Thursday, May 16, 2024

2:30 pm – 4:30 pm / Opening General Session

At ASPET’s first session of the 2024 Annual Meeting, you will receive a warm welcome to your home for pharmacology. Learn what’s been planned for our weekend together, celebrate our history and what’s ahead for the Society, meet someone new, find an old friend, and engage in a spirited discussion.

Keynote to be announced.

4:30 pm – 5:00 pm / Break

5:00 pm – 5:30 pm / Daily Datablitz

Experience the daily ASPET datablitz, a rapid-fire oral presentation of research. Ten poster presenters each day will present three-minute short talks in the poster hall. These brief snippets of research are an introduction to their full presentations that will take place at their poster boards afterwards. You won’t want to miss this fast-paced overview.

5:00 pm – 7:00 pm / Poster Presentations and Mixer

Enjoy a drink and snacks while exploring the latest science or presenting it yourself! Posters are grouped by divisional topic area and every night includes student and postdoc finalists competing for poster awards. Hear their presentations and discuss the latest research advances.

7:30 pm – 10:00 pm / Opening Event in DC

Embark with ASPET on an adventure to a museum like no other, just a 15-minute ride into DC. As we kick off our long weekend dedicated to pharmacology, join us for an unforgettable blend of intrigue, knowledge, and camaraderie! Location to be announced as soon as the invisible ink dries.
Friday, May 17, 2024

8:00 am – 9:00 am / Business Meeting and Breakfast

Enjoy breakfast while learning about the latest updates on ASPET activities and initiatives.

9:00 am – 10:00 am / Keynote

*Keynote to be announced.*

10:00 am – 10:30 am / Break

Enjoy a cup of coffee while learning about the unique products and services offered by our exhibitors.

10:30 am – 12:00 pm / Concurrent Sessions

**Purinergic Signaling in the Nervous System**

The purinergic receptors (adenosine, P2X and P2Y) are implicated in conditions of the nervous and immune systems. Adenosine is an endogenous agent for suppressing seizures, ischemic damage and pain, while ATP and other nucleotides often act as DAMPs and are proinflammatory. These receptors and the enzymes that regulate endogenous activators have numerous definitive tool compounds as well as druglike clinical molecules. For example, adenosine agonists and P2Y receptor antagonists are efficacious in models of pain, cerebral ischemia and epilepsy. P2X7 receptor antagonists reduce depression. Recently developed highly selective or biased modulators provide new opportunities for drug development.

**CHAIRS**

Kenneth Jacobson and Daniela Salvemini

**SPEAKERS**

*Purinergic Signaling Modulators for Treating CNS Disorders*

Kenneth Jacobson - NIDDK/NIH

*Endogenous Antiseizure Adenosine: A New Role for Synthetic Analogues*

Ana M. Sebastiao - University of Lisbon

*Role of P2X7 Ion Channel in Neuroinflammation*

Anindya Bhattacharya - Switch Therapeutics

*Unexplored Roles of the P2Y14 Receptor in Neuropathic Pain States*

Daniela Salvemini - Saint Louis Univ Sch of Medicine

**S-acylation as a Regulator of Protein Function in Health and Disease**

The last two decades have led to an explosion of information and increased understanding of protein S-acylation, a reversible posttranslational modification (PTM) of proteins with fatty acids at cysteine residues. Advances in mass spectrometry and chemical biology have uncovered a human palmitoylproteome of several thousand proteins. This dynamic PTM is installed by S-acyltransferases and erased by protein acyl thioesterases. Its functional importance in a variety of physiological settings has been uncovered and revealed significant changes in S-acylation patterns under pathological conditions. Hence there is growing interest in the S-acylating and deacylating enzymes as pharmacologic targets.
Artificial Intelligence in Toxicity Prediction

Prediction of potential toxicity is vital in both drug development and chemical regulation. However, chemical and drug-induced toxicity prediction remains a challenging problem. In recent years, a slew of artificial intelligence (AI) approaches, prominently machine and deep learning, have vastly improved the scope and accuracy of predictive toxicology. The specific areas in which these approaches have been used range from quantitative structure-activity relationships to single-cell based prediction of tissue-specific perturbations in gene expression. The overall objective of this session is to highlight some applications of AI in toxicity prediction, featuring case studies in integration of big data, machine learning for prediction of drug-induced liver injury, confidence in toxicity prediction, and predictive toxicology in a regulatory context. The session will be of interest to a broad spectrum of practitioners and trainees from across industry, regulatory agencies, and academia.

CHAIR
Sudin Bhattacharya - Michigan State University

SPEAKERS

Interpretable Machine Learning Modeling of chemical Toxicity: From Big Data Profiling to Mechanistic Mapping
Hao Zhu - Tulane University

AI/ML Models to Predict Toxicity for Small Molecules
Mohan Rao - Neurocrine Biosicence

Predicting with Confidence – Conformal Prediction for Toxicity Endpoints
Fredrik Svensson - Cancer Research Horizons

Deep Learning for Toxicity Prediction in a Regulatory Context
Shraddha Thakkar - FDA
Guppy Tank: A Translational Science Pitch Competition

The “Guppy Tank” competition showcases translational science pitches from four ASPET trainees who were selected based on the novelty and translational potential of the project. The selected finalists were personally coached for the final presentation by mentors with established experience in the biotechnology or drug development space. In addition, this event features a keynote discussion by a rising scientific entrepreneur, whose novel drug discovery platform exemplifies translating an idea from the bench to business. This session will be an exciting and essential educational opportunity for ASPET trainees to hone their translational scientific communication skills while getting publicly recognized for their talents by the broader ASPET community.

CHAIRS
Saranya Radhakrishnan - National Institute of Mental Health
Gregory J. Grumbar - Georgetown University

SPEAKERS
To be announced

12:00 pm – 1:30 pm / Break for Lunch

12:15 pm – 1:15 pm / Invitation-only or Ticketed Events

- ASPET Journals Editorial Board Member Lunch (invitation only)
- Careers in Drug Metabolism and Disposition Networking for Trainees (ticketed)
- DDD/TOX/TCP Joint Networking (ticketed)
- Division for Behavioral Pharmacology Meet-and-Greet (invitation only)
- Partnerships Committee International Networking (invitation only)
- Washington Fellows Alumni Networking (invitation only)

1:30 pm – 3:00 pm / Concurrent Sessions

Use of Population Descriptors in ADME-Tox Research and Precision Medicine

This session will present cutting-edge, cross disciplinary research on advancing precision medicine in ethnically diverse populations, especially among understudied ethnic and genetic ancestry populations. A key question that will be addressed is, what are best practices, challenges, and opportunities for the use of population descriptors (e.g., race, ethnicity, and ancestry) in translational ADME-Tox and precision medicine research? The theme of this session will center around the impact of gene-environment interactions on drug disposition, efficacy, and toxicity. The session will include short presentations by subject matter experts followed by an interactive panel discussion.

CHAIRS
Klarissa D. Jackson and Jed N. Lampe

SPEAKERS

PBPK Modeling with Ethnically Diverse Populations
Amaka F. Ezuruike - Certara UK

Pharmacogenomics Research in Indigenous Communities
Katrina Claw - University of Colorado Anschutz Medical Campus
Targeting the Splice of Life: RNA Splicing as a Therapeutic Target

Alternative messenger RNA (mRNA) splicing regulates the function of most protein coding genes. Aberrant mRNA splicing that prevents protein production or causes the translation of a protein that cannot function properly has been associated with many devastating diseases including muscular dystrophies, neurodegenerative disorders, and cancer. Therefore, understanding the role of alternative splicing and how it can be targeting will have an impact on a broad spectrum of diseases. The goals of this session are to demonstrate this through talks on alternative splicing as a therapeutic target in leukemias that harbor mutations in the splicing machinery as well as to improve cell function by targeting protein expression in neuromuscular diseases such as Duchenne muscular dystrophy and spinal muscular atrophy. The value of collaboration between academic and industry research teams will also be discussed.

CHAIRS
Lawrence Boise and Esther A. Obeng

SPEAKERS

*STAT3 Inhibition is Toxic to Splicing Factor-mutant Cells*
Esther A. Obeng - St. Jude Children's Research Hospital

*Exon Skipping in Duchenne Muscular Dystrophy: A Rapidly Diversifying Landscape*
Eric Hoffman - Binghamton University

*SMN2 Splicing Modifiers Improve Motor Function in SMA*
Marla Weetall - PTC Therapeutics

*Synthetic introns for Targeting SF3B1 Mutant Aberrant Splicing in Cancer*
Salima Benbarche - Memorial Sloan Kettering Cancer Center

Organelles as Key Regulatory Sites of Health and Disease

Subcellular integration of signaling pathways has been recognized to occur at various organelles in adult cardiomyocytes, leading to previously unrecognized mechanisms for modulating contractility, hypertrophy and survival. These pathways can be activated in response to various stimuli, including neurohormone signaling and ischemic stress. Expert speakers in this field will discuss their recent findings in organelle-localized signaling processes regulating cardiomyocyte function and stress.

