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MEDICAL SCHOOL
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UNIVERSITY OF MICHIGAN

OPIOID RESEARCH INSTITUTE
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EDWARD F. DOMINO
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UNIVERSITY OF MICHIGAN

In honor of
Dr. Martin W. Adler

Lewis Katz School of Medicine

NIH
National Institute on Drug Abuse
Advancing Addiction Science
Thank you to our sponsors!!!
Howard Fields received his MD and PhD in Neuroscience at Stanford in 1965-66. Following clinical training in neurology at Harvard Medical School in 1972, he joined the faculty of the University of California San Francisco, where he is currently Professor Emeritus of Neurology and Physiology. Fields has expertise in both animal and human research. He has made major contributions to understanding and treating post-herpetic neuralgia, including demonstrating the effectiveness of opioids and topical lidocaine for neuropathic pain. In laboratory studies his research group elucidated a top-down neural circuit that exerts bidirectional modulation of pain. They showed this circuit engages endogenous opioids and is activated by opioid analgesics. Furthermore, his research group discovered that placebo analgesia can be blocked by an opioid antagonist, opening the way to a neurobiological explanation of placebo. His later work has centered on the problem of addiction. His team has discovered nerve cells in the striatum that selectively encode the magnitude of a reward. They have also shown how opioid control of the neurotransmitter dopamine contributes to motivation and reward-based choice. They demonstrated that drinking alcohol leads to the release of endorphins in brain reward centers in human subjects. In 1997, he was elected to membership in the National Academy of Medicine and in 2010 to the American Academy of Arts and Sciences.
Dr. Lucia Hipólito is a Tenured Associate Professor in Pharmacy at the Faculty of Pharmacy, University of Valencia, Spain. She serves as the Principal Investigator of the DOREAL lab at the University Institute of Biotechnology and Biomedicine (BIOTECMED). Dr. Hipólito's research focuses on understanding neural mechanisms involving the endogenous opioid system underlying alcohol addiction, with the aim of developing safer and more efficient pharmaceutical therapies. Her interest in this field began during her PhD studies and was further cultivated during her postdoctoral period at Columbia University under the supervision of Dr. Morón-Concepción. During this time, she specialized in the intersection of pain and opioid addiction, investigating how pain alters reward processing and contributes to anhedonia and increased heroin self-administration at high doses. Since joining the University of Valencia faculty in 2016, Dr. Hipólito has established an independent laboratory dedicated to exploring the neuropharmacology of alcohol addiction. Her research also focuses on understanding the role of the opioid system and the crosstalk between microglia and astroglia in alcohol-induced effects on the mesocorticolimbic system. Additionally, her lab investigates pain as a risk factor for promoting alcohol/opioid relapse-like behavior, aiming to develop new pharmaceutical approaches to promote abstinence in affected individuals.
Javier González-Maeso, Ph.D.
Professor
Virginia Commonwealth University

Javier González-Maeso obtained his B.S. in Biology and his B.S. in Biochemistry and Molecular Biology at the University of the Basque Country in Bilbao - Spain, where as a Ph.D. student in the Department of Pharmacology his research interest was focused on neurotransmitter receptor function in postmortem human brain samples. He completed his postdoctoral training in the Department of Neurology at Mount Sinai School of Medicine in New York City, where he proposed a molecular mechanism by which psychedelics, such as LSD or psilocybin, induce their unique behavioral effