



Health Sciences Innovation Building, Forum
1670 E. Drachman St., Tucson AZ
7:30 a.m. – 6:00 p.m., October 23, 2024

WEDNESDAY, OCTOBER 23

7:30 - 8:00 Breakfast

8:00 - 8:40 Opening Remarks

Michael Dake, MD, Senior Vice President, University of Arizona Health Sciences

Suresh Garimella, PhD, President, University of Arizona

Kayse Shrum, DO, President, Oklahoma State University

Johnny Stephens, PharmD, President, Oklahoma State University Center for Health Sciences

Todd Vanderah, PhD, Director, Comprehensive Center for Pain & Addiction, University of Arizona Health Sciences, Regents Professor and Head, Department of Pharmacology, College of Medicine – Tucson

Don Kyle, PhD, Chief Executive Officer, National Center for Wellness and Recovery, Oklahoma State University Center for Health Sciences

Frank Porreca, PhD, Cosden Professor of Pain and Addiction Studies, Associate Head, Department of Pharmacology, College of Medicine – Tucson, University of Arizona

5-minute meet & greet

Session 1 – Framing the problem of pain and addiction (Frank Porreca, PhD, Chair)

8:45 - 9:15 **Keith Meldrum**, Personal Pain Advocate, Retired Civil Engineer, Arthon Constructors, Kelowna, BC
Challenges and opportunities for those living with persistent pain

9:15 - 9:20 Q&A

9:20 – 10:05 **George Koob, PhD**, Director, National Institute on Alcohol Abuse and Alcoholism (NIAAA), National Institutes of Health
A conceptual framework for the intersection of hyperalgesia and hyperkatifeia opioid addiction

10:05 - 10:10 Q&A

10:10 - 10:40 Coffee/Media Break

10:40 - 11:00 **Frank Porreca, PhD**, Cosden Professor of Pain and Addiction Studies, Associate Head, Department of Pharmacology, College of Medicine – Tucson, University of Arizona
Overlapping circuits of opioid addiction and chronic pain

11:00 - 11:05 Q&A

11:05 - 11:25 **Patrick Finan, PhD**, Harold Carron Professor of Anesthesiology, University of Virginia School of Medicine
Mechanisms of the association of sleep and pain: Implications for intervention development

11:25 - 11:30 Q&A

11:30 – 11:50 **Sandra Comer, PhD**, Professor of Neurobiology, Columbia University Department of Psychiatry
Development of vaccines for treating opioid use disorder: Implications for treating pain

11:50 - 11:55 Q&A

12:00 - 1:00 Lunch

Session 2 – Scientific overlap of pain and addiction (Todd Vanderah, PhD, Chair)

1:10 - 1:30 **Craig Werner, PhD**, Senior Director of Neuroscience, National Center for Wellness and Recovery, Oklahoma State University Center for Health Sciences
Re-imagining drug discovery to treat substance use disorder

1:30 - 1:35 Q&A

1:35 - 1:55 **Jane Ballantyne, MD, FRCA**, Professor of Anesthesiology, University of Washington Medicine
Buprenorphine: a misunderstood drug in the pain clinic

1:55 - 2:00 Q&A

2:00 - 2:20 **Don Kyle, PhD**, Chief Executive Officer, National Center for Wellness and Recovery,

Oklahoma State University Center for Health Sciences

A brief survey of the U of A and OSU addiction research collaboration projects and aspirations

2:20 - 2:25 Q&A

2:25 - 2:55 Refreshment Break

2:55 - 3:15 **Judy Ashworth, MD**, Senior Scientific Advisor, Pinney Associates

Novel non-opioid targets in clinical development: still searching for that magic bullet

3:15 - 3:20 Q&A

3:20 - 4:00 **Apkar Vania Apkarian, PhD**, Director, Center for Translational Pain Research,
Feinberg School of Medicine, Northwestern Medicine

Receptor-specific whole-cortex functional adaptations with long-term opioid exposure

4:00 - 4:05 Q&A

4:05 - 4:35 **Rita Valentino, PhD**, Director, Division of Neuroscience and Behavior, National Institute of Drug Abuse
(NIDA), National Institutes of Health

Addiction neuroscience at 50 years+

4:35 - 4:40 Q&A

Afternoon session summary wrap up remarks (Frank Porreca, PhD)

4:45 - 6:00 Evening poster session and mixer



Keith Meldrum is a recently retired civil engineer technologist and vice president of a civil construction company. He is married to Barb, and they live in Kelowna, British Columbia, Canada, with their Australian labradoodle, Parker. Keith has lived with persistent neuropathic pain since 1986 following a near-fatal motor vehicle accident at the age of 16. After nearly 20 years of fighting through a challenging health care system that was often dismissive of his pain and multiple mostly ineffective interventions, in 2004 he experienced a positive health care provider interaction in the validation of his pain. This ultimately set him on a path to better understand persistent pain and how to live better despite it. Since 2011, Keith has been a persistent pain advocate focused on policy, health care systems, university presentations, presenting at national and international pain education conferences, and as a co-author on multiple peer-reviewed articles. Keith believes education and knowledge translation and mobilization concerning the totality of peoples' pain experiences are foundational to health care providers, educators and researchers to best understand and support those who live with persistent pain.



George F. Koob, PhD, is the director of the National Institute on Alcohol Abuse and Alcoholism (NIAAA) at the National Institutes of Health. He is a senior investigator at the Intramural Research Program of the National Institute on Drug Abuse, where he directs the Neurobiology of Addiction Laboratory in the Integrative Neurosciences Research Branch.

As an authority on alcohol use disorder, drug addiction and stress, he has contributed to our understanding of the neurocircuitry associated with the acute reinforcing effects of alcohol and drugs and the neuroadaptations of the reward and stress circuits associated with the transition to dependence. He has published over 800 peer reviewed papers, mentored 13 doctoral students and 85 postdoctoral fellows, been awarded 11 K99s, and authored several books including the “Neurobiology of Addiction,” He received his doctorate in behavioral physiology from Johns Hopkins University in 1972. He did postdoctoral studies at Walter Reed Army Institute of Research and the University of Cambridge in England. He subsequently held positions at The Salk Institute and the Scripps Research Institute. Dr. Koob is the recipient of many honors, including membership in the National Academy of Medicine and award of the Legion of Honor (France).



Frank Porreca, PhD, is a professor in the University of Arizona College of Medicine – Tucson and research director for the Comprehensive Center for Pain & Addiction. He leads the National Institutes of Health-funded Center of Excellence for Addiction Studies, which is designed to improve addiction research with a goal of developing therapies that can stem the opioid epidemic and impact other substance abuse disorders. Dr. Porreca’s research focuses on understanding circuits and mechanisms promoting chronic pain and addiction. He has authored approximately 500 peer-reviewed articles and is one of the 10 most-cited pharmacologists in the world by the American Society of Pharmacology and Experimental Therapeutics.



Patrick H. Finan, PhD, is the Harold Carron Professor of Anesthesiology at the University of Virginia School of Medicine. The Finan Lab focuses broadly on explicating psychological and neurobiological mechanisms of chronic pain. Within that broad domain, Dr. Finan’s team specifically seeks to identify how emotions and pain interact, who evidences characteristics of emotion-related risk and resilience, and when changes in emotions facilitate or inhibit the experience of pain. They employ intensive longitudinal methods to assess behavioral and objective correlates of pain in real time (e.g. sleep, emotions, opioid use, cannabis use), and utilize laboratory-based experimental methods to understand factors influencing pain perception (e.g. sleep deprivation, quantitative sensory testing, fMRI, pharmacological challenge). Additionally, they develop and test novel therapeutic interventions that engage emotion- and sleep-related mechanisms to ameliorate pain and mitigate problematic opioid use.



Sandra Comer, PhD, is a professor of neurobiology in the Department of Psychiatry at Columbia University and a research scientist VII at the New York State Psychiatric Institute. Following doctoral studies at the University of Michigan and postdoctoral research at the University of Minnesota, Dr. Comer joined Columbia University in 1993, where her research focus has been on clinical and preclinical testing of novel approaches to the treatment of opioid use disorder. She is the director of the Opioid Laboratory in the Division on Substance Use Disorders and runs a very active research program devoted to examining various aspects of the abuse liability of opioids and developing medications and devices for the treatment of opioid use disorder and overdose. Dr. Comer served on the Institutional Review Board at NYSPI for 10 years, and she currently is a member of the Human Research Protection Program Advisory Committee. In addition, she is an active member of the College on Problems of Drug Dependence, the longest standing group in the United States addressing problems of drug dependence and abuse. She served as chair of the program committee, was elected president in 2015-2016, and currently serves as the Public Policy Officer of CPDD. Dr. Comer recently accepted leadership of the Friends of NIDA, which serves as a liaison group between the research community and the National Institute on Drug Abuse. She has testified before the U.S. Congress on issues related to substance use disorders, currently is a member of the World Health Organization Expert Advisory Panel on Drug Dependence, gives lectures and presentations to the U.S. Food and Drug Administration, reviews grant applications for the National Institutes of Health, and mentors both pre- and postdoctoral students. She has published over 200 papers and chapters on issues related to substance use disorders.



Craig Werner, PhD, is the senior director of neuroscience at the National Center for Wellness and Recovery at the Oklahoma State University Center for Health Sciences. He has more than 15 years of experience studying substance use disorder neurobiology, including research on synaptic mechanisms, neuroepigenetics and microcircuits, resulting in more than 30 peer-reviewed publications. At the NCWR, Werner leads an interdisciplinary research team focused on leveraging innovative approaches to develop novel treatments for substance use disorder and pain.



Jane Ballantyne, MD, trained in medicine and anesthesia in the UK before moving to Boston, Massachusetts, in 1990. She became chief of the Division of Pain Medicine in the Massachusetts General Hospital in 1999. She moved to the University of Washington in 2011 as professor of anesthesiology and pain medicine. She has editorial roles in several leading journals and textbooks and is a widely published author. She was an early advocate for restraint in opioid prescribing for chronic pain and has continued to focus her teaching and research on the clinical implications of evolving opioid science. Her most recent book is a biography of John Loeser: *The Man Who Reimagined Pain*.