CHAIRS
Douglas G. Tilley and Roshanak Irannejad

SPEAKERS

*Golgi-targeted Receptor Integration of Hypertrophy*
Alan V. Smrcka - University of Michigan

*Intracellular Receptor Regulates Contractile and Gene Expression*
Yang Xiang - University of California at Davis
Therapeutic Potential of Glucagon-Like Peptide-1 Receptor Agonists for Compulsive Behaviors and Substance Use Disorders

Glucagon-like peptide-1 receptor (GLP-1R) agonists have gained broad popularity as effective therapeutics for glycemic and weight control, and due to their involvement in satiety signaling in the brain, these compounds have promise for regulating compulsive eating disorder. GLP-1Rs are highly concentrated in areas of the brain involved in reward seeking and avoidance, consistent with their role in meal termination and satiety. Interestingly, drugs of abuse also engage these reward and avoidance circuits, thus raising the question of whether GLP-1R agonists could induce drug satiety. During the past decade, there have been numerous preclinical efforts to explore the therapeutic potential of GLP-1R agonists in substance use disorders, from nicotine to alcohol, stimulants, and opioids. In this panel, we will review some of the basic preclinical findings that established the feasibility of using GLP-1R agonists as addiction therapeutics, as well as the progress of current trials that examine their potential clinical efficacy.

CHAIRS
Hoang V. Le and Luis Tuesta

Leveraging Neuropeptide Systems for the Treatment of Substance Use Disorders
Luis Tuesta - University of Miami Miller School of Medicine

Targeting Central GLP-1 Receptors to Reduce Voluntary Drug-Taking and -Seeking Behaviors
Heath D. Schmidt - University of Pennsylvania

Testing the Safety and Efficacy of a GLP-1 Receptor Agonist for the Treatment of Opioid Use Disorder in Rats and Man
Sue Grigson - Penn State College of Medicine

Human Laboratory Screening of Semaglutide as a Novel Addiction Therapeutic
Christian Hendershot – University of North Carolina at Chapel Hill

Panel Discussion - State of the Field and Future Directions
Recent Advances in NLRP3 Inflammasome Signaling in Cardiovascular Diseases

The NLRP3 inflammasome has been recognized as the intracellular machinery to switch on the inflammatory response in a variety of mammalian cells. Recently, oligomerization domain (NOD)-like receptor protein with pyrin domain containing 3 (Nlrp3) is found to detect endogenous stress-associated danger signals such as beta-amyloid, visfatin, gut microbial metabolite TMAO, ATP, cholesterol crystal, and homocysteine to produce local tissue sterile inflammation. Many studies on Nlrp3 inflammasomes have highlighted the implication of their formation and activation in the pathogenesis of autoinflammatory diseases and various chronic metabolic or degenerative diseases including diabetes mellitus, gout, acute myocardial infarction, atherosclerosis, glomerular sclerosis, and Alzheimer disease. Recently, a new concept is emerging that activation of various inflammasomes is the root of or route to many chronic degenerative diseases. It is believed that inflammasomes will take center stage in pathogenesis of cardiovascular diseases such as atherosclerosis, hypertension, vascular inflammation, cardiac remodeling and associated end-stage organ diseases. Recent studies have revealed the novel mechanistic insights for targeting inflammasomes and developing novel therapeutic strategy for treatment and prevention of various cardiovascular diseases.

CHAIRS
Krishna M. Boini and Sai S. Koka

SPEAKERS

Interleukin-1 Beta in Heart Remodeling and Dysfunction
Stefano Toldo - University of Virginia

Unravelling the Role of NLRP3 Inflammasome in Gut Microbial Metabolites-induced Endothelial Dysfunction
Sai S. Koka - Texas A&M University

The NLRP3 Inflammasome Pathway Induces Blood-Brain Barrier Dysfunction Following Traumatic Brain Injury
Binu Tharakan - Morehouse School of Medicine

Transforming Pharmacology Education: IDEA, Theory, Engagement, and Compliance

Join us for a dynamic symposium hosted by the ASPET IDEA Committee that explores the multifaceted realm of pharmacology education. This concise yet impactful session will delve into transformative teaching methodologies, effective student retention and learner engagement strategies, and the imperative journey toward fostering inclusion, diversity, equity, and accessibility.
(IDEA) within the discipline. Participants will learn strategies for effectively embedding IDEA principles in pharmacology education in compliance with federal and state requirements and identify best practices for cultivating inclusive environments.

Who Will Benefit: This session is tailored for pharmacology educators, researchers, administrators, policymakers, and anyone dedicated to enhancing pharmacology education. Attendees will gain valuable insights and practical takeaways.

Learning Objectives
Transformative Education: Gain a solid grasp of transformative education theory and critical pedagogy to discover their direct applications in pharmacology education.

