submitted by Carol L. Beck and Diane W. Morel

The 2011 MAPS annual meeting, "Pharmacologic Advances in Hematology and Cardiology," was hosted by Thomas Jefferson University (TJU) on Thursday, October 27, 2011. This topic was chosen because of strong interest and local expertise in these areas and the overlap and integration between these disciplines in therapeutic development. Four researchers from the region with expertise in either hematology and cardiology plus a keynote speaker with research that spanned the two disciplines updated the audience about new investigational strategies and challenges in translating basic discoveries into therapeutics. New to the program this year were two invited oral student/trainee presentations. In advance of the meeting, judges selected an outstanding abstract for each theme. The selected trainees gave 10 minute oral presentations as part of the symposium.

Over 80 scientists, clinicians, and students from the Delaware Valley participated in the 2011 meeting. In addition to the invited speakers, students and trainees presented 29 posters and gave two oral presentations.

The day began with poster set-up and judging. By category, there were 13 undergraduate student posters, 9 graduate student/ research associate posters, and 7 postdoctoral fellow posters. MAPS Councilors Sri Ghatta, PhD, and Michael Holinstat, PhD, organized the judges. Posters remained up throughout the day for viewing by attendees. Making poster judging the first event of the day allowed presenters and judges to focus on the rest of the meeting. Check-in for attendees who were not presenting or judging started one hour later; these attendees could view posters and visit exhibits by sponsors Chrono-Log and Life Technologies.

The meeting was officially opened by MAPS president Carol L. Beck, PhD, from the Department of Pharmacology and Experimental Therapeutics at TJU, with a TJU welcome extended by Leonard P. Freedman, PhD, Vice Dean for Research, Jefferson Medical College, TJU.

The morning session focusing on "Pharmacologic Advances in Hematology" was moderated by MAPS Councilor Michael P. Holinstat, PhD. Donna Woulfe, PhD, from the University of Delaware discussed "Akt and GSK3 Regulation of Platelet Function" in the first talk of the morning. She described a variety of approaches to potentially druggable targets that affect platelet aggregation, many of which are influenced by akt and gsk3 intracellular signaling. Her studies, based on the observation that akt null mice exhibit reduced platelet aggregation, have explored possible roles of akt substrates including nitric oxide synthase and phosphodiesterase 3a, and gsk 3beta. Her research seeks to understand linkages among dimer- (or oligomer)-ization, adp secretion, and different pools or sensitivities of akts and platelet aggregation.

Next, Martin Ogletree, PhD, from Merck Research Labs, provided an industrial perspective on antithrombotics in his talk entitled "Benefits and Risks with Novel Oral Antithrombotics."

Chapter News

Mid-Atlantic Pharmacology Society

Dr. Ogletree spoke about the desire for science to drive decision making, and the difficulty in identifying benefits and risks when working in areas of unmet need. He compared and contrasted warfarin, the gold standard antithrombotic, with some of the newer antithrombotic agents being used or proposed for atrial fibrillation. An area of concern in identifying benefit and risk is that most models used in testing involve provoked thrombosis, as opposed to the spontaneous thrombosis which predominates in disease. Dr. Ogletree challenged the scientific community to consider how biomarkers could be utilized for understanding or predicting increased risk of thrombosis.

The hematology section concluded with an invited student/trainee presentation by Jennifer Yeung MS candidate, TJU, on "The inhibitory effects of 12-HETrE on platelet reactivity" [Mentored by Michael Holinstat, PhD].

Before breaking for lunch, the **George B. Koelle Award** was presented. MAPS presents this annual award to honor the memory of the world-renowned and pioneering local pharmacologist, the late George B. Koelle. MAPS selects one scientist (usually local) who most closely shares Dr. Koelle's enthusiasm for teaching and conducting outstanding research. This year's recipient was Dr. Vincent Aloyo: pharmacologist, neuroscientist, educator, a past president of MAPS, and a Master Beekeeper. Over his career, Dr. Aloyo's research has added to our understanding of the serotonin system in the brain. He has mentored and encouraged many students. Alan Cowan, PhD, MAPS Councilor, introduced Dr. Aloyo, mentioned highlights of Dr. Aloyo's career, and presented the award on behalf of MAPS.

After lunch and additional time to view posters and sponsor exhibits, Steven McKenzie, MD, PhD, Vice President for Research, TJU, introduced the keynote speaker, Barry Collier, MD, from Rockefeller University. Dr. Collier spoke about the role of translational medicine in the areas of hematology and cardiology in his talk entitled "From the Bedside to Abciximab to the Future." Using his own research to illustrate points, Dr. Collier shared his perspective that research is not one of the three missions of academic medicine, it is THE mission, and translational research allows the application of the scientific method to meet a health need. The steps to such research involve articulation of a health need with a basic science hypothesis, creation of robust, medically meaningful assays to interrogate the system, and design of appropriate and pivotal phase 3 studies to assess safety and efficacy, as a robust path to clinical adoption.

Robert Willette, PhD, MAPS councilor, served as moderator for the second half of the meeting that focused on "Pharmacologic Advances in Cardiology." Jon Violin, PhD, from Trevena, Inc. discussed "Translating GPCR Ligand Bias into a Novel Therapy for Acute Heart Failure." He discussed the potential for pathways that involve GPCRs to modify action by targeting the pathway as opposed to the receptor itself, and showed data about a beta arrestin-biased ligand with promise in the treatment of heart failure. Biased GPCR ligands can stimulate the beta arrestin pathway while blocking G-protein signaling.

Colin Macphee, PhD, from GlaxoSmithKline, in his talk entitled "Lp-PLA2 Inhibition: From an Idea to Phase III," discussed how a future unmet need such as plaque stabilization in cardiovascular disease could be met by focusing and extending what is already understood about the process. He discussed the series of steps by which Lp-PLA2 inhibition developed as a target, starting from the identification of unresolved

Chapter News

Mid-Atlantic Pharmacology Society

inflammation and LDL oxidation in atherogenesis, through stability studies in high risk, post-acute coronary syndrome patients, to ongoing phase III trials which will determine if the idea will translate into overall benefit for patients with coronary heart disease.

The final talk was an invited student/trainee presentation by Jennifer A. Talarico, MS candidate, TJU, entitled "Endogenous β 1-adrenergic receptor stimulation induces differential targeting of epidermal growth factor receptor-dependent signaling pathways in cardiomyocytes" [Mentored by Douglas G. Tilley, PhD].

After concluding remarks, the meeting adjourned to move across the street to the location of the awards ceremony and networking reception.

Michael Holinstat, PhD, and Sri Ghatta, GSK, introduced the award winners from the poster session. First place winners received a trophy and \$300 and second place winners received a trophy and \$150. The awards were concluded with two names drawn from among the names of all presenters to receive gift certificates for a future poster printing, compliments of Slidemakers, Inc. Attendees then enjoyed refreshments while networking, socializing, and congratulating the winners.

We look forward to our next meeting in 2012 and to another opportunity to discuss and communicate about the sciences and disciplines involving pharmacology!

Poster Session Winners:

Undergraduate Category:

First Place: Christopher Howard and Jennilyn Weber, Ursinus College

Second Place: Faith D'amico, Temple University

Graduate/ Research Associate Category:

First Place: Harshini Neelakantan, Temple University

Second Place: Ronald Vagnozzi, Thomas Jefferson University

Postdoctoral Fellow Category:

First Place: Heather Montie, Thomas Jefferson University

Second Place: Jeffrey Adijanto, Thomas Jefferson University

Acknowledgements

The Mid-Atlantic Pharmacology Society would like to thank the following companies and organizations for providing financial and other forms of support for the meeting:

- American Society for Pharmacology and Experimental Therapeutics (ASPET)
- Cephalon, Inc.
- Chrono-Log Corporation
- Jefferson College of Graduate Studies, Thomas Jefferson University
- Life Technologies

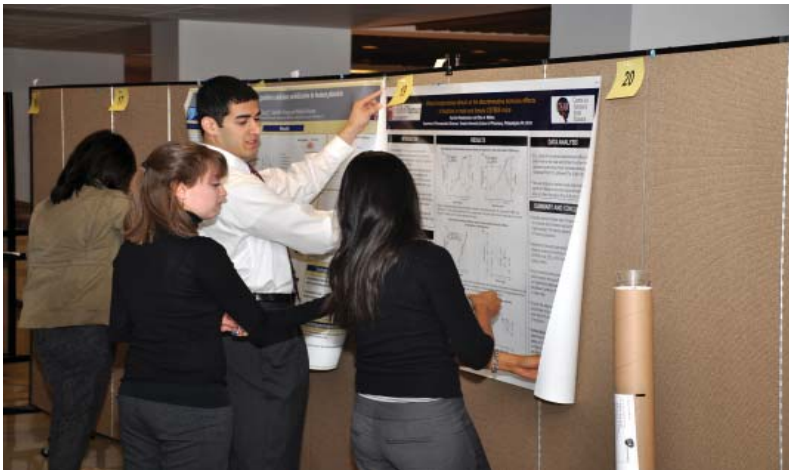
Chapter News

Mid-Atlantic Pharmacology Society

- Office of the Vice President for Research, Thomas Jefferson University
- Slidemakers, Inc.

Special thanks to:

- Poster session judges
- Sri Ghatta and Michael Holinstat for organizing the poster session and judges
- Dennis Gross for photography
- TJU MS students Pierrette Andre, Samantha Garcia, and Shilpadhar Sonnenahalli for staffing the Registration Desk
- Ronzo Hanks and Bobby Phipps at the ASPET office



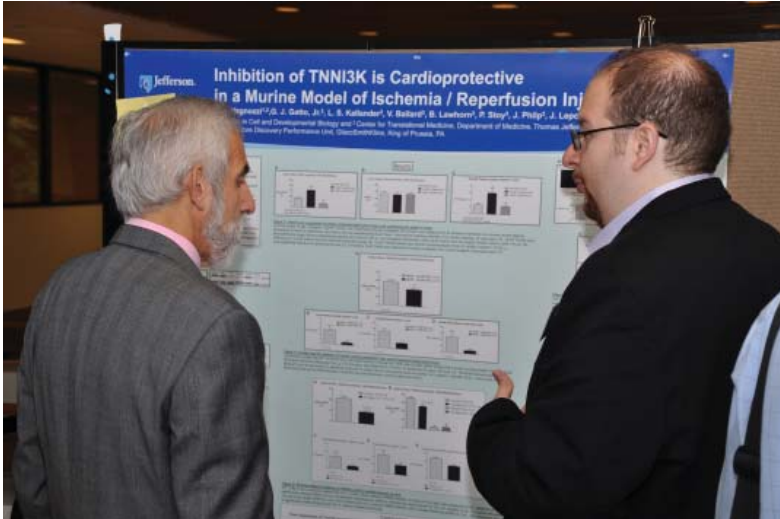
MAPS annual meeting: Poster presenters setting up.



MAPS Keynote Speaker Dr. Barry Coller addressing the audience.

Chapter News

Mid-Atlantic Pharmacology Society



Thomas Jefferson University PhD student Ronald Vagnozzi explains his research to Koelle Award recipient Dr. Vincent Aloyo.



Networking reception after the awards ceremony.



Keep in Touch...
Have you moved?
Changed your email address?
Changed jobs?



Keep us informed of changes to your contact information so that you don't miss out on any important ASPET news!
Email us at info@aspnet.org

Chapter News

Mid-Atlantic Pharmacology Society

Abstracts presented at the 2011 Mid-Atlantic Pharmacology Society Meeting,
October 27, 2011

ABSTRACT # 1

Invited Oral Presentation

The inhibitory effects of 12-HETrE on platelet reactivity

Jennifer Yeung*, Alex Arnouk, and Michael Holinstat

Department of Medicine, Cardeza Foundation for Hematologic Research, Thomas Jefferson University, Philadelphia, PA 19107

A physiological feature of cardiovascular disease (CVD) is abnormal clot formation, as a consequence of uncontrolled platelet activation. A number of anti-platelet drugs have been developed to target specific signaling pathways or endpoints involved in platelet activation. Despite the effectiveness of current anti-platelet therapies, such as aspirin and clopidogrel, uncontrolled thrombosis persists as a leading cause of death, warranting the development of novel anti-platelet therapy. A possible novel therapeutic approach is to administer bioactive lipids (eicosanoids) of ω -6 polyunsaturated fatty acid to modulate platelet activation. Here, we show that 12-hydroxyeicosatrienoic acid (12-HETrE), an ω -6 fatty acid metabolite oxidized by 12-lipoxygenase from dihomo- γ -linolenic acid (DGLA), significantly attenuates platelet activation. In order to assess the effects of the bioactive metabolite on platelet activation, we measured a number of major biochemical endpoints in the platelet. Human washed platelets pre-treated with 25 μ M of 12-HETrE significantly attenuated PAR1-AP, PAR4-AP, and thrombin-induced aggregation compared with agonists alone. Integrin α IIb β 3 activation, facilitating platelet-mediated aggregation, was also significantly attenuated in the presence of the 12-HETrE. Similarly, Rap1 activation, a required precursor for α IIb β 3 activation, was significantly attenuated. To determine if the eicosanoid induced its inhibitory regulation in a GPCR-dependent manner, the level of intracellular cAMP was measured. We observed a substantial increase of intracellular cAMP level in 12-HETrE treated platelets alone and in combination with PAR1-AP. This is the first study showing 12-HETrE as a negative regulator of platelet reactivity and a potential anti-thrombotic agent. The regulatory mechanisms mediated by DGLA and subsequently 12-HETrE are not fully understood and future experiments will elucidate the mechanisms by which platelet reactivity is regulated by 12-HETrE in human platelets.

ABSTRACT # 2

Invited Oral Presentation

Endogenous β 1-adrenergic receptor stimulation induces differential targeting of epidermal growth factor receptor-dependent signaling pathways in cardiomyocytes

Jennifer A. Talarico*, Laurel A. Grisanti, Scott W. Radcliffe, Rhonda L. Carter and Douglas G. Tilley

Department of Pharmaceutical Sciences, Jefferson School of Pharmacy, Center for Translational Medicine, Thomas Jefferson University, Philadelphia, PA 19107

The epidermal growth factor receptor (EGFR) functions as a signaling node, the activation of which may occur via numerous mechanisms. Direct stimulation of several G protein-coupled receptors (GPCRs) has

Chapter News

Mid-Atlantic Pharmacology Society

been shown to mediate the indirect "transactivation" of EGFR, initiating signaling events independently of classic GPCR pathways. Indeed, stimulation of the β 1-adrenergic receptor (β 1AR) in the heart has been shown to mediate EGFR transactivation to exert cardiac survival during heart failure, though the cell signaling mechanisms involved in this process are unknown. We hypothesized that β 1AR stimulation may induce EGFR-dependent changes in the activity and intracellular targeting of proteins involved in the regulation of hypertrophy and apoptosis in the heart, including ERK1/2 and Akt. I.p. injection of C57BL/6 mice with isoproterenol (ISO, 1mg/kg, pretreatment with 1 μ g ICI 118,551, β 2AR antagonist) produced significant increases in the phosphorylation of ERK1/2 and Akt in the whole heart, each of which were significantly attenuated by pretreatment of the mice with EGFR antagonist (AG1478, 10mg/kg). To determine the subcellular distribution of EGFR-activated ERK1/2 and Akt following β 1AR stimulation, rat neonatal cardiomyocytes were treated with ISO (10 μ M, pretreatment with 1 μ M ICI 118,551) in the presence or absence of AG 1478 (1 μ M). As was observed in the whole heart, ERK1/2 and Akt were each significantly phosphorylated in response to ISO in an EGFR-sensitive manner. Interestingly, phosphorylation of ERK1/2 and Akt was virtually absent in the cytosol, whereas significant phosphorylation of each occurred at the plasma membrane and in the nuclear fraction, with the nuclear fraction being the most sensitive to EGFR inhibition. Phosphorylation of CREB, a transcription factor downstream of β 1AR but independent of β 1AR-mediated EGFR transactivation, was not altered by EGFR inhibition. Since the nuclear fraction contained the most EGFR-sensitive signaling responses following ISO stimulation, we sought to determine the impact of β 1AR-mediated EGFR transactivation on gene expression responses in the whole heart. Mice were treated as described above for 1 hour and real-time PCR was performed on a panel of known EGFR-regulated genes. Of these, Bcl2l11 (Bim) expression increased significantly in response to ISO and was attenuated by EGFR inhibition, indicating that β 1AR-mediated transactivation of EGFR has the capacity to regulate cardiac gene expression. Further studies will aim to differentiate ERK1/2 and Akt signaling downstream of β 1AR-mediated EGFR activation to determine the impact of each on the regulation of cardiac hypertrophy and survival.

ABSTRACT # 3

Prenatal Exposure to Dexamethasone Alters 5HT1A Serotonin Receptor Function and Behavior in Adult, Adult-Stressed, and Aged Stressed Male Rats

Darshan S. Shah¹, Patrick A. Reilly¹; Vincent Aloyo²; Kathleen C. Page¹

¹Department of Biology, Bucknell University, Lewisburg, PA 17837; ²Drexel University School of Medicine, Philadelphia, PA

Synthetic glucocorticoids (GC) are used as a clinical therapeutic to stimulate lung development in the fetus and inhibit uterine contractions in pregnancies at risk for preterm delivery. Previous studies have shown prenatal exposure to Dexamethasone (Dex) causes a disturbance of normal GC mediation of neuritic outgrowth, cell signaling, and serotonergic systems. The current hypothesis is that prenatal exposure to Dex during the third trimester of pregnancy alters 5HT1A receptor function and compromises spatial learning and memory in male rats. Pregnant rat dams were injected daily with 150 μ g/ml/kg of Dex (sc) from gestation day 14 through 19. Control dams were treated with saline. Male rats were exposed to an acute stressor and immediately sacrificed. A second group was tested and allowed to return to baseline (basal). A third group was taken out to 1 year of age and sacrificed immediately after an acute stressor. Hippocampi were analyzed using a radioligand binding assay and GTP γ S incorporation (3H-MPPF antagonist and 8-OH-DPAT

Chapter News

Mid-Atlantic Pharmacology Society

agonist respectively). Binding maximum (B_{max}) increased for the Dex treated animals under basal and stressed conditions. Behavior data showed that both Dex treated groups had attenuation in learning and memory. Receptor binding data showed a statistical difference in K_d and B_{max} for both adult groups. This difference however was not seen in the aged group. The G-protein incorporation data showed no statistically significant change for any group.

ABSTRACT # 4

Analysis of meiotic commitment using a GFP-tagged protein in *S. cerevisiae*

*[Winifred Wolfe](#)², [Aikaterini Skokotas](#)² and [Edward Winter](#)¹

¹Department of Biochemistry and Molecular Biology, Thomas Jefferson University, Philadelphia, PA 19107;

²Biology Department, Rosemont College, Rosemont, PA 19010

In *S. cerevisiae*, meiosis is regulated by a tightly controlled transcriptional cascade that involves the induction of early, middle, and late sporulation-specific genes. The induction of middle genes is the key step that controls exit from prophase and meiotic commitment. In prophase I, chromosomes join with their homologue and are held together via a structure called the synaptonemal complex (SC). This complex forms in pachytene (late prophase I) and it is held in place via the Zip 1 protein. At pachytene, the cell can continue the meiotic program, or reverse the process and grow mitotically. In our study, we determined that cells that return to vegetative growth from pachytene form aggregates of Zip1 protein that has been fused to green-fluorescent protein (Zip1-GFP). These aggregates may be related to structures termed polycomplexes, which are found in meiotic cells of evolutionarily diverse organisms. The Zip1-GFP aggregates persist even after the SCs disintegrate and are retained in mother cells after cells return to mitotic growth. The ability to clear protein aggregates has been correlated with cellular aging in a variety of disease states. Experiments with calcofluor, a dye that can be used to score replicative aging, suggest that the cells' ability to retain Zip1-GFP aggregates did not correlate with replicative aging.

ABSTRACT # 5

Correlation of Mitochondrial Membrane Potential and Velocity in Endothelial Cells

[Liriany Y. Pimentel](#)^{*}, [Abu-Bakr Al-Mehdi](#)

Department of Pharmacology, University of South Alabama, Mobile, AL 36688

Previous studies have shown that mitochondrial movement is not random. When mitochondria move, they are able to create signaling microdomains in the cell. Membrane potential is not the same in every mitochondrion. It is known that mitochondria are hyperpolarized when there is an abundance of protons in the intermembrane space that facilitates ATP generation. Depolarized mitochondria are considered to be metabolically inactive. Considering the presence of significant variation in mitochondrial velocity and their membrane potential, we asked the following question: Is there a relationship between mitochondrial membrane potential and velocity? Cultured rat pulmonary microvascular cells were stained with JC-1, a mitochondrial potential-sensitive probe, and a fluorescence time-lapse imaging of mitochondria was performed. Velocities of hyperpolarized and depolarized mitochondria were calculated. Our results show that depolarized mitochondria had faster average velocity compared with hyperpolarized mitochondria ($0.054 \pm 0.002 \mu\text{m/s}$ vs. $0.047 \pm 0.002 \mu\text{m/s}$; $P < 0.05$; $n = 65$). This suggests an important role of mitochondrial membrane potential in the regulation of the mitochondrial transport process.

Chapter News

Mid-Atlantic Pharmacology Society

ABSTRACT # 6

Typing of Single Nucleotide Polymorphisms (SNPs) by Hybridization

Aijingwen Li*, Howard Gamper, Takao Igarashi

Bryn Mawr College, 101 N. Merion Ave, Bryn Mawr, PA 19010; Thomas Jefferson University, 233 South 10th Street, Pennsylvania, PA 19107

DNA-based testing allows the genetic diagnosis of vulnerabilities to inherited diseases and is employed to determine identity and parentage. The most common method used to detect a genetic polymorphism for clinical testing and forensics is to PCR amplify the DNA of interest and sequence it in a core lab. However, it usually takes more than 24 hours to get the results. Hence, our project was focused on designing a faster way for genetic testing based on SNP genotyping by direct hybridization in order to simplify the process of human genotyping. SNPs are the simplest and most abundant type of genetic variation in human beings. Upon choosing 39 suitable SNPs with known genotypes for qualification, we conducted SNP discrimination assays using fluorescently labeled stem-loop probes. Each SNP was addressed using a pair of probes, reflecting the two possible sequences bearing the SNP in question. By analyzing the ratio of signal strength of the perfect-matched hybrid to the signal strength of the mismatched hybrid, we managed to select 26 potential SNPs. We then proceeded to test the resolution power of paired FAM/Cy5 (or FAM/Q670) labeled probes for each potential SNP. We sought qualified SNPs in which the minimum fold change in Cy5/FAM (or FAM/Q670) ratios between a heterozygous standard and a homozygous standard was between 3.5 and 10. SNPs 7, 9, 14, 15, 22, 24, 25, 26, 33, 34, 38, 40, 42, 43, 49, 50, 51, 59, 61, and 67 met this criterion. Experiments were also conducted to show that the 20 chosen SNPs worked well with PCR amplified human CEPH DNA samples. Hence, we successfully qualified 20 SNPs for which the corresponding probe pairs gave high resolution power. For future research, we will further verify the accuracy of the CEPH DNA genotyping results by comparing them with the results obtained using the SnapShot assay.

ABSTRACT # 7

Nafcillin and Ceftazidime as Empiric Combination Therapy in the Management of Febrile Neutropenia Secondary to Chemotherapy in Pediatric Oncology Patients

Christine Ciaramella*, Astrela Sison, Aaron Weiss, Sunanda Gaur, Marc Sturgill

Rutgers University Ernest Mario School of Pharmacy Department of Pharmacy Practice and Administration, Piscataway, NJ 08854; Robert Wood Johnson University Hospital The Bristol-Myers Squibb Children's Hospital, New Brunswick, NJ 08903; Robert Wood Johnson Medical School The Cancer Institute of New Jersey, New Brunswick, NJ 08903

Background: Febrile neutropenia is a life-threatening complication of cancer chemotherapy. The empiric antibiotic regimen used at the Bristol-Myers Squibb Children's Hospital (BMSCH) for the management of febrile neutropenia is the combination of nafcillin and ceftazidime, a regimen that is not supported by current Infectious Disease Society of America guidelines.

Objective: The purpose of this study is to evaluate therapeutically effective and cost-effective alternatives for the treatment of febrile neutropenia based on antibiotic resistance patterns.

Chapter News

Mid-Atlantic Pharmacology Society

Methods: The study is a retrospective chart review in children hospitalized with febrile neutropenia and positive bacterial blood cultures between January 2004 and August 2008. All patients were less than 25 years old, neutropenic (ANC < 500 cells/ μ L), had presence of fever ($\geq 101^{\circ}$ F), an underlying diagnosis of cancer, and blood cultures for gram-positive or gram-negative bacteria. Outcomes measured were type of vascular access, daily CBC and differential, daily maximum temperature, antibiotic regimen, and positive blood culture results including organism and susceptibilities.

Results: Overall, 165 total positive blood cultures were obtained from 90 patient charts reviewed. The majority of cultures yielded gram-positive bacteria. Coagulase-negative staphylococcus species represented most of the gram-positive bacteria with *S. epidermidis* and viridians streptococci being the most prevalent. Sensitivities reported revealed a 47% incidence of methacillin resistance. Gram-negative bacteria comprised 18.2% of total bacterial cultures; the most common organisms isolated were *K. pneumoniae* and *E. coli*. In total, 37% of gram-negative organisms were resistant to ceftazidime and 13% were resistant to cefepime. Additionally, cefepime monotherapy offers a potential cost-savings of \$58.42 per day in comparison to nafcillin and ceftazidime combination therapy.

Conclusion: Based on the results, combination therapy should be replaced with empiric cefepime monotherapy. The continued use of nafcillin and ceftazidime therapy for empiric treatment of febrile neutropenia at BMSCH is not justified based on study evidence. Cefepime covers gram-positive bacteria alone without the addition of an anti-staphylococcal penicillin such as nafcillin. Also, cefepime has been shown to have better coverage than ceftazidime against gram-negative bacteria, specifically *Klebsiella* and *Enterobacter* species.

ABSTRACT # 8

Neuroprotection by p38S/DING in Fetal Alcohol Syndrome

Faith D'Amico*¹, Tarek Khader^{1,2}, Armine Darbinyan¹, Shohreh Amini^{1,2}, Kamel Khalili¹, and Nune Darbinian¹ Temple University School of Medicine 1) Department of Neuroscience, Center for Neurovirology, Temple University School of Medicine, Philadelphia, PA 19140; 2) Department of Biology, College of Science and Technology, Temple University, Philadelphia, PA 19122

Fetal Alcohol Syndrome (FAS), which is caused by maternal consumption of ethanol, is a leading cause of preventable mental retardation. Massive neuronal loss resulting from exposure of the developing brain to ethanol leads to long-lasting structural abnormalities of the central nervous system (CNS) and behavioral consequences. It has been demonstrated that the fetal brain is particularly vulnerable to the toxic effects of ethanol during the period of synaptogenesis, also known as the brain growth spurt period. Exposure of the developing rat brain to ethanol during this developmental stage results in massive apoptosis of neurons in several regions of the brain and is considered the main cause of reduced brain mass observed in FAS, which is reconfirmed in this in-vivo rat study.

Dysregulation of CNS immune factors cytokines and chemokines at the early stage of brain development affects neurogenesis and leads to significant behavioral deficits. However, the mechanisms of the contribution of the altered cytokines to brain and behavioral changes associated with prenatal ethanol exposure are not fully understood. Ethanol can target the CNS and promote neurodegeneration through activating

Chapter News

Mid-Atlantic Pharmacology Society

several signaling molecules, including mitogen-activated protein kinase (MAPK) that leads to the increased production of proinflammatory chemokines, including CCL2/MCP-1.

Our preliminary data demonstrates that a novel plant-derived phosphatase, p38SJ/DING, protects primary human neurons against ethanol induced toxicity and exhibits neuroprotective activity in in vitro rat FAS model. We also show that p38SJ/DING controls production and secretion of MAPK regulated CCL2/MCP-1 chemokine. Next, we established an in vivo rat FAS model and validated the toxic effect of prenatal ethanol exposure on embryonal and brain development at different postnatal time points of 2, 5, 8, and 15 days by performing behavioral and molecular studies. Our data suggests that pro-apoptotic Caspase 3 activation can be detected in the brain tissue from ethanol treated pups as early as postnatal day 2. It was confirmed by Western Blot and Caspase-Glo 3/7 apoptotic assays. Based on our preliminary data, we suggest that p38SJ/DING prevents ethanol-induced neurodegeneration by regulating expression of MAPK and MCP-1 in fetal neurons.

Results from this study will provide basis for development of a novel therapeutic treatment, based on p38SJ/DING to reduce damaging effects of ethanol on the embryonal brain in FAS.

ABSTRACT # 9

Role of Pur α in Temodar[®] Induced DNA Damage

Petra Brayo*^{1,2}, Rafal Kaminski¹, Satish Deshmane¹, Markus Booklan³, Michael Weaver³, Shohreh Amini^{1,2}, Kamel Khlalili¹, Armine Darbinyan¹

1. Department of Neuroscience, Center for Neurovirology, Temple University School of Medicine, Philadelphia, PA 19140; 2. Department of Biology, College of Science and Technology, Temple University, Philadelphia, PA 19122; 3. Department of Neurosurgery, Temple University School of Medicine, Philadelphia, PA 19140

Pur α is a ubiquitous nucleic acid-binding protein which has been implicated in the control of eukaryotic gene transcription. Pur α associates with DNA sequences positioned in close proximity to viral and cellular origins of replication suggesting a role for this protein in DNA replication. Initiation of transcription and replication requires alteration in the structure of duplex DNA, and the DNA unwinding activity of this single-stranded nucleic acid-binding protein was confirmed in previous studies. Recently we have demonstrated that the absence of Pur α renders tumor cells more sensitive to the DNA damage induced by Cisplatin, a cytotoxic agent, and UV irradiation. These two agents produce crosslinks in the DNA, and the main mechanism of repair of the DNA damage induced by Cisplatin and UV was shown to be Nucleotide Excision Repair (NER) and Homologous Recombination Repair (HRR). Here we show that the presence of Pur α dramatically affects DNA damage and DNA repair pathways in Glioblastoma Multiforme (GBM), and even interferes with Mismatch Repair (MMR). Temodar[®]—active ingredient Temozolomide—is the main cytotoxic drug used in treatment of GBM. It undergoes several reactions in the body to produce a methylating/alkylating agent that adds these methyl/alkyl groups to guanine bases. The most common repair pathway of Temodar[®]-induced DNA damage is Mismatch Repair (MMR); however, in most cases, the MMR system fails to find a complementary base for the methylated guanine, and these bases persist in the DNA. As a result, kinks are produced and they eventually lead to double strand breaks (DSBs), ultimately inhibiting replication and culminating in apoptosis

Chapter News

Mid-Atlantic Pharmacology Society

of GBM cells. Here we report that silencing of *Pur α* expression in primary glioblastoma (GBM) cells sensitized them to the treatment with Temodar®. Our results show that *Pur α* interferes with MMR signaling. Since expression of MMR protein MSH2 was significantly downregulated in the absence of *Pur α* . Although treatment of *Pur α* -expressing cells with Temodar® resulted in induction of MSH2 expression, we observed significant downregulation of MSH2 expression in the absence of *Pur α* , suggesting that *Pur α* is involved in MMR signaling via regulation of MSH2 expression.

ABSTRACT # 10

Thermoregulatory and cardiovascular effects of bacterial lipopolysaccharide: central versus peripheral actions

Kevin Lewis*†, Hiba Al-Saffart, Elaine Liu, Alexandra Schober & Alexandre A. Steiner

Department of Pharmaceutical Sciences, Albany College of Pharmacy and Health Sciences, Albany, NY 12208

Systemic administration of lipopolysaccharide (LPS) causes a fall in blood pressure (hypotension) that, depending on the LPS dose, is associated with either fever or hypothermia. Although all of these responses may involve the brain, it is unknown if they can all be triggered by a direct action of LPS within the brain. We tested whether intracerebroventricular (icv) administration of LPS at high doses (0.5-25 μ g) can trigger the hypothermic and hypotensive responses that typically occur during systemic inflammation. The experiments were conducted at an ambient temperature of 22°C in conscious, freely-moving rats previously implanted with icv cannulas (for LPS administration), abdominal telemetry probes (for measurement of body temperature, *T_b*), and carotid catheters (for determination of mean arterial pressure, MAP). At the lowest dose tested (0.5 μ g), icv LPS induced a febrile rise in *T_b* that had an onset at 50 min postinjection and peaked \sim 1.3°C above baseline at 200-250 min postinjection. As the dose of icv LPS was increased (5-25 μ g), it continued to induce fever, but the fever was both delayed and attenuated. To investigate whether this attenuation might have resulted from activation of a hypothermic response that could be hidden by the febrile response, rats were pretreated with a cyclooxygenase-2 inhibitor (SC236, 5 mg/kg) known to block fever. Even though SC-236 largely attenuated the fever induced by icv LPS (25 μ g), it did not reveal any hypothermic response. The fevers induced by icv LPS were not associated with hypotension. On the contrary, they were associated with mild (10-20 mmHg) increases in MAP that peaked together with *T_b*. It was not necessary to test higher doses of LPS because the 25- μ g dose was already able to lower *T_b* and MAP when administered systemically. It is concluded that neither hypothermia nor hypotension can be triggered by a direct action of LPS within the brain. Hence, it seems likely that a peripheral action of LPS triggers the early events leading to development of hypothermia and hypotension in LPS models of severe systemic inflammation.

ABSTRACT # 11

Attachment of Acyclovir and Tetracycline to Single-Walled Carbon Nanotubes

Matthew Chorney

Ursinus College, Collegeville, PA 19426

Certain pharmaceutical drugs possess poor bioavailability, and when taken orally as a pill, disperse

Chapter News

Mid-Atlantic Pharmacology Society

throughout the body and decrease the drug's effectiveness in targeting infected cells. Intravenous delivery of acyclovir allows for a higher bioavailability, enabling the antiviral drug to efficiently reach the target cells. Because of the unique structure that single-walled carbon nanotubes possess, attachment of acyclovir to nanotubes would allow the nanotube-acyclovir complex to penetrate through cell membranes non-invasively. Short, functionalized carbon nanotubes reduce the risk of asbestos-related symptoms and are excreted from the body at faster rates. Oxidized single-walled carbon nanotubes were reacted with protected boc-L-cysteine to form cysteine-functionalized carbon nanotubes. Acyclovir, an antiviral drug used to target the Herpes Simplex Virus (HSV), was reacted with boc-L-cysteine in order to create an amino-ester bond between the cysteine and acyclovir. The cysteine groups of both acyclovir and the carbon nanotubes were reacted together to form a disulfide bond between the two cysteine amino acids; linking together the nanotubes and acyclovir. Using FTIR-ATR spectroscopy, the disulfide bond formation linking acyclovir and the carbon nanotubes was verified and analyzed. The reducing agent, β -mercaptoethanol, which cleaves disulfide bonds, was also used to provide further evidence of disulfide-bond linkage between the nanotubes and acyclovir. The fluorescent thiol-reactive probe iodoacetamide was used to quantify the amount of cysteine attached to carbon nanotubes, which corresponds to the concentration of acyclovir attached to the nanotubes. Using a plaque neutralization assay, the efficacy of the attached acyclovir was analyzed to determine the effectiveness of the nanotube drug delivery. In related work, tetracycline, an antibiotic used to treat acne as well as other illnesses, was also attached to oxidized nanotubes to better increase their bioavailability during intravenous delivery. We anticipate the results of this research can be applied to other antiviral drugs, and improve the effectiveness of drug delivery for particular medications.

ABSTRACT # 12

Novel Conditioning Measure For Chemotherapy Induced Neuropathic Pain in C57Bl/6 Mice

Omar Safdar*, Harshini Neelakantan, Ellen Walker, Sara Jane Ward

Temple University School of Pharmacy, 3307 N. Broad Street Philadelphia, PA 19140

Paclitaxel is a chemotherapeutic agent used for treatment of breast cancer. Although it prevents cancer cells from proliferating, it is also associated with a chemotherapy-induced neuropathic pain state. We have recently shown that cannabidiol (CBD), a compound found in Cannabis, can attenuate the paclitaxel-induced neuropathic pain in a standard mouse model of mechanical allodynia. In the present set of studies, we assessed CBD's effects on paclitaxel-induced neuropathic pain behavior using two additional assays to measure more nuanced effects of neuropathic pain, such as pain-depressed behavior and negative affect, and compared effects of CBD with the gold standard analgesic morphine. To do this we studied the effects of paclitaxel and CBD treatment on place conditioning and operant responding for palatable food in C57bl/6 mice. Results showed that CBD is only rewarding in mice that were in the paclitaxel-induced pain state, while morphine was rewarding in both naïve mice and mice experiencing neuropathic pain. It was also observed that paclitaxel decreases motivation to consume palatable food. CBD was effective in reversing this paclitaxel-induced pain-depressed behavior, while morphine was not as effective in doing so. Taken together, these results demonstrate that CBD is effective at relieving chemotherapy-induced neuropathic pain using assays aimed toward measuring depressed behaviors and affective components of chronic pain states. These assays also support the clinical observation that opioids are not effective in the treatment of neuropathic pain.