Donald J. Kyle, PhD, is the chief executive officer at the National Center for Wellness and Recovery at the Oklahoma State University Center for Health Sciences, where he leads the neuroscience, drug discovery and clinical programs focused on pain and addiction. The team’s goal is to prioritize the most promising research and accelerate its translation into clinical care. Kyle earned his doctorate in synthetic organic chemistry from Texas Tech University and worked more than 30 years in the pharmaceutical industry before joining OSU. His research interests include signal transduction of opioid receptors, mechanism-based drug design and the neuronal circuitry of pain, addiction and their overlaps. While in the industry, his team submitted more than 10 Investigational New Drug Applications, and he participated in National Institutes of Health-led working groups that formed the HEAL (Help End Addiction Long-Term) initiative. Dr. Kyle has published nearly 200 scientific papers, authored books and chapters, and is an inventor on more than 100 issued U.S. patents.



Judy Ashworth, MD, has over two decades experience in clinical drug development. As a senior scientific advisor at Pinney Associates, Dr. Ashworth supports clients developing central nervous system-active drugs, from traditional pharmaceuticals to psychedelics and cannabinoids, for neurologic and psychiatric indications.

An internist by training and graduate of the UCLA School of Medicine, Dr. Ashworth began her drug development career as a clinical pharmacologist at Grünenthal GmbH in 2001, where she soon assumed project leadership of its opioid abuse-deterrent formulations program. From 2006 to 2008, she was a visiting lecturer in Columbia University's Department of Substance Abuse Research, concurrently participating in the Tufts Health Care Institute Program on Opioid Risk Management. In parallel, she fostered the development of safer pain management alternatives by establishing Grünenthal USA's Center of Excellence for Abuse Liability.

Alongside her work at Pinney Associates, Dr. Ashworth is the chief medical officer for Harm Reduction Therapeutics, a nonprofit pharmaceutical company devoted to saving lives from opioid overdose by making low-cost naloxone available as an OTC product. Outside of the CNS-space, Dr. Ashworth currently serves as chief medical officer for Novadip Biosciences, a Belgium-based biotech developing bone regenerative products derived from adipose stem cells.



Apkar Vania Apkarian is a professor of physiology, anesthesiology, and physical medicine and rehabilitation at Northwestern University, in the Feinberg School of Medicine. He has been a pioneer in the use of magnetic resonance spectroscopy to study the neurochemistry of the brain and the development of novel analytical approaches to studying consciousness, including the first demonstration of the brain's small-world network properties using fMRI.

In 2008, Dr. Apkarian proposed the theory that chronic pain is a form of emotional learning, which popularized the study of reward learning within the pain research field. Dr. Apkarian earned a master's degree in electrical engineering from the University of Southern California and earned a Ph.D. in neuroscience from the State University of New York Upstate Medical University in Syracuse, New York. He is the brother of Vartkess A. Apkarian, a noted chemical physicist and laser spectroscopist at the University of California at Irvine.



Rita J. Valentino, PhD, is the director of the Division of Neuroscience and Behavior at the National Institute on Drug Abuse. She received a bachelor's degree from the University of Rhode Island School of Pharmacy and a doctorate in pharmacology from the University of Michigan. After postdoctoral fellowships at the University of North Carolina and the Salk Institute, she went on to faculty positions from 1983 to 2017 in the Department of Pharmacology at George Washington University, Department of Mental Health Sciences at Hahnemann University and Department of Anesthesiology and Critical Care Medicine at the Children's Hospital of Philadelphia and University of Pennsylvania.

Dr. Valentino's research has focused on the neurobiology of stress. Her laboratory provided convergent evidence that the stress-related neuropeptide, corticotropin-releasing factor (CRF) serves as a neurotransmitter to modulate the activity of major brain biogenic amine systems that have been implicated in psychiatric disorders, thereby providing a window into how stress influences vulnerability to these diseases. Her laboratory was the first to demonstrate that receptors could signal and be trafficked in a sex-biased manner. These sex differences provide a molecular mechanism for increased vulnerability of females to stress-related neuropsychiatric disorders.

As the Director of NIDA's Division of Neuroscience and Behavior, Dr. Valentino leads program staff to set a vision that advances the basic and clinical research mission of NIDA to elucidate the neurobiological underpinnings of substance use disorders from the molecular to behavioral level and to discover approaches for treating it. She represents NIDA on several trans-NIH initiatives including the BRAIN initiative, Neuroscience Blueprint, the Office of Research on Women's Health and Office of Behavioral and Social Sciences.

Dr. Valentino has been the recipient of several awards including a 2021 NIH Director's Award for scientific leadership and vision. She was recently selected as a fellow of the American Society of Pharmacology and Experimental Therapeutics. She is a fellow and current secretary of the American College of Neuropsychopharmacology, a member of the scientific board of the Brain Behavior Research Foundation (formerly NARSAD) and the founding editor-in-chief of *Neurobiology of Stress*.