Student Retention: Explore key student retention and learner engagement educational theories by influential scholars like Tinto and Arroyo and Gasman. Learn actionable strategies to enhance student success within pharmacology programs.

IDEA and Compliance: Understand the significance of DEIA initiatives in pharmacology education and the necessity of compliance with federal and state requirements. Identify best practices for cultivating inclusive environments.

Expectations: We anticipate an engaging and concise symposium featuring expert speakers and an interactive discussion panel. By the session's conclusion, participants will be equipped with the knowledge and tools to revolutionize their approach to pharmacology education, boost student engagement, and contribute to a more inclusive and compliant educational landscape.

CHAIR
Ashim Malhotra, Chair, ASPET IDEA Committee - California Northstate University

SPEAKERS
To be announced

Navigating Science Policy: Priorities, Advocacy and Engagement

Join us for an engaging panel discussion featuring experts from government agencies, government relations, and ASPET. Panelists will (1) explore how policy experts work with scientists, administrators and policy makers to collaborate in the process of rule-making that impacts biomedical research, (2) discuss ASPET’s approach to identifying science policy priorities to advance pharmacology and biomedical research, and (3) describe the career journeys that led them from research roles to the policy arena.

CHAIRS
David Cabrera - Van Andel Institute
Marcus S. Delatte - Allucent

PANEL DISCUSSION
Libby O'Hare - Radiological Society of North America (RSNA)
Marah Wahbeh - ASPET
Carmine Leggett - Office of Information and Regulatory Affairs, OMB
Jessica Tucker – National Institutes of Health

4:30 pm – 5:00 pm / Break
5:00 pm – 5:30 pm / Daily Datablitz

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5:00 pm – 7:00 pm / Poster Presentations and Mixer

Enjoy a drink and snacks while exploring the latest science or presenting it yourself! Posters are grouped by divisional topic area and every night includes student and postdoc finalists competing for poster awards. Hear their presentations and discuss the latest research advances.

Saturday, May 18, 2024

8:00 am – 8:50 am / Keynote

Keynote to be announced.

9:00 am – 10:30 am / Concurrent Sessions

Generative Artificial Intelligence (AI) for Dynamic Pharmacology Education

While the use of technology in healthcare and medical education continues to increase, the recent and rapid rise of the public use of generative artificial intelligence (AI) chatbots has propelled us into the future faster than expected. Generative AI chatbots bring time-saving benefits but also present concerns around accuracy, academic integrity, and the loss of creativity. Regardless of what we do, these easily accessible tools will revolutionize what we teach and how we teach it. In this workshop, we will review different AI options that can be used in pharmacology education and classroom settings, explore the benefits and challenges of using AI and discuss how to optimize AI to create and improve pharmacology educational materials. By the end of this workshop, participants will be able to:

- Explore the potential of generative AI in enhancing pharmacology education for healthcare professionals.
- Discuss best practices and ethical considerations in integrating AI into pharmacology education.
- Foster collaboration and networking among educators, researchers, and developers in the field of pharmacology education using AI.
- Identify challenges and future directions in the use of AI for pharmacology education.

CHAIRS
Jennelle D. Richardson and Reem Atawia

SPEAKERS
Navigating Boundaries: AI’s Limitations in Medical Education
Jennelle D. Richardson - Indiana University School of Medicine

Optimizing Prompt Keywords for Pharm Education Excellence
Reem Atawia - Southwestern Oklahoma State University

Harnessing Generative AI Options In and Out the Classroom
Rupa Lalchandani Tuan - University of California, San Francisco
P.B. Dews Lifetime Achievement Award for Research in Behavioral Pharmacology Lecture and Showcase
Division for Behavioral Pharmacology

CHAIRS
Emily M. Jutkiewicz and Brenda M. Gannon

SPEAKERS
Awardee and speakers to be announced.

Bernard B. Brodie Award in Drug Metabolism and Disposition Lecture, Gillette Award Lectures, and Junior Investigator Platform Session
Division of Drug Metabolism and Disposition

This session will feature a talk from the B. B. Brodie Award winner and two talks from the authors of the best papers of 2023 from Drug Metabolism and Disposition who received the James R. Gillette Awards in pharmacokinetics/transporters and drug-metabolizing enzymes. The session will also include abstract-based oral presentations from graduate students and postdoctoral fellows focused on drug metabolism and disposition.

CHAIRS
Hyunyoung Jeong and Kerry Goralski

SPEAKERS
Awardees and speakers to be announced.