Chapter News

Mid-Atlantic Pharmacology Society

ABSTRACT # 13

Effects of prenatal ethanol exposure on thalamo-cortical development

Chris Howard*, Jennilyn Weber* and Carlita Favero
Ursinus College Collegeville, PA 19426

Fetal Alcohol Spectrum Disorder (FASD) is the umbrella term used to describe the broad range of cognitive and physical defects resulting from any prenatal exposure to alcohol. The sensorimotor deficits commonly observed in children affected by FASDs likely result from malformations of axon tract development. Candidates for these malformations are the axons that connect the thalamus and cortex, known as thalamocortical axons (TCAs) and corticothalamic axons (CTAs) because these connections are essential for normal sensation and perception. Previous animal studies have observed prenatal ethanol exposure to cause defects in the TCAs and CTAs. In addition to its effects on axon formation, we presume prenatal ethanol exposure affects the fate, proliferation, and survival of neurons that extend these connections. Previous studies show that prenatal ethanol exposure does not affect proliferation and survival of the thalamocortical neurons extending from the thalamus at E12.5. Unfortunately, molecular markers that can identify thalamocortical neurons have not been discovered yet. Due to this impediment, the study at hand examines the integrity of corticothalamic neurons. Ethanol (EtOH) was administered to pregnant Swiss Webster mice during critical time points of axon development, either embryonic days (E) 12.5 to E14.5 or E10.5 to E14.5. Age-matched controls were injected with phosphate buffered saline. Around E10 guidepost neurons form axon scaffolds for TCAs to follow. At E12.5 the thalamocortical and corticothalamic neurons are born. Bromodeoxyuridine (BrdU) was injected to perform BrdU birthdating in order to analyze corticothalamic neuron proliferation in postnatal day 0 (P0) embryos. To study axons, we analyzed embryos at E15.5 or postnatal (P) day 0 because the CTAs and TCAs should have reached their targets by this time. Immunostaining was used to visualize axon tracts with L1 specifically labeling TCAs and CTAs and neurofilament (NFM) labeling all axons. Immunostaining with T-box brain 1 (Tbr1) was used to analyze neuron fate within cortical layers V and VI while Cleaved Caspase 3 (ccp3) was used to identify apoptotic cells. Nissl staining was also used to investigate nervous system cytoarchitecture for abnormalities due to chronic prenatal ethanol exposure. After quantitatively analyzing Tbr1 positive cells within the cortical layers, our data suggests that prenatal ethanol exposure increased corticothalamic neuron density within the cortical layers V and VI. We also observed prenatal ethanol exposure at E12.5 through E14.5 to cause larger axon fibers than in the control. Prenatal ethanol exposure may cause a difference in how axon fibers fasciculate.

ABSTRACT # 14

Expression, purification, and analysis of the membrane glycoprotein thrombomodulin

Amy Schaefer*, Julia Koeppe
Ursinus College, Collegeville, PA 19426

Protein-protein interactions are extremely important interactions in the body responsible for many necessary biological functions. This study aims to specifically look at the interactions between the lectin-like domain of thrombomodulin (TM) and complement components C3 and C3b. To understand the relationship, each protein first needs to be studied individually. The lectin-like domain of TM must be expressed in yeast before it can be purified and analyzed, and the complement components C3 and C3b must be extracted

Chapter News

Mid-Atlantic Pharmacology Society

from plasma and activated. Attempts to clone the lectin-like domain of TM in yeast are ongoing. Complement component C3 has been isolated from plasma, activated to C3b, and both proteins have been purified using Fast Protein Liquid Chromatography (FPLC). After purification, both proteins were subjected to pepsin digestion, and the resulting peptides were analyzed by mass spectrometry. The peptide analysis will aid future work in which hydrogen/deuterium exchange and mass spectrometry are used to investigate the interaction between the complement components and the lectin-like domain of TM.

ABSTRACT # 15

Cannabidiol mechanisms in preventing paclitaxel-induced neuropathic pain in C57/Bl6 mice

Khristina Pavlenko*, Harshini Neelakantan, Ellen A. Walker and Sara J. Ward

Temple University, School of Pharmacy, Philadelphia PA 19140

Paclitaxel (PAC) is associated with a chemotherapy-induced neuropathic pain (CINP) state that can lead to the cessation of treatment in late stage breast cancer patients, even in the absence of alternate therapies. There are no approved drugs yet to treat chemotherapy-induced neuropathic pain. We have previously shown cannabidiol (CBD, the non-psychoactive Cannabis constituent) to prevent the onset and development of PAC-induced neuropathic pain in C57/Bl6 mice (Ward et al., 2011 Anesthesia and Analgesia). In the present set of experiments, we assessed the mechanisms of action of CBD in preventing PAC-induced neuropathic pain using two behavioral assays: a) PAC-induced mechanical allodynia and b) CBD-induced place conditioning procedures. We hypothesize that CBD would prevent the development of PAC-induced neuropathic pain by acting as an agonist at the 5HT1A receptors present in the descending inhibitory pain pathway and facilitating the inhibitory pain signals. Mice were injected intraperitoneally with saline (control), 4 mg/kg and 8 mg/kg of paclitaxel alone, paclitaxel in combination with 5 mg/kg CBD, and the combination of paclitaxel, 5 mg/kg of CBD and 5HT1A antagonist WAY. Paclitaxel-induced allodynia were behaviorally measured in all groups of mice using a range of Von Frey filaments (0.16 g-4 g) in an up-down method. Paw-withdrawal threshold were recorded intermittently for a total 70 days post first PAC injection. The results showed that paclitaxel produced robust mechanical allodynia in mice, while CBD prevented the onset and development of PAC-induced allodynia. Additionally, 5HT1A receptor antagonist WAY reversed the effects of CBD suggesting a potential mechanism for CBD-induced effects. Additionally, we also assessed the effects of paclitaxel on CBD-induced place conditioning. Starting day 11 post first Saline or PAC injection, groups of mice were conditioned with Cremophor (vehicle) on the black side of the conditioned place preference (CPP) chambers and with CBD (5.0 mg/kg IP) or WAY+CBD on the opposite white side of the CPP chamber on alternative days for 6 days. While saline treated mice showed no preference for CBD-paired side, the paclitaxel treated mice spent a significantly greater amount of time in the CBD-paired side. However, the mice that received CBD in combination with WAY showed a trend towards reversal of CBD-induced place conditioning in comparison to the mice that received CBD alone. Taken together, these results demonstrate that paclitaxel induces neuropathic pain in the female C57Bl6 mice that is prevented by concomitant treatment with CBD by a potential 5HT1A receptor-mediated mechanism and that place-conditioning procedures provide as an additional tool to indirectly measure neuropathic pain. (Supported by R01 CA129092)

Chapter News

Mid-Atlantic Pharmacology Society

ABSTRACT # 16

Inhibition of TNNI3K is Cardioprotective in a Murine Model of Ischemia / Reperfusion Injury

Ronald J. Vagnozzi^{1,2*}, Gregory J. Gatto, Jr³, Lara S. Kallander³, Victoria L. T. Ballard³, Brian G. Lawhorn³, Patrick Stoy³, Joanne Philp³, John J. Lepore³, Erhe Gao² and Thomas Force^{1,2}

1 Program in Cell and Developmental Biology; 2 Center for Translational Medicine, Department of Medicine, Thomas Jefferson University, Philadelphia, PA; 3 Heart Failure Discovery Performance Unit, Metabolic Pathways and Cardiovascular Therapeutic Area Unit, GlaxoSmithKline, King of Prussia, PA.

Ischemic heart disease impacts millions of Americans and can progress to heart failure. Current therapies do not address this progression and new therapeutic targets are needed. One novel potential target is cardiac troponin I interacting kinase; TNNI3K (also cardiac ankyrin repeat kinase; CARK). TNNI3K is expressed only in the heart and is significantly up-regulated in failing human hearts. Beyond this, little is known about TNNI3K's biological roles. To determine TNNI3K's function in the injured heart we subjected transgenic (Tg) mice expressing wild-type or kinase-inactive (KI) TNNI3K to 30 minutes of LV ischemia followed by 24 hours of reperfusion (I/R). TNNI3K-Tg mice had significantly larger infarcts (32.2% AAR vs 16.1% in WT littermates, $p < 0.05$) following I/R. Cardiac troponin I (cTnI) serum levels were also significantly elevated in TNNI3K-Tg mice after 24h, consistent with increased injury. Conversely, infarct size was decreased in mice expressing KI TNNI3K and levels of cTnI were reduced, suggesting that blocking TNNI3K activity may protect against acute injury. To test this, we employed an inducible, cardiac-specific knockout mouse (TNNI3K-KO). TNNI3K-KO mice showed a significant reduction in infarct size (20.52% vs 32.9%, $p = 0.01$) as well as cTnI levels post-I/R. To confirm these findings, wild-type mice were treated with a small molecule TNNI3K inhibitor and then were subjected to I/R. TNNI3K inhibition significantly reduced infarct size (10.92% vs 21.74% $p < 0.01$) as well as serum levels of cTnI. These data indicate that loss of TNNI3K reduces myocyte injury and death after I/R. To examine the mechanism of this effect, primary NRVM were either transduced with a TNNI3K adenovirus or treated with one of two selective TNNI3K inhibitors, and then subjected to oxidative stress using H₂O₂. TNNI3K over-expression worsened, while TNNI3K inhibition significantly blunted H₂O₂ - induced apoptosis. Taken together, these data suggest that TNNI3K plays an adverse role in the heart's response to ischemia, in part by increasing apoptosis. Furthermore, inhibition of TNNI3K may protect the ischemic heart by limiting initial cell loss and thus reducing infarct size. These findings enhance understanding of TNNI3K's role in the heart and provide evidence for TNNI3K as a novel therapeutic target for ischemic injury.

ABSTRACT # 17

The serotonin-2C receptor: regulation of cocaine-induced behaviors and associated downstream signaling cascades in the medial prefrontal cortex

Caryne P. Craige^{*}, Ellen M. Unterwald

Temple University School of Medicine, Department of Pharmacology & Center for Substance Abuse Research, Philadelphia, PA 19140

Previous studies identified an inhibitory regulatory role of the serotonin-2C (5-HT_{2C}) receptor in dopamine neurotransmission. In the presence of cocaine, activation of 5-HT_{2C} receptors has been shown to decrease synaptic dopamine in mesolimbic brain areas regulating reward circuitry. In this context, administration of

Chapter News

Mid-Atlantic Pharmacology Society

5-HT_{2C} agonists prior to cocaine elicits an attenuation of cocaine-induced hyperactivity and cocaine self-administration. In the first part of this study, the role of 5-HT_{2C} receptors in cocaine-induced behaviors was investigated using C57/BL6 male mice in the Conditioned Place Preference (CPP) paradigm. Alterations in cocaine-seeking behavior were assessed using this model, in which mice were treated with a selective 5-HT_{2C} receptor agonist, RO 60-0175 (1, 3, 10 mg/kg, i.p.), 30 minutes prior to cocaine (10 mg/kg, i.p.) on days 2 and 4 of conditioning. Immediately following cocaine, mice were placed in the cocaine-paired side of the testing chamber. On days 1 and 3, mice were administered saline and placed in the opposite side. Preference was tested in a drug-free state on day 5. Locomotor activity was assessed on each day while in the conditioning chambers. Administration of RO 60-0175 prior to cocaine dose-dependently attenuated cocaine place preference as well as cocaine-evoked hyperactivity. In order to achieve a greater understanding of the function of the 5-HT_{2C} receptor, it is important to determine the intracellular signaling pathways involved following receptor activation. Therefore, the regulation of proteins downstream of 5-HT_{2C} receptor activity was also examined. Mice were administered Ro 60-0175 (10 mg/kg, i.p.) or saline and brains were removed one hour later. The medial prefrontal cortex (mPFC) was isolated and protein levels were analyzed by Western blot. The Akt/GSK3 pathway is of particular interest, as a role for serotonin and dopamine systems in regulating these signaling molecules has been identified, and alterations in this signaling cascade contribute to behavioral and neurochemical responses to cocaine. Elevated levels of phosphorylated Akt (Ser473, $p < 0.01$) in the mPFC were found in RO 60-0175-treated mice. Likewise, increased levels of phosphorylated GSK3 α (Ser21, $p < 0.01$) and GSK3 β (Ser9, $p < 0.001$) were found in animals treated with RO 60-0175, demonstrating an inhibition of GSK3 α/β activity upon stimulation of 5-HT_{2C} receptors. This study supports a role for the 5-HT_{2C} receptor in regulating behaviors produced by cocaine and identifies intracellular 5-HT_{2C} receptor-mediated alterations in the Akt/GSK3 signaling pathway.

