The Opioid Crisis and the Future of Addiction and Pain Therapeutics:
Opportunities, Tools, and Technologies Symposium

February 7–8, 2019
Ruth L. Kirschstein Auditorium
Natcher Conference Center, NIH Main Campus

DAY 1

7:00 AM: Registration, Poster Setup

8:00 AM: Welcoming Remarks
Christopher Austin, National Center for Advancing Translational Sciences, NIH

8:05 AM: HEAL Initiative Overview
Francis Collins, NIH

8:20 AM: Opioid Crisis: Current Status
Nora Volkow, National Institute on Drug Abuse, NIH

8:50 AM: Unique Opportunities in HEAL to Advance Non-addictive Pain Treatment
Walter Koroshetz, National Institute of Neurological Disorders and Stroke, NIH

9:10 AM: Title TBA
Christopher Austin, National Center for Advancing Translational Sciences, NIH

9:30 AM: Keynotes: High-level Overview of Novel Targets and Pathways in Pain and Addiction (Chair: Kurt Rasmussen, NIDA)
1. A multipronged approach to capturing novel pain targets, Clifford Woolf, Boston Children’s Hospital
2. Gene Transcription and Epigenetic Regulation Provide a New Template for Drug Discovery Efforts for Opiate Addiction, Eric Nestler, Mount Sinai

10:30 AM: Break

10:45 AM: Session 1: Current Targets with Lessons Learned from Clinical Successes and Failures/Next-generation Targets (Chair: Amy Newman, NIDA)
1. Targeting the primary afferent nociceptor for analgesia: insights from natural products, David Julius, University of California, San Francisco
2. Challenges and Opportunities for the Development of Nav1.7 Inhibitors, Bryan Moyer, Amgen
3. Translational Assays: Supporting a Small Molecule Nav1.7 Inhibitor Drug Discovery Program, Andrea Houghton, Merck, Inc.

12:15 PM: Lunch

1:15 PM: **Session 1** (continued)
4. Complexity of biased agonism and the implications for opioid analgesics, Laura Bohn, Scripps Research Institute
5. Targeting G-protein and epigenetic modulators for the treatment of chronic pain, Venetia Zachariou, Mount Sinai
6. Intersection between pain and addiction - implications for kappa opioid receptors, Catherine Cahill, University of California, Los Angeles
7. Developing new opioid addiction therapeutics based on habenular modulation, Paul Kenny, Mount Sinai

3:15 PM Break

3:45 PM: **Session 2: Biomarkers to Enable Clinical Trials** (Chair: Mary Ann Pelleymounter, National Institute of Neurological Disorders and Stroke)
1. Opioids and the Brain: Lessons from Brain Imaging, David Borsook, Boston Children’s Hospital
2. Digital Biomarker development in Pain and Migraine trials, Robert Conley, Eli Lilly & Company
3. Genomic biomarker development in opiate addiction, Pierre-Eric Lutz, Centre National de la Recherche Scientifique

5:15 PM: **Summary of Day-1**
Kurt Rasmussen, NIDA

5:30 PM: Adjourn

**DAY 2**

7:30 AM: Registration

8:15 AM: Today’s Program
Kurt Rasmussen, NIDA

8:30 AM: **Keynote: Opioid addiction: The Gain in the Brain is in the Pain**
George Koob, National Insitute on Alcohol Abuse and Alcoholism

9:00 AM: **Session 3: Assays to Improve Predictive Therapeutic Efficacy and Abuse/Addiction Liability** (Chair: Jane Acri, NIDA)
1. What’s Wrong With Animal Models of Pain?, Jeff Mogil, McGill University
2. Iterating between neurobiology and clinical trials to identify relevant behavioral phenotypes for clinical translation and target discovery, Peter Kalivas, Medical University of South Carolina
3. Sleep-related endpoints in preclinical studies of pain and opioid withdrawal, Bill Carlezon, Harvard University
4. Scaling up: zebrafish assays of pain and addiction, Randall T. Peterson, University of Utah

11:00 AM: Break

11:15AM: Session 4: New Technologies/Methods to Screen/Rationally Design Therapeutics Targeting Pain and Addiction Related Proteins and Pathways (Chair: Rita Valentino, NIDA)
   1. Molecular simulation for the design of finely tuned drugs, Ron Dror, Stanford University
   2. Endosomal Platforms for the Signaling Train to Pain, Nigel Bunnett, Columbia University
   3. Optogenetic assays of sensory neuron function to accelerate discovery of pain therapeutics, Owen McManus, Q-State Biosciences, Inc.

12:45 PM: Lunch

1:45 PM: Session 4 (continued)
   4. Resolving Brain Reward Circuits for Addiction, Garret Stuber, University of Washington
   5. Modern Approaches for Dissecting Neuromodulatory Circuits in Behavior, Michael Bruchas, University of Washington
   6. Opioids and the brain connectome: at the crossroads of mechanistic and biomarker research, Brigitte Kieffer, McGill University

3:15 PM: Break

3:30 PM: Session 5: NIH Capacities (Chair: Joni L. Rutter, NCATS)
   1. NCATS Initiatives
      Anton Simeonov, NCATS
   2. NINDS Initiatives
      Rebecca Roof, NINDS
   3. NIDA Initiatives
      Kurt Rasmussen, NIDA
   4. Illuminating the Druggable Genome Program
      Karlie Sharma, NCATS

5:00 PM: Summary, Next Steps
Christopher Austin, NCATS
5:30 PM: Adjourn