Susan B. Horwitz Award in Cancer Pharmacology Lecture and Cancer Pharmacology Early Career Showcase
Division for Cancer Pharmacology

This session will feature a keynote talk by the Susan B. Horwitz Awardee. The award is named in honor of Dr. Horwitz who is a pioneer in understanding the mechanism of action of cancer chemotherapy drugs many of which have been and remain mainstays of cancer therapy and whose work has changed the nature of cancer treatment. In addition, this session will showcase oral presentations by young scientists, featuring both graduate students and postdoctoral fellows in the area of cancer pharmacology.

CHAIR
William J. Placzek

SPEAKERS
Awardee and speakers to be announced.

10:30 am – 11:00 am / Break

11:00 am – 12:30 pm / Concurrent Sessions

Braving Unique Frontiers: Challenges Faced by Pharmacologists in Developing Regions

The session is designed to shed light on the extraordinary hurdles encountered by pharmacologists operating in developing regions, including limited resources, diverse patient populations, and unique
regulatory and geopolitical environments. Through insightful short presentations and a panel discussion, we aim to foster a deeper understanding of each region’s unique challenges and the innovative strategies and solutions developed by these pharmacologists to advance research and improve healthcare outcomes, while also providing valuable networking opportunities for the presenters.

**CHAIRS**
Khalid Garman and Engie Elsawaf

**PANEL DISCUSSION**
Engie Elsawaf - Future University in Egypt (FUE)
Priscilla K. Mante - Kwame Nkrumah University of Science and Technology, Ghana
Haneen Dwaib - Palestine Ahliya University
Vanesa Gottifredi - Leloir Institute Foundation, Argentina

**Translational and Clinical Pharmacology Young Investigator Awards Platform and Early Career Researcher Showcase**
*Division for Translational and Clinical Pharmacology*

This session will feature oral presentations from young scientists selected from the submitted abstracts as well as talks by the winners of the Division for Translational and Clinical Pharmacology Early Career Awards.

**CHAIRS**
Adam Lauver and Traci A. Czyzyk

**SPEAKERS**
Awardees and speakers to be announced.

**Scientific Achievement Award in Drug Discovery and Development Lecture and Notable Abstracts Platform Presentations**
*Division for Drug Discovery and Development*

This session will highlight oral presentations by young scientists doing research in drug discovery and development who were selected from the submitted abstracts. Additionally, the session will feature a keynote from the 2024 Scientific Achievement in Drug Discovery and Development awardee.

**CHAIRS**
Xiaodong Cheng and Francis S. Willard

**SPEAKERS**
Awardee and speakers to be announced.

**Neuropharmacology Early Career Investigator Award Lecture and Postdoctoral Fellow Showcase**
*Division for Neuropharmacology*

This session will feature oral presentations from postdoc finalists selected from the submitted abstracts as well as a talk by the winner of the Division for Neuropharmacology Early Career Award.

**CHAIRS**
Venetia Zachariou and Erin Bobeck

**SPEAKERS**
Awardee and speakers to be announced.
12:30 pm – Break

1:30 pm – 3:00 pm / Concurrent Sessions

**Tool Kit on Leadership Skills**

This session is hosted by the ASPET Mentoring and Career Development (MCD) Committee. The goal of this session is to engage pharmacologists from all career levels to a general discussion on leadership and why it is important to engage. Using both short presentations and round table discussions, the expert panelists will provide attendees with the principles of leadership and take-home resources. The focused table discussions will include elements of leadership, leadership models, barriers to leadership positions, and different kinds of leadership paths.

**CHAIRS**
Martha Davila-Garcia and Gregory J. Grumbar

**FOCUS AREAS AND PANELISTS**

**Leadership Styles** - Kenneth J. Kellar - Georgetown University
**Leadership Skills** - Susan G. Amara - National Institute of Mental Health
**Leading Inclusively** - Robert P. Biney - University of Cape Coast, Ghana
**Charting Your Role as a Leader at Different Levels of Your Career** - Jessica A. Mong - University of Maryland
**Research Career Progression: PhD student to Investigator** - Des R. Richardson - Griffith Univ.

**Cardiovascular Pharmacology Trainee Showcase and Award Lectures**  
*Division for Cardiovascular Pharmacology*

This session will feature the Trainee Showcase oral presentations by young scientists, featuring both graduate students and postdoctoral fellows. It will also feature presentations by winners of the division’s Early Career and Mid-Career Awards.

**CHAIRS**
Haneen Dwaib, Wenhui Wei, and Bradley McConnell

**SPEAKERS**
Awardees and speakers to be announced.

**Molecular Pharmacology Early Career Award and Postdoc Competition**  
*Division for Molecular Pharmacology*

This award competition features oral presentations from postdoctoral trainees selected from the submitted abstracts as well as a keynote lecture from the winner of the ASPET Division for Molecular Pharmacology Early Career Award.