ABSTRACT # 18

12-lipoxygenase regulates calcium mobilization in human platelets

Joanne Vesce*, Jennifer Yeung and Michael Holinstat

Department of Medicine, Cardeza Foundation for Hematologic Research, Thomas Jefferson University, Philadelphia, PA 19107

Platelets play a central role in regulation of hemostasis and unwanted platelet activation results in excessive clot formation, vessel occlusion and eventual stroke. An important regulatory mediator of platelet reactivity is calcium mobilization following platelet activation through any number of surface receptors. Previous work has indicated that one of the oxygenases responsible for the formation of bioactive lipids through oxidation of free fatty acids, 12-lipoxygenase (12-LOX), may play a central role in regulation of the kinetics and absolute levels of free calcium released in the platelet. We hypothesized that calcium levels could be controlled through inhibition of 12-LOX and if true, 12-LOX inhibition may be a viable approach to treating type 2 diabetics for the prevention of a thrombotic event. Washed human platelets were treated with or without several 12-LOX inhibitors (NCTT-956 or baicalein) followed by activation with thrombin, PAR1-AP, PAR4-AP, or convulxin. All agonist treatment was found to be significantly sensitive to 12-LOX activation and 12-LOX appears to play a more important role in intra-platelet calcium release versus calcium influx. These studies begin to elucidate the underlying mechanisms by which 12-LOX modulates platelet reactivity through regulation of calcium and support targeting this enzyme to attenuate platelet activation in order to minimize thrombosis

Chapter News

Mid-Atlantic Pharmacology Society

following vascular insult.

ABSTRACT # 19

Effects of acute noxious stimuli on the discriminative stimulus effects of morphine in male and female C57Bl6 mice

Harshini Neelakantan* and Ellen A. Walker

Department of Pharmaceutical Sciences, Temple University School of Pharmacy, Philadelphia, PA

Recent animal studies have demonstrated current chronic pain to decrease the rewarding properties of prescription opioids. However, the manner in which the stimulus effects of prescription opioids are changed by pain states has not been investigated. Therefore, we are interested in testing the hypothesis that the presence of an acute noxious stimulus will decrease the potency of morphine to produce discriminative stimulus effects in male and female C57Bl/6 mice. Mice were trained in a two choice operant experimental chamber to discriminate 3.2 mg/kg morphine or saline. Once the training criterion was met, dose response curves were generated for mice in the absence and presence of 0.4% acetic acid. The acetic acid produced an acute chemically induced nociceptive pain state during the trial sessions. Results showed dose-dependent morphine- appropriate responding in both male and female mice with no differences in the potency of morphine to function as a discriminative cue in either of the sexes. Although the rates of responding were higher in the male mice, the male mice took longer (105 trials) to acquire morphine discrimination when compared to the female mice (77 trials). Combination of acetic acid with morphine doses failed to significantly alter the discriminative effects of morphine in female mice but actually produced a significant rightward shift of the morphine dose response curve in the male mice. These data suggest that an acute pain state may differentially modulate the discriminative stimulus effects of morphine in male and female mice. In addition, these results may have implications with respect to understanding sex differences in the clinical effectiveness of opioids as well as the abuse liability of morphine in the presence of pain. (Supported by R01 CA129092)

ABSTRACT # 20

In vitro Evaluation of Murine-specific Vascular Toxicity Induced by an Integrin Antagonist

Deidre A. Dalmás^{1,2*}, Marshall S. Scicchitano², Diane W. Morel¹

¹ Department of Pharmaceutical Sciences, University of the Sciences in Philadelphia, ²Safety Assessment, GlaxoSmithKline, King of Prussia, PA

Integrin antagonists have been developed as therapies for diseases such as cancer and osteoporosis. Previous studies reported that a potent integrin antagonist (SB-273005), specific for the vitronectin ($\alpha v\beta 3$, $\alpha v\beta 5$) receptor, produced a rapid and unique aortic lesion in mice [Toxicol. Pathol. (2007) 35:958-71]. Other species were unaffected and the toxicity produced by SB-273005 was not seen with either structurally similar or dissimilar compounds. Lesions occurred within 6 hours, and were characterized by vascular smooth muscle cell (VSMC) necrosis, followed by VSMC loss and adaptive hypertrophy, with no endothelial damage. The lesions were non-progressive (similar in mice treated for 4 days or 3 months), and irreversible, with no evidence of regeneration observed after drug withdrawal. No direct toxicity to VSMC in vitro was observed.

Chapter News

Mid-Atlantic Pharmacology Society

Since there was no evidence of direct toxicity and drug-induced direct angiotoxicity is uncommon, especially in mice, potential VSMC–endothelial cell (EC) interactions were hypothesized to be involved. Strain-specific primary murine aortic VSMC and EC were established and utilized in vitro to investigate the potential involvement of EC by comparing toxicity to both monocultures and co-cultures of VSMC and EC. Incubation of monocultures and co-cultures with SB-273005 for 4 to 48 hours at doses comparable to those used in vivo showed a concentration-dependent decrease in viability as early as 4 hours following SB-273005 treatment, with subsequent increases in cytotoxicity, for both VSMC and EC monocultures and VSMC/EC co-cultures. However, VSMC monocultures responded at lower doses (were most sensitive), suggesting that there is a direct toxic effect on VSMC. Further in vitro studies are currently underway to elucidate the primary mechanism responsible for the VSMC toxicity and the murine-specific vascular lesions seen in vivo in response to this vitronectin receptor antagonist.

ABSTRACT # 21

Effects of neonatal mouse pup exposure to methotrexate and cytarabine on learning and novelty in late adolescence

Emily B. Bisen-Hersh^{1,2}, Alyssa M. Myers¹, and Ellen A. Walker^{1,3}

Neuroscience Program¹, Department of Psychology², and Department of Pharmaceutical Sciences³

Temple University, Philadelphia, PA 19140

An increased survival rate among children diagnosed with acute lymphoblastic leukemia (ALL) has led to interest in late effects. Cognitive late effects are pervasive among this population, as childhood cancer survivors are more likely to need special education services and exhibit deficits in attention, working memory, and processing speed. Although intrathecal chemotherapy has possibly reduced the severity of these impairments, the long-term effects of specific chemotherapeutic agents are largely unknown. A preclinical mouse model of ALL treatment was used to investigate the developmental effects of neonatal exposure to methotrexate (MTX) and cytarabine (Ara-C) on learning and novelty in late adolescence. Mouse pups were repeatedly treated on PND 14, 15, and 16 with saline, MTX (1.0 or 2.0 mg/kg), Ara-C (10 or 20 mg/kg), or a combination of MTX and Ara-C (1.0 and 10 mg/kg or 2.0 and 20 mg/kg). Behavioral testing began at PND 35, which included autoshaping, conditional discrimination, and novel object recognition. On the autoshaping task, the strongest effect was produced in mice treated with a MTX and Ara-C combination, as demonstrated by a significantly slower acquisition and impaired retention, compared to saline controls. In contrast, the greatest impairment in acquisition on the conditional discrimination task was found for mice treated with Ara-C alone. On the novel object task, chemotherapy-treated mice showed a significant decrease in latency to approach a novel object. During the recognition trial, saline controls spent more time exploring a novel object compared to a familiar one following a 1 hr delay, whereas chemotherapy-treated mice spent equal time exploring both objects. Findings highlight the usefulness of preclinical models to examine the developmental effects of early chemotherapeutic treatment on future learning, and the importance of selecting appropriate behavioral assays to separate individual and combined drug effects. (Supported by RO1 CA129092 and T32 DA07237).

Chapter News

Mid-Atlantic Pharmacology Society

ABSTRACT # 22

A role for leukemia-associated RhoGEF (LARG) in mitosis

Martz, M.K.*1, Grabocka, E.1, Beeharry, N.2, Yen, T.J.2, Wedegaertner, P.1

1Thomas Jefferson University, Philadelphia, PA 19107; 2Fox Chase Cancer Center, Philadelphia, PA 19111

Abstract not published per request of authors.

ABSTRACT # 23

Cardiovascular Toxicity of a Selective Akt Inhibitor: Hypotension and Bradycardia in Conscious Rats due to Inhibition of the Autonomic Nervous System

Jonathan P Renninger*, Dennis J Murphy†, Diane W Morel*

*Department of Pharmaceutical Sciences, University of the Sciences, Philadelphia, PA 19104; †Department of Safety Pharmacology, GlaxoSmithKline Pharmaceuticals, King of Prussia, PA 19406

Akt is a serine-threonine kinase that is amplified in a variety of human cancers, and as with other anticancer agents, some Akt inhibitors have produced functional cardiovascular toxicities such as marked hypotension that may limit their clinical benefit. Although identified in preclinical studies, the mechanism(s) responsible for this toxicity are often not fully characterized; potential targets include Akt signaling disruption in cardiac tissue, vascular smooth muscle and/or autonomic system signaling. A selective Akt inhibitor was found to produce a rapid and marked hypotension and bradycardia in conscious rats. Isolated right atrial tissue and isolated thoracic aortic rings, were used to examine direct effects of Akt inhibition on cardiac and vascular tissue, respectively. In addition, rats surgically prepared with telemetry units for monitoring blood pressure and heart rate were used to investigate potential effects on the autonomic nervous system. Whereas this Akt inhibitor did not produce any significant effect on atrial tissue, it did cause vasorelaxation of aortic rings. More significantly, in conscious rats, the Akt inhibitor inhibited the neural pressor response to the known nicotinic acetylcholine receptor agonist DMPP. In fact, the response observed was comparable to the response observed with the known ganglionic blocker, hexamethonium. Thus, the hypotension and bradycardia produced by the Akt inhibitor is primarily due to blockade of nAChRs in autonomic ganglia. This finding highlights the importance of evaluating the autonomic nervous system in cardiovascular toxicities associated with new chemical entities as well as suggesting a novel direct effect of an Akt inhibitor on nAChRs.

ABSTRACT # 24

Blockade of High Vascular Pressure Activation of TRPV4 Inhibits Permeability in the Isolated Perfused Rat Lung: A Novel Strategy for Treating Pulmonary Edema in Heart Failure

John A. Krawiec*, Mary I. Townsley, John R. Toomey, Robert N. Willette, John J. Lepore, Kevin S. Thorneloe
Heart Failure DPU, GlaxoSmithKline, 709 Swedeland Road, King of Prussia, PA 19406

Pulmonary edema is one of the hallmarks of congestive heart failure. Chronic impaired left ventricular function leads to elevated left ventricular diastolic blood pressure and elevated pulmonary venous pressure with consequent pressure-induced leakage of fluid through the pulmonary septal barrier into the interstitial and alveolar spaces. TRPV4, a Ca⁺⁺ permeating ion channel, is expressed at the alveolar barrier and is activated

Chapter News

Mid-Atlantic Pharmacology Society

by mechanical stress. Permeability measurements of isolated lungs from TRPV4^{-/-} mice support a critical role for TRPV4 in high vascular pressure-induced lung injury and alveolar flooding (Jian et al., 2008. *Am J Respir Cell Mol Biol.* 38: 386-92). Therefore, TRPV4 channel blockers represent a novel strategy for inhibiting heart failure (HF) induced pulmonary edema. The aim of this study was to develop an isolated perfused rat lung preparation to measure inhibition of high pressure-activated TRPV4 mediated pulmonary edema. This would allow confirmation of the TRPV4^{-/-} phenotype and to characterize the effects of novel selective TRPV4 blockers on high pressure induced pulmonary edema. Lung vascular permeability as measured by the filtration coefficient (Kf) was determined in isolated perfused Sprague Dawley rat lungs. Lung weight, pulmonary arterial (PA), venous (PV), and ventilator pressures were continuously monitored. Kf was determined from the resulting rate of weight gain (ΔW) and change in capillary pressure with each pressure step. Baseline Kf measurement was at 9 cmH₂O Pv. TRPV4 blocker or vehicle was then added to the perfusate prior to Kf measurements at high pressure (19cmH₂O). Vehicle high pressure Kf averaged 6-fold above baseline Kf. Two structurally distinct TRPV4 blockers, GSK2193874 and GSK2633535, were evaluated for their ability to inhibit high pressure induced pulmonary edema. GSK2193874 (50nM) decreased Kf by 50% whereas GSK2633535 (25 and 250nM) decreased Kf by 45%, and 90% respectively. In conclusion, we have successfully developed and implemented an isolated perfused rat lung preparation to measure the effects of TRPV4 blockers on high venous pressure induced pulmonary edema. These results confirm the TRPV4^{-/-} phenotype and lay the foundation for the development of TRPV4 inhibitor therapies for HF induced pulmonary edema.

ABSTRACT # 25-- withdrawn

ABSTRACT # 26

Vasodilator-Stimulated Phosphoprotein Ser157 and Ser239 are antimetastatic targets in colon cancer

M Ali* and GM Pitari

Department of Pharmacology and Experimental Therapeutics, Thomas Jefferson University, Philadelphia, PA 19107

Colorectal cancer is the third deadly cancer worldwide. Patient mortality is largely the result of metastatic disease progression, in which tumor cells undergo dramatic morphological changes characterized by the formation of membrane protrusive structures mediating invasion (lamellipodia, filopodia, invadopodia). These events are driven by the activity of actin-regulatory proteins, including the vasodilator-stimulated phosphoprotein (VASP), which reorganize the actin cytoskeleton to promote cell migration and invasion. In colon cancer, cAMP- and cGMP-dependent VASP phosphorylation at Ser157 (pVASP-Ser157) and Ser239 (pVASP-Ser239) represent opposing molecular switches, which regulate the invasive cell shape. Here, pVASP-Ser157 and pVASP-Ser239 differentially affected the metastatic potential of colon cancer cells, including tumor proliferation, colony formation, migration, adhesion and metastasis in vivo. Investigations employed intestinal cancer cells, human tumor cells expressing serine phosphoresistant VASP mutants, cGMP or cAMP analogs, agonists selectively elevating intracellular cGMP or cAMP levels, and orthotopic mouse models of colorectal cancer. Collectively, results demonstrated pVASP-Ser239 suppresses, while pVASP-Ser157 promoted,

Chapter News

Mid-Atlantic Pharmacology Society

the metastatic phenotype of colon cancer cells. Thus, differential VASP serine phosphorylation is a novel targeted strategy to prevent colon cancer metastasis. Clinical translation of these findings may provide original therapeutic interventions to reduce mortality in patients with colon cancer.

ABSTRACT # 27

Effects of social stress on locus coeruleus activity and cognitive flexibility

Chajale N.*1, Curtis A.1, Wood S.1, Snyder K.2, Luz S.1, Bhatnagar S. 1, Valentino RJ1

1Stress Neurobiol., Dept. of Anesthesiol., Children's Hospital of Philadelphia, Philadelphia, PA 19104;

2 Mahoney Inst. of Neurolog. Sci., Univ. Pennsylvania, Philadelphia, PA 19104

Stress is thought to impair cognition, although the mechanisms underlying this are unknown. Stress effects on cognition could be mediated by corticotropin-releasing factor (CRF), the neuropeptide that orchestrates the stress response. CRF activates the locus coeruleus (LC)-norepinephrine (NE) system during stress. LC-NE projections to prefrontal cortex are important for cognitive flexibility. The attentional set shifting task (AST) evaluates different aspects of cognitive flexibility. Our laboratory previously showed that intra-LC CRF infusion improved extradimensional set shifting. The goal of this study was to determine whether chronic social stress (CSS) involving exposure to the resident-intruder model alters LC neuronal activity and AST performance. Sprague-Dawley rats were implanted with a multiwire bundle into the LC and baseline discharge rates were recorded on days 1 and 7 prior to CSS. Baseline LC rates decreased after 5 days of CSS (Day 1: 2.04 ± 0.05 Hz, Day 5: 1.26 ± 0.06 Hz; $n=25$), but not control (CTRL) manipulation (Day 1: 2.70 ± 0.05 Hz, Day 5: 2.61 ± 0.03 Hz, $n=12$). Additionally, after CSS a slow oscillation (0.1 Hz) was apparent in LC rate. The same rats were tested in the AST 7 days after the last CSS session and LC activity was recorded. Results showed that rats previously exposed to CSS performed better in the intradimensional set shifting (IDS) stage (36.7 ± 4 trials to criterion and 15.9 ± 2 errors to criterion for CTRL ($n=11$) and 23.8 ± 4 trials to criterion and 9.3 ± 2 errors to criterion for CSS ($n=10$; $p < 0.05$). Moreover, 27 LC neurons were recorded from 3 CSS rats and 14 cells from 2 CTRL rats during AST performance. Data thus far analyzed for simple discrimination showed that LC activity of CTRL rats was higher than CSS rats (CTRL 4.8 ± 0.5 Hz, CSS 3.2 ± 0.3 Hz, $p < 0.05$). For CTRL rats, LC discharge rate increased as the task progressed from the trial beginning to the time of reward, but this was not apparent in CSS rats. A repeated measures ANOVA revealed a trend for an effect of group ($f(1,80)=4.0, p=0.05$), an effect of time ($f(2,79)=6.7, p < 0.005$) and a group by time interaction ($f(2,79)=6.7, p < 0.005$). Together, the data suggest that CSS may improve the formation of set as seen as an improvement in IDS and that CSS alters the rate and pattern of LC neuronal activity. Further studies using multi-channel recordings of LC activity in rats performing AST will reveal the role of the brain norepinephrine system in guiding decisions or responses to reward and how is this altered by prior stress. Supported by DARPA grant-58077-LSDRP.

ABSTRACT # 28

Dimerization of GRK5 regulates its plasma membrane localization

Hua Xu, Ph.D*; Xiaoshan Jiang, MD Ph.D; Philip Wedegaertner, Ph.D

Department of Biochemistry and Molecular Biology, Thomas Jefferson University, Philadelphia, PA 19107

Abstract not published per request of authors.

Chapter News

Mid-Atlantic Pharmacology Society

ABSTRACT # 29

SIRT1 Modulates Aggregation and Toxicity through Deacetylation of the Androgen Receptor in Cell Models of SBMA

Heather L. Montie*¹, Richard G. Pestell² and Diane E. Merry¹

¹ Department of Biochemistry and Molecular Biology; ² Department of Cancer Biology, Thomas Jefferson University, Philadelphia, PA 19107

Abstract not published per request of authors (manuscript accepted for publication).

ABSTRACT # 30

Lipoamino Acid Surfactant (Sepiclear®) as a Novel Protein Stabilizing Molecule

Asha Srinivasan and Sunday Shoyele

Department of Pharmaceutical Sciences, School of Pharmacy, Thomas Jefferson University, Edison Building, South 9th Street, Philadelphia, PA 19107

Purpose

The labile nature of proteins makes them susceptible to various stresses during formulation processes. In this study, a novel lipoamino acid surfactant (Sepiclear®) was assessed for its ability to stabilize spray dried human immunoglobulin G (IgG) against drying induced degradation.

Methods

The critical micelle concentrations (CMC) of Sepiclear in different buffers (acetate pH 5, citrate pH 5 and phosphate pH 9) were determined using dynamic surface tensiometry. Different concentrations of the surfactant around its CMCs in these buffers were mixed with 5 mg/mL solutions of IgG before spray drying. Where appropriate, trehalose dihydrate was added as a secondary stabilizer for the formulations. The antibody formulations were spray dried on a bench-top Büchi mini-spray drier B290.

Table 1 shows the concentrations of Sepiclear used in this study. The dry powders formed were characterized using SEM, circular dichroism, SEC-HPLC, and SDS-PAGE.

Results

It was discovered that the CMC of Sepiclear® varies depending on the type and the pH of the buffer used. Surface tension values gradually decreased as the concentration of Sepiclear was increased in the three buffers used. The CMC values for Sepiclear® in acetate pH 5, citrate buffer pH 5 and phosphate buffer pH 9 were 0.05% w/v, 0.04% w/v and 0.035% w/v respectively. SEM micrographs of the spray dried protein powders produced spherical smooth and dimpled particles with an approximate diameter between 1-5µm.

Size-exclusion chromatography and SDS-PAGE data suggest that sepiclear was able to eliminate aggregates from the spray dried IgG in comparison to the negative control (spray dried IgG without any excipients). Addition of trehalose in the spray dried formulations enhanced the monomer recovery in citrate and phosphate buffered formulations, although not much change was seen in the formulations spray dried with acetate buffer.

It was evident from circular dichroism studies that sepiclear helped to improve the retention of the secondary structure of IgG following spray drying although to different extents depending on the concentration of the novel lipoamino acid surfactant.

Chapter News

Mid-Atlantic Pharmacology Society

Conclusion

We have demonstrated that the CMC of Sepiclear is buffer and pH dependent. We have also been able to demonstrate that Sepiclear, a lipoamino acid surfactant has the ability to function as a stabilizer to maintain the stability of spray dried IgG. However, the stability of the IgG is dependent on the type and pH of the buffer solution used in the spray drying process.

ABSTRACT # 31

MicroRNAs 204/211 inhibits epithelial-to-mesenchymal transition (EMT) of human retinal pigment epithelial (RPE) cells by promoting RPE differentiation

Jeffrey Adjianto*¹, John J Castorino¹, Sheldon S Miller², Gerald B Grunwald¹, Nancy J Philp¹

1. Department of Pathology, Anatomy and Cell Biology, Thomas Jefferson University, Philadelphia, PA; 2. National Institutes of Health, National Eye Institute, Bethesda, MD

MicroRNAs (miRNAs) are small (~22 nt) non-coding RNAs that play important roles in gene-regulation by complementary pairing to their target mRNAs to suppress translation or mediate direct mRNA degradation. With each miRNA family regulating an average of 300 genes, dysregulation of miRNA levels has been implicated in a variety of diseases ranging from cancer to neurodegeneration. The retinal pigment epithelium (RPE) is normally a quiescent monolayer of cells that support photoreceptor function and form the outer blood-retina barrier. In a common ocular disease, proliferative vitreoretinopathy (PVR), the retinal pigment epithelial (RPE) cells undergo epithelial-to-mesenchymal transition (EMT) and dedifferentiate into fibroblast-like cells that migrate into the vitreous and cause retinal detachment and visual impairment. An earlier study showed that miR-204 and -211 are the two most highly expressed microRNAs in the RPE (Wang et al, FASEB J, 2010). In primary human fetal RPE cultures, seeding at low density resulted in significant loss of miR-204 and -211 (62- and 163-fold, respectively), and is accompanied by a loss of epithelial morphology and RPE specific genes, and increase in genes associated with EMT. We found that in RPE cells undergoing dedifferentiation, transfection of miR-204 and miR-211 mimics induced characteristic RPE morphology with a concomitant upregulation of genes and proteins that are critical for RPE function. On the other hand, addition of miR-204/211 inhibitors to differentiating RPE cells induced EMT, as characterized by downregulation of RPE-specific genes and significant loss of epithelial morphology. Microphthalmia-associated Transcription Factor (MITF) is a master regulator of pigmented cell differentiation and its expression is downregulated during EMT. We demonstrate that knockdown of MITF using small interference RNA (siRNA) in RPE cells induced EMT with a concomitant downregulation of miR-204/211 and loss of epithelial morphology. Importantly, when RPE cells were transfected with both MITF siRNA and miR-204/211 mimics, they formed a confluent monolayer that express high levels of RPE specific genes and proteins. Collectively, our data demonstrate the importance of miR-204/211 in RPE differentiation and that miRNA-based therapy may be a viable approach for the treatment of proliferative ocular diseases that involve RPE dedifferentiation and loss of epithelial phenotype and function.

ABSTRACT # 32

Rimcazole attenuates Cocaine-induced stimulation of mesolimbic Dopamine related to its abuse and dependence

Chapter News

Mid-Atlantic Pharmacology Society

Mereu M^{*1}, Chun L¹, Cao J², Newman AH², Katz JL¹, Tanda G¹

¹ Psychobiology Section; ² Medicinal Chemistry, NIDA/NIH, Baltimore, MD 21224

Rimcazole is a carbazole compound introduced as a novel antipsychotic drug in 1980 by Wellcome Research Laboratories and was initially described as a selective sigma receptor ligand. However, several papers show that this compound also has affinity for the dopamine (DA) transporter (DAT) that is greater than its sigma-receptor affinity.

Despite this DAT affinity, previous studies in rodents showed that rimcazole attenuated locomotor stimulants effects of cocaine in a dose-related manner.

Furthermore, rimcazole and its analogs decreased cocaine-maintained self-administration behavior in rats, an effect that is not obtained either with selective sigma receptor antagonists or standard DAT blockers. To further elucidate the pharmacology of rimcazole in relation to the effects of cocaine, we tested rimcazole (3 and 10 mg/kg i.v.) alone and in combination with cocaine, on stimulation of extracellular levels of DA in male Sprague Dawley rats (280-325g) implanted with a microdialysis probes in the Nucleus Accumbens shell. Rimcazole dose-dependently attenuated cocaine-induced stimulation of DA levels, at doses that when administered alone did not modify DA levels. Our results, in agreement with behavioral studies, indicate that the attenuation of cocaine effects produced by rimcazole is likely due to a combined action resulting from its dual affinity for the DAT and σ receptors, since selective DAT inhibitors potentiate cocaine effects and selective sigma antagonists do not block cocaine reinforcing and neurochemical effects.

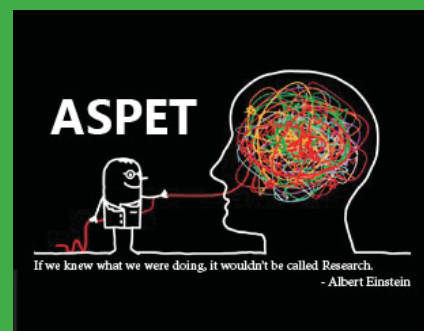
In conclusion, our data suggest that a combined targeting of sigma receptors and the DAT may serve as a novel basis for discovery of novel compounds that can serve as leads for development as medications for stimulant abuse and dependence.