**CHAIRS**
Maurine E. Linder and Roshanak Irannejad

**SPEAKERS**
Awardee and speakers to be announced.
Division for Toxicology Session

Speakers to be announced.

3:00 pm – 3:30 pm / Break

3:30 pm – 4:30 pm / Concurrent Sessions

Journals Workshop: Opening the Blinds on the Editorial and Review Process

Today there is an increasing demand for qualified manuscript reviewers which is driving the request for peer review at earlier stages of a career. However, there is no formal training in peer-review at any stage of an academic career. The tasks, duties, and role of an Associate Editor or Editor within a journal are also at times unclear.

At the *Journal of Pharmacology and Experimental Therapeutics (JPET)*, we must play a role in preparing the next generation of reviewers, and there is an unmet need for comprehensive reviewer training, especially for scientists. This session provides more advanced training geared towards the editorial process by describing the strategy we have taken at *JPET* to close the gap for this unmet need by providing more formal training for our early career scientists through the *JPET* editorial fellowship.

**CHAIRS**
Eric R. Gross and Beverley Greenwood-Van Meerveld

**SPEAKERS**

*Overview of the JPET Editorial Fellowship Program*
Eric R. Gross, Associate Editor, *JPET*

*What it Takes to Submit a Successful Application to the JPET*
Freeborn Rwere - Stanford University School of Medicine

*Tips and Tricks Learned from the JPET Editorial Fellowship*
Catharine Mielnik - University of Toronto

*What are the Benefits of Becoming a JPET Editorial Fellow*
Mahmoud S. Ahmed – Texas Tech University Health Sciences Center

**Q&A**
Beverley Greenwood-Van Meerveld, Editor in Chief, *JPET*

New Frontiers in Receptor/Kinase Signaling

Communication between transmembrane receptors and kinases is fundamental to human health and disease. For many years receptors were thought to signal to kinases almost exclusively through conventional second messenger pathways and phosphorylation cascades. In this Symposium, we highlight recent studies from both new and established investigators that are challenging this traditional view, revealing a striking diversity in the biochemical and cell biological mechanisms that underlie receptor-kinase signaling. These mechanisms include direct GPCR-kinase interactions, physical scaffolds localized to discrete subcellular compartments, and distance-dependent regulation of intracellular kinase pools by intracellular GPCRs. Together, these studies represent a new frontier
in receptor-kinase signaling research – one that helps to explain how receptor-kinase signaling leads to a diverse set of functional outputs and biological outcomes, and also provides new ideas about how therapeutically modulate this signaling to improve health outcomes.

**CHAIRS**
Benjamin Myers and Nikoleta Tsvetanova

**SPEAKERS**

*New Frontiers in PKA Signaling*
Susan Taylor - University of California, San Diego

*PKA (Mis)localization in Physiology and Disease*
Jesse Zalatan - University of Washington

**Signaling at the Right Place and the Right Time: Spatial Determinants of Function**

Technological advances enabling the visualization of activated receptors and signaling molecules at high spatiotemporal resolution are transforming our concepts of G-protein coupled receptor (GPCR) signaling. In addition to the plasma membrane, GPCR signaling can occur in subcellular compartments including endosomes and Golgi. Because cellular location determines function, the spatial dimension of receptor signaling allows for GPCRs to have multiple cellular functions. This panel will present explorations into this new frontier in GPCR signaling, addressing questions of the functional relevance of compartmentalized signaling and how spatial bias of GPCR and cAMP signaling can be leveraged to develop novel therapeutics.

**CHAIRS**
Jennifer Kunselman and Rita Valentino

**SPEAKERS**

*Compartment-specific Opioid Receptor Signaling by Dynorphins*
Jennifer Kunselman - National Institutes of Health

*Compartmentalized Signaling of Pain*
Nigel W. Bunnett - New York University

**Facilitating Drug Discovery and Development Using AI / Machine Learning**

Artificial Intelligence (AI) and Machine Learning (ML) are poised to be transformational technologies in multiple aspects of pharmacology, enabling researchers to utilize real-world data to better inform key decisions at multiple stages of the drug discovery and development process. In particular, the application of these technologies to the disciplines of translational and clinical pharmacology could have a tremendous impact on both target identification and drug development. This session will provide a broad set of perspectives on potential applications of AI/ML in pharmacology, covering how it could be used to (1) facilitate reverse translational efforts/target discovery using existing data sets; (2) make dose recommendations and predict drug interactions and adverse reactions; (3) and to optimize the exposure, safety, and efficacy of drugs. By covering practical examples of how AI/ML can be applied, this session will provide a thought-provoking overview of the utility of these technologies in pharmacology.

**CHAIRS**
Ross Corriden and Robert Bies

**SPEAKERS**
To be announced
4:30 pm – 5:00 pm / Break

5:00 pm – 5:30 pm / Daily Datablitz

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Sunday, May 19, 2024

8:00 am – 8:50 am / Keynote

Keynote to be announced.

9:00 am – 10:30 am / Concurrent Sessions

Axelrod Symposium and Lecture: Novel Insights into G Protein-coupled Receptor Kinases Modifying Cardiac Function and Metabolism

G protein-coupled receptor (GPCR) kinases (GRKs) play key roles in global homeostatic signaling in several organs and tissues. Accordingly, they are emerging as important targets in pathological conditions. GRK2 and GRK5 have been gaining attention for the role in the cardiovascular system, however more recently, both have been implicated in disease outside of the heart as well. This innovative symposium will cover novel aspects of both GRKs in health and pathology with a focus on cardiometabolic health and include the latest in small molecule inhibitor design and translation.

CHAIR
Walter J. Koch

SPEAKERS

Award Lecture
Novel Roles for GRK2 and GRK5 in the Heart
Walter J. Koch - Duke University School of Medicine

Symposium
Rational Design of Selective Small Molecule Inhibitors of GRK2 and GRK5
John JG. Tesmer - Purdue University

GRK2 Amino Terminal Domain and Novel Control of Cardiac Function and Systemic Metabolism
Sarah M. Schumacher - Lerner Research Institute of the Cleveland Clinic Foundation

Novel Regulation of Insulin Signaling by GRK2
Priscila Sato - Drexel University
Translating Academic Drug Discovery through Partnerships

Examining the challenges and opportunities in translating bench science to clinical applications is imperative for effectively translating novel scientific discoveries. This session will identify the gaps that bridge laboratory research to a successful drug or life science technology development program. Discussions will include strategies that could enable effective partnership formation, intellectual property considerations, and technology transfer.

CHAIRS
Xiaodong Cheng and Benita Sjogren

SPEAKERS

Academic Drug Discovery: Challenges and Opportunities
Zhiqiang An - UT Health/Texas Therapeutics Institute

Targeting Endotrophin for the Treatment of Fibro-inflammatory Diseases
Laurent Audoly - Ruptakine Inc.

Reaching Across the Aisle to turn Behavioral Observation to a Clinical Candidate
Sara Ward - Lewis Katz School of Medicine, Temple University

The Power of Networking to Form Collaborations Resulting in Therapeutic Value
Douglas Brenneman - Kannalife Sciences

Panel Discussion

Escape the Boredom: How to Use Gamification in Pharmacology to Engage Students

Gamification is a powerful strategy to enhance student engagement, motivation, as well as learning outcomes. In this session, different gamification approaches to engage health professional students will be demonstrated with an interactive presentation and hands on approach. Attendees will learn about the basics of game-based learning including the elements and attributes of successful gamification and general tips for game design. Attendees will also have the opportunity to explore how to gamify autonomic nervous system pharmacology using simulated tracings, develop escape rooms, and create case-based thought process/decision making games. Attendees will be able to work in small groups to experience and discuss various interactive games. This session is suitable for anyone who is interested in gamifying their pharmacology sessions. By the end of this symposium, the participants will be able to:

1. Explain the basics of game-based learning, including the elements and attributes of successful gamification.
2. Apply gamification techniques in three scenarios: solving autonomic pharmacology puzzles, virtual escape room, and case-based games.

CHAIRS
Monzurul Roni and Shantanu Rao

SPEAKERS

Basics of Game-based Learning
Monzurul Roni - University of Illinois College of Medicine
Perinatal Pharmacology: Transporters in Nutrient and Xenobiotic Disposition

The ability of membrane transporters to influence perinatal health has emerged as a crucial area that has been largely overlooked by researchers. To meet this demand, NIH launched the Transporter Elucidation Network in 2023. This network will address knowledge gaps and develop novel technologies to assess the transport of nutrients, supplements, toxicants, and drugs to the fetus and infant. Studies are focusing on the placenta, lactating mammary gland, and the developing blood-brain barrier and gut. Collectively, this network is advancing and validating translational approaches to study the function and regulation of human SLC and ABC transporters.

CHAIR
Lauren M. Aleksunes

SPEAKERS

**Demystifying Transporter Pharmacology in Early Development**
Aaron Pawlyk – National Institutes of Health

**DIA Proteomic Workflow for Quantification of Transporters**
Samuel Arnold - University of Washington

**Solute Carriers in the Human Blood-Brain Barrier**
Sook Wah Yee - University of California San Francisco

**Transportome in Organoid Models of Lactation and Intestine**
Joanna Melia - Johns Hopkins University School of Medicine

10:30 am – 11:00 am / Break

11:00 am – 12:00 pm / Concurrent Sessions

Celebrating NIDA’s 50th Year

Over the last 50 years, NIDA has supported generations of basic and clinical scientists who have advanced our understanding of substance use disorders to improve public health. ASPET members have been pioneers of NIDA-funded research in the substance use disorder field. This symposium will showcase recent clinical and preclinical findings from ASPET members as we celebrate the beginning of NIDA’s next 50 years. They will discuss their latest findings from opioid, cannabinoid, and psychostimulant research using molecular, behavioral, and clinical/translational approaches to support NIDA’s mission. Presentations will feature pertinent topics and techniques like sex differences in clinical populations, deep sequencing, and opto- and chemogenetic tools to explore substance use on many levels.

CHAIRS
Deborah Luessen and Kelly Standifer

Overview
NIDA Representative
Integrating IDEATE into Pharmacology Teaching, Learning, and Scholarship

This symposium session embodies the spirit of inquiry, exploration, and innovation by introducing the transformative Innovation and Design for Exploration and Analysis in Teaching Excellence (IDEATE) model with an added objective of incorporating AI into pharmacology teaching, learning, and educational scholarship. IDEATE provides a structured framework to nurture creativity and innovation in teaching and learning practices. We will highlight how the IDEATE model, augmented by artificial/augmented intelligence (AI), seamlessly integrates into the scholarship of teaching and learning (SoTL) within pharmacology education. This session invites participants to embark on a journey of discovery, emphasizing the following key aspects: Creating a Community of Practice, Innovative Pedagogy and Career Advancement.

CHAIR
Jayne Reuben

SPEAKERS

IDEATE in Pharmacology Education
Jayne Reuben - Texas A & M Univ College of Dentistry

Pharmaceutical Sciences/Pharmacy Practice Collaboration
Tracy Womble - Florida A&M University

AI in Pharmacology Education
Hadar Arien-Zakay - The Hebrew University of Jerusalem

Moving Your Discovery from Bench to Bedside: IP Considerations for Scientists

The successful translation of a biomedical discovery to a commercial product is dependent on many factors, including adequate intellectual property (IP) protection. From early career scientists exploring novel therapeutic targets to established researchers with commercialization in sight, all benefit from understanding the fundamentals of IP rights and protections. This session will provide a brief introduction to key IP concepts for biomedical researchers, including public disclosure, invention utility, non-obviousness and prior-ART. This will be followed by an in-depth, moderator-led, panel discussion with technology transfer experts from government, industry and academia. The expert panel possesses decades of technology transfer experience, with both research and legal backgrounds, and is well-equipped to discuss the nuances of IP protection in translational drug discovery research and explore unique challenges facing academic to clinical translation in this interactive session.

CHAIRS
Diane E. Peters and Tara L. Kirby
Moving Your Discovery From Bench to Bedside: IP Considerations for Scientists
Steven Ferguson - National Institutes of Health

Panel Discussion
Steven Ferguson - National Institutes of Health
Brian Coblitz - The George Washington University
Gillian M. Fenton - GlaxoSmithKline

Divisional Lightning Talks
Join us for this exciting session of cross divisional lightning talks.

CHAIR
Carol Paronis, ASPET Program Committee Chair

SPEAKERS
To be announced.

12:00 pm – 2:00 pm / Awards Lunch
Celebrate our Scientific Achievement Awardees and see who has won Poster Awards!

2:00 pm / ASPET 2024 Annual Meeting Adjourns

Sunday & Monday, May 19-20, 2024

Introducing the Next Generation of Drug Hunters

Join ASPET and the Academic Drug Discovery Consortium (ADDC) as they host the 3rd Academic Drug Discovery Colloquium. The Colloquium runs from 3:00 pm on Sunday, May 19 through 5:00 pm on Monday, May 20. It is a separate registration fee but you can sign up for both the annual meeting and colloquium at same time.

Learn more at www.aspet.org/colloquium.

Team science starts here! Meet your future collaborators in drug discovery. Be a part of the Colloquium that bridges today's research discoveries to tomorrow's therapies.

Pharmacologists, medicinal chemists, drug discovery scientists, in vitro/in vivo scientists, DMPK experts, trainees and scientists from industry, academia, contract research organizations, biotech, pharma, research institutes, accelerators/incubators, foundations, and government with an interest in drug discovery area are all welcome.