"IF WE KNEW WHAT WE WERE DOING, IT WOULDN'T BE CALLED RESEARCH"
-ALBERT EINSTEIN



NEW ASPET T-SHIRT!

GET YOUR'S AT THE ANNUAL MEETING AT EB 2012



BOOTH 801-805, EXHIBIT HALL

T-SHIRTS WILL ALSO BE AVAILABLE FOR SALE ONLINE AFTER THE MEETING

Journals



by Rich Dodenhoff

New Editorial Board Members

On January 1, Stephen F. Traynelis succeeded P. Jeffrey Conn as Editor of *Molecular Pharmacology* and Edward T. Morgan took over from Eric Johnson as Editor for *Drug Metabolism and Disposition*.

Molecular Pharmacology welcomed six new Associate Editors: Arthur Christopoulos (Monash Univ.), Stuart Cull-Candy (Univ. College London), Haiyan Fu (Emory Univ.), John R. Hepler (Emory Univ.), Jeanne Nerbonne (Washington Univ.), and Mary Vore (Univ. of Kentucky).

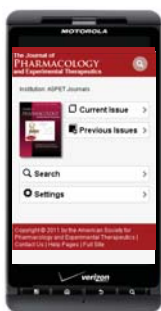
The *MOL* Editorial and Advisory Board added 16 new members: Hiroyasu Furukawa (Cold Spring Harbor Laboratory), Aurelio Galli (Vanderbilt Univ.), David Gewirtz (Virginia Commonwealth Univ.), Patrick Griffin, (The Scripps Research Inst., Scripps Florida), Johannes Hell (Univ. of California, Davis), Donald Hilgemann (UT Southwestern Medical Center at Dallas), Mathew Jones (Univ. of Wisconsin, Madison), Richard Kolesnick (Memorial Sloan-Kettering Cancer Ctr.), Amy Lee (Emory Univ.), Jeffrey Martens (Univ. of Michigan), Peter Mohler (Ohio State Univ.), Eric Ortlund (Emory Univ.), Bruno Stieger (Univ. Hospital, Zurich), John Tesmer (Univ. of Michigan), and Andrew Thorburn (Univ. of Colorado).

The new Associate Editors for *Drug Metabolism and Disposition* are Joseph Balthasar (SUNY Buffalo), Chantal Guillemette (Univ. of Laval), and Mary Paine (Univ. of North Carolina, Chapel Hill).

The *DMD* Editorial Board gained 16 new members: Shelby Anderson (Advion Bioanalytical Labs), Pieter P.J. Annaert (Katholieke Univer. Leuven), Pavel Anzenbacher (Palacky Univ.), Thomas K.H.Chang (Univ. of British Columbia), Uwe Christians (Univ. of Colorado), Raymond Evers (Merck), Michael B. Fisher (ProPharma Services, LLC), W. Griffith Humphreys (Bristol-Myers Squibb), Amit S. Kalgutkar (Pfizer), Hiroyuki Kusuhara (Univ. of Tokyo), Nina Isoherranen (Univ. of Washington), Emily E. Scott (Univ. of Kansas), John Gregory Slatter (Amgen), Bruno Stieger (Univ. Hospital, Zurich), Wen Xie (Univ. of Pittsburgh), and Donglu Zhang (Bristol-Meyers Squibb).

All new editorial board members are approved by ASPET's Board of Publications Trustees. We thank these individuals for their commitment of time and expertise to their respective journals and the Society. The high quality of ASPET's journals is due to the Editors, Associate Editors, and Editorial Board Members.

Mobile Device Use Continues to Grow



Use of the mobile device version of ASPET's journals hit new highs in February. Visits, unique visitors, and pages viewed were at their highest since the mobile device versions were launched at the end of June 2011. Usage has grown steadily since then with the exception of a slight decrease in December. Hits always decline in December for the desktop version of the journals, so the decrease in mobile use was to be expected. Across ASPET's four titles, the number of visits during the previous eight months increased by 138%. The number of unique visitors grew by 141%, and the number pages viewed went up more than 91%.

The mobile version helps readers stay up to date with ASPET's journals. Many use it to scan tables of contents and abstracts. Full-text articles are available on the mobile version, but readers can email articles of interest to their desktop computer to view on a larger screen or print later.

ASPET members have access to the mobile device version of each ASPET journal as a member benefit. Members can access the journals on smart phones and other mobile devices with the same user name and password as for the desktop version. The mobile device version is available at no extra fee to institutional subscribers. Access is through the institution's WiFi server. If your institution provides WiFi and you cannot access ASPET's journals through it, ask your librarian to contact subscriptions@aspet.org.



by Jim Bernstein

Funding Update

ASPET is preparing its annual written testimony to the House and Senate Appropriations Subcommittees responsible for funding the NIH. Our “ask” for FY 2013 will be a budget of at least \$32 billion, a 4.5% increase above the FY 2012 funding level. This amount is consistent with the rest of the biomedical research community. It has been difficult for NIH to achieve any growth. This year will be another challenging one for NIH and its extramural community.

How was the \$32 billion figure determined? The number reflects the FY’12 base figure of \$30.6 billion, adds the biomedical inflation rate index of 2.5% (\$860 million) and the balance of the increase is simply to allow for modest, sustainable growth. The NIH budget has been held flat for several years. In FY 2011 it received a budget cut. The biomedical research community’s “ask” of \$32 billion only begins to build the enterprise back up to the level of program capacity the agency can reliably fund.

A data analysis by FASEB shows how difficult the funding situation has become:

- In constant dollars (adjusted for inflation), the FY 2012 budget and the President’s proposal for FY 2013 are \$4 billion lower than the peak year (FY2003) and at the lowest level since FY 2001;
- The number of research project grants funded by NIH has declined every year since 2004;
- This trend is projected to continue in FY 2012 and FY 2013, when NIH will fund 3,100 fewer grants than in FY 2004;
- NIH made 8,765 competing (new and renewed) awards in FY 2011, more than 1,600 fewer than in FY 2003;
- Success rates have fallen more than 14 percentage points in the past decade and are projected to decline even further in FY 2012 and FY 2013.

(View the complete set of slides at: <http://www.faseb.org/Policy-and-Government-Affairs/Data-Compilations/NIH-Research-Funding-Trends.aspx>)

ASPET members need to make the case to their legislators and the public that NIH must remain a national priority. The key themes for your advocacy, and the themes that will be stressed in our written statement to Congress (due the end of March) include:

1. Educating Congress on the health benefits to the American People as a result of the investment in NIH;
2. The impact of a flat or a cut to the NIH budget;
3. The irreplaceable role of the federal investment in biomedical research;
4. The economic benefits of funding the NIH.

Public Affairs



by Jim Bernstein

Compounding the problem of where the NIH budget may finally land in FY 2013 is the possible “sequestration” or mandated budget cuts that are set to take place in January 2013. Sequestration was kick started when the deficit control Super Committee failed to find agreement on \$1.2 trillion in savings as directed by the Budget Control Act that was passed last summer. Sequestration, if implemented, would affect defense and non-defense discretionary spending (NIH, FDA, FBI, etc...). This could mean a cut to the NIH of 9%. Ultimately, it is not clear if in fact, those mandated across-the board cuts would be passed. But one thing is certain, that with all the pressures of a heated political season and persistent deficit and debt pressures, calls for continued cuts to federal programs will be heard very clearly for the remainder of this year.

NIH Congressional Justification

The NIH Congressional Justification offers the Senate and House Appropriations Committees detailed estimates and justifications for research and research support activities that NIH would anticipate funding at the President’s Budget Request level. You can view all institute and centers Congressional Justification at: http://officeofbudget.od.nih.gov/insti_center_subs.html

NIDA Launches New “Easy to Read” Website

NIDA has launched a new user-friendly resource that allows visitors to:

- Learn the science behind how drugs affect bodies and brains.
- Hear audio versions of each page while seeing embedded highlighting of the words being read.
- View engaging videos about drug abuse and addiction, including: “Why Are Drugs So Hard to Quit?” and “Anyone Can Become Addicted to Drugs.”

The website uses simple language, navigation, design, and features to address many of the common barriers to accessing information. It is an ideal resource for anyone interested in learning more about drug abuse: www.easyread.drugabuse.gov

Save the Date...
Joint ASPET/British Pharmacological Society
Annual Meeting at EB 2013
April 20 -24, 2013
Boston, MA



New ASPET Members

Regular Members

Shelby Anderson, Advion Bioanalytical Labs

Charles Antzelevitch, Masonic Medical Research Laboratory

Esther P. Black, Univ of Kentucky

Paul M. Campbell, Drexel Univ College of Medicine

Rong Chen, Wake Forest Univ School of Medicine

Kirk E. Dineley, Roosevelt Univ

Shasank Dravid, Creighton Univ

Sarah Grimwood, Pfizer Inc.

Eugenia V. Gurevich, Vanderbilt Univ

David R. Harder, Medical College of Wisconsin

Amit S. Kalgutkar, Pfizer Global Research & Development

Adam R. Kennedy, Cytokinetics

Glenn F. King, The Univ of Queensland

Larry H. Matherly, Wayne State Univ and Karmanos Cancer Institute

Margaret M. McCarthy, Univ of Maryland School of Medicine

Cameron S. Metcalf, Neuroadjuvants, Inc.

Daniel Morgan, Indiana Univ

Tomonori Nakamura, Gunma Univ Graduate School of Medicine

Timothy D. O'Connell, Sanford Research

Georgi V. Petkov, Univ of South Carolina

Jason Pinkstaff, Ambrx, Inc.

Charu Rajput, Univ of Illinois

Darren M. Roesch, Baylor College of Dentistry

Takeshi Shimamura, Loyola Univ Chicago Stritch School of Medicine

Phoebe L. Stewart, Case Western Reserve Univ

Timothy J. Strelevitz, Pfizer Inc.

Michael A. Taffe, The Scripps Research Institute

Gerald Thiel, Univ of Saarland

William J. Thomsen, SRI International Center for Advanced Drug Discovery

Domenico Tricarico, Univ of Bari

Casey D. Wright, Sanford Research

Postdoctoral Members

Buxin Chen, Univ of California-San Diego

Daniel R. Day, Univ of California-Santa Barbara

Patrick A. Forcelli, Georgetown Univ

Brian D. Kangas, Harvard Medical School - McLean Hospital

Huilan Lin, Univ of California-San Diego

Yi Liu, Univ of California-San Francisco

Mohammad Mohammad, Univ of Louisville

AbdulBari Muhammad, Univ of Pennsylvania

Adebowale E. Ogunjirin, Gallaudet Univ

Aaron C. Overland, Univ of California-San Diego

Sergio Parra, Univ of Michigan

Richard M. van Rijn, Ernest Gallo Clinic and Research Center

Affiliate Members

Kaci A. Bohn, Harding Univ College of Pharmacy

Graduate Student Members

Julie M. Breckenridge, Saint Louis Univ Medical School

Dwayne Brown, Howard Univ

Sheketa A. Brown, Michigan State Univ

Richard M. Cleva, Arizona State Univ

Alexander N. Garcia, Univ of Illinois-Chicago

Meera Gujjar, Mercer Univ

Ariell M. Joiner, Univ of Michigan

Gilbert W. Kim, Thomas Jefferson Univ

David M. Klein, Univ of Arizona

New ASPET Members

Graduate Student Members

Paresh P. Kulkarni, Institute of Medical Sciences, BHU

Chan Gyu Lee, Seoul National Univ

Olivia A. Lin, Western Univ of Health Sciences

Yanlong Liu, Univ of Louisville

Sheila Masinde, Long Island Univ

Teresa J. Meyer, A.T. Still Univ

Geeta Negi, National Institute of Pharmaceutical Education and Research

Evgeniy Panzhinskiy, Univ of Wyoming, School of Pharmacy

Lai Peng, Univ of Kansas Medical Center

Ashis S. Rasaily, Sri Sathya Sai Institute of Higher Learning

Thomas H. Smith, Univ of California - San Diego

Heather Snell, Univ of North Texas Hlth Sci Ctr

Benjamin G. Thompson, East Carolina University

Joseph M. Yracheta, Univ of Washington

Wen Zhao, Univ of Kansas Medical Center

Undergraduate Members

Ricardo Arechiga, California St Univ - Dominquez Hills

Amanda C. Baker, Univ of Oregon

Michael Collaro, California St Univ - Channel Islands

Jessica Cortez, California St Univ - Channel Islands

Katherine M. Evely, Univ at Buffalo

Anel Garcia, Purdue Univ

Brittany Goudeau, California St Univ - Dominquez Hills

Liz J. Hernandez Borrero, Univ of Puerto Rico - Rio Piedras

Janice Maisonet Mercado, Univ of Puerto Rico - Arecibo

Luis Martinez, Univ of Houston

Kevin P. McPherson, Univ of Nevada, Reno

Thong N. Nguyen, Univ of Maryland

Eunhye Park, Rutgers Univ

Cherelle Parker, Community College of Aurora

Adriana Picazo, California St Univ - Monterey Bay

Vong Sok, Univ of California - Santa Cruz

Zoe Swank, Univ of California - Santa Barbara

Victoria A. Valdez, New Mexico Tech Univ

Crisandra Wilkie, Univ of Kansas

Recommend a Member!

Do you have a friend, colleague or student who is not yet a member of ASPET? Be sure to tell them about ASPET Membership and all the great

benefits we provide including:

- Reduced registration fees for EB
- Discounted page charges to publish in our journals
- Award opportunities
- Plus much more!

Tell them to apply online at www.aspet.org



Members in the News

Newly Elected AAAS Fellows

ASPET congratulates the newly elected AAAS Fellows:

- Nancy J. Brown, Vanderbilt Univ Sch of Medicine
- Carmen W. Dessauer, Univ of Texas Medical Sch-Houston
- Henrik G. Dohlman, Univ of North Carolina - Chapel Hill
- Heidi Elizabeth Hamm, Vanderbilt Univ Medical Center
- Tadashi Inagami, Vanderbilt Univ Sch of Medicine
- Margaret O. James, Univ of Florida
- Hideko Kaji, Thomas Jefferson Univ
- Prakash S. Nagarkatti, Univ of South Carolina
- Alexandra C. Newton, Univ of California - San Diego
- Danny D. Shen, Univ of Washington
- Patrick J. Sinko, Rutgers, The State Univ of New Jersey
- Jashvant D. Unadkat, Univ of Washington
- Gary A. Weisman, Univ of Missouri - Columbia



SCIENTIFIC IMAGE COMPETITION



Each day scientific investigators produce thousands of images during the course of their research. FASEB believes that these images are an important, yet underutilized, resource in the community's effort to engage and educate the general public and policy makers about biomedical research.

FASEB is seeking the submission of captivating, high resolution images that represent the cutting edge of 21st century biomedical research.

To apply, submit the following to: BioArt@faseb.org

- High resolution, print-ready photograph or illustration
- 100 word, non-technical statement
- Names and institutional affiliations of all co-entrants
- NIH funding sources (e.g., grant number)

Winning images will be featured on the FASEB and NIH websites and at FASEB's centennial celebration.

**Submission deadline extended:
March 25, 2012**



Attention ASPET Members: What are you up to?

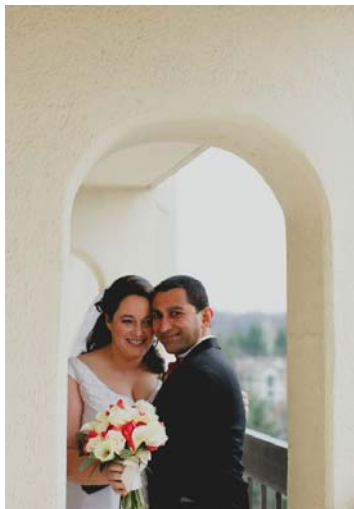


Share your news with fellow ASPET members!
Send news and photos to sthompson@aspnet.org

For more information, visit us at www.faseb.org/BioArt

Staff News

Angelique Raptakis Bahl

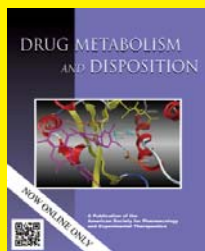


Congratulations to Angelique Raptakis Bahl, ASPET's Meeting Manager, who married her longtime love, Nikhil Bahl on December 16, 2011 at The Ballroom in Bethesda, MD. Angelique and Nikhil have been together for 5 years and both share a love of nature photography. Angelique's husband, Nikhil, is a web designer and a professional photographer. His website is www.nikhilbahl.com. They spent their honeymoon visiting two Hawaiian islands, Hawaii and Kauai, where they got to relax, explore, and take some incredible pictures.

Suzie Thompson



Suzie Thompson re-joined ASPET as the Director of Marketing on January 17, 2012. Suzie was previously ASPET's Director of Member Services and Marketing from April 2006 - January 2011, when she left to spend time with her twins. Suzie is responsible for marketing all of ASPET's activities, including membership, journals, meetings, awards, the career center, and more. She is also responsible for working with members and staff to reach new audiences, creating and enhancing ASPET's brand and image, and also making sure we are understanding and meeting members' wants and needs.



**Have you activated your member subscription to ASPET's online journals?
ASPET members get online access to all ASPET journals.
Staff at info@aspet.org will be glad to help.**

In Sympathy

ASPET notes with sympathy the passing of the following Members:

Elizabeth F. Berman, PhD

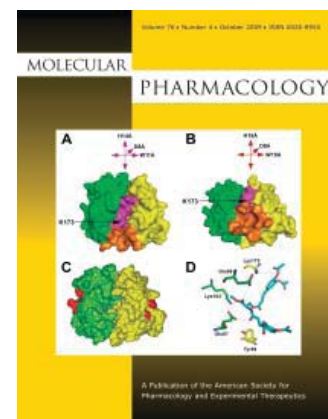
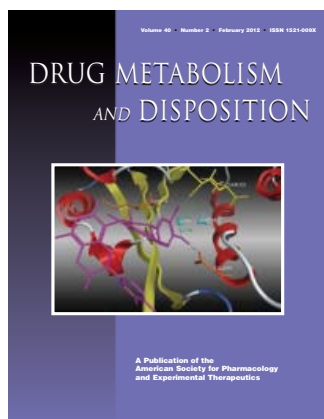
Sidney D. Nelson, Jr, PhD

C.B. Shaffer, PhD

James L. Spratt, MD, PhD



ASPET Journals



Why publish with ASPET?

- * **Low page charges** - \$50/page for ASPET Members, \$90/page for nonmembers
- * **Online manuscript submission** - submit your manuscript 24/7, whenever suits your schedule; online peer review reduces review times; track the progress of your manuscript through the review process
- * **Wide dissemination** - accepted manuscripts are publicly accessible immediately; fully formatted articles are publicly accessible 12 months after publication; low-cost pay-per-view option for nonsubscribers; abstracts and tables of contents always publicly accessible.

Visit www.aspetjournals.org to access each ASPET journal.



Membership Information

Definitions of Categories of ASPET Membership

Regular Members: Any doctoral level investigator who has conducted and is the primary author on at least one publication of an original study in the area of pharmacology published in a peer-reviewed journal is eligible for membership in ASPET. Exceptions may be made for someone who does not meet the degree requirement but who has made major research contributions to pharmacology. Regular members must be nominated by one (1) Regular or Retired ASPET member.

Affiliate Members: An investigator who does not meet the requirements for Regular membership because of the lack of a degree or lack of publication is eligible to apply for Affiliate membership. Affiliate members receive all the same member benefits as Regular members except that they may not vote in ASPET elections. Affiliate members must be nominated by one (1) Regular or Retired ASPET member.

Postdoctoral Members: Any qualified person who has received their Ph.D. or equivalent degree in pharmacology or a related field within the past five years is eligible for Postdoctoral membership. Postdoctoral members will receive the same benefits as Regular members, including the right to vote in ASPET elections. Individuals may remain in the Postdoctoral membership category for a maximum of five (5) years from the date of receipt of their PhD (or equivalent) degree after which time they must upgrade to Regular Membership. Applicants for Postdoctoral membership must be sponsored by one (1) Regular or Retired ASPET member.

Student Members: Individuals who are enrolled in undergraduate, graduate, or professional degree programs are eligible for Student membership in ASPET. Student members receive all the same benefits as Regular members except that they may not vote in ASPET elections. Individuals may remain in the Student member category for up to two (2) years following completion of their research doctoral degree. Student members must be nominated by one (1) Regular or Affiliate ASPET member.

Sponsors should send an email or letter addressing the applicant's qualifications for ASPET membership directly to the ASPET office (rhipps@aspet.org).

Regular Member Benefits (Dues \$150):

- Reduced page charges for corresponding authors to publish in ASPET journals – pay \$50/page instead of \$90/page and save enough with one four-page article to pay your annual ASPET dues!
- Free full-text access to all four online ASPET journals, including all back issues.
- Free subscription to *The Pharmacologist* (online).
- Reduced registration fees for ASPET meetings.
- Sponsorship of papers at the ASPET meeting.
- Best abstract awards for young scientists at the ASPET meeting.
- Free listing in the FASEB Directory.
- Membership in multiple ASPET Divisions for no additional dues.

Postdoctoral Members (Dues \$75) have all the benefits of Regular members.

Affiliate Members (Dues \$150) have all the benefits of Regular members except they may:

- Sponsor candidates for Student membership only.

Application Instructions

Submit the completed Application for Membership form or use the online application form on the ASPET web site at www.aspet.org/membership/apply. Submit a current curriculum vitae including bibliography for Regular and Affiliate Membership.

Sponsor Statements: Submit a statement of qualifications of the applicant from one Regular/Retired/Postdoctoral Member of ASPET for Regular Membership, Affiliate Membership and Student Membership (Affiliate Members may also sponsor student applicants). In addition to the statement certifying that the applicant is qualified for ASPET membership, sponsors should provide their own current address, phone, fax, and email. It is the responsibility of the applicant to insure that these documents are submitted to the ASPET office.

- Not sponsor a paper for a non-member at a Society meeting.
- Not vote in Society elections.
- Not hold an elected office in the Society.

Student Members (Dues \$30) have all the benefits of Regular members except they:

- Pay no dues their first year.
- Pay only \$30 annual dues thereafter. Undergraduate Student members pay no dues and get their first graduate year free.
- Must have their papers at Society meetings sponsored by a member.
- May not vote in Society elections nor hold an elected office in the Society.



Membership Application

Please Complete All Sections:

Section 1: Application Details

Application for:

Regular Membership

Affiliate Membership

Postdoctoral Membership – Date of Graduation: _____

Graduate Student – Expected Date of Graduation: _____

Undergraduate Student - Year: Fr Soph Jr Sr

Section 2: Source

How did you hear about ASPET:

Meeting _____

ASPET Journal _____

Mentor _____

Website _____

Other _____

Section 3: Personal Information

Name: _____

Institution: _____

Mailing Address: _____

Telephone: _____

Fax: _____

Email: _____

Section 4: Optional Demographics (Not Required)

Date of Birth: _____

Sex: Female Male

Ethnicity: Asian

Black or African American

American Indian or Alaskan Native

Hispanic or Latino

Native Hawaiian or Pacific Islander

White

Other: _____

The information in this section will be used by ASPET to collate statistics and will be kept private. Completion of this section is voluntary.

Section 5: Sponsor (Must be an ASPET Member)

Name and email of your sponsor: _____

Please have your sponsor send us a brief letter or e-mail outlining your qualifications for Membership in ASPET to the Membership Coordinator, Robert Phipps, (rphipps@aspet.org).

Section 6: Division Selection

Divisions: *Division membership is a benefit of ASPET membership and there is no additional charge to belong to a division. It is highly recommended that you join a division so that you may take full advantage of Society participation. Joining a division allows you to participate in creating the scientific program for the annual meeting, network with people in your field at mixers and divisional programs, and receive special notices and newsletters about items and activities of interest in your field. Be sure to pick a division!*

Indicate primary (1) and as many secondary (X) divisions to which you wish to belong:

<input type="checkbox"/> Division for Behavioral Pharmacology	<input type="checkbox"/> Division for Integrative Systems, Translational & Clinical Pharmacology
<input type="checkbox"/> Division for Cardiovascular Pharmacology	<input type="checkbox"/> Division for Molecular Pharmacology
<input type="checkbox"/> Division for Drug Discovery, Development & Regulatory Affairs	<input type="checkbox"/> Division for Neuropharmacology
<input type="checkbox"/> Division for Drug Metabolism	<input type="checkbox"/> Division for Pharmacology Education
	<input type="checkbox"/> Division for Toxicology

Section 7: Curriculum Vitae

Regular, Affiliate, and Graduate Student applicants: Please send your *Curriculum Vitae* (including bibliography) by email to the Membership Coordinator, Robert Phipps, (rphipps@aspet.org).

Undergraduate Student Applicants Only:

Current Education :

Expected Degree & Date: _____ School: _____ City/State/Country: _____ Major Field: _____

Applications are reviewed on a rolling basis. Please DO NOT submit payment with your application. Upon membership approval, you will be sent a dues statement and welcome package. Student Membership is FREE for the first year.

Call or e-mail the ASPET Membership Department for additional information: 301-634-7135 / rphipps@aspet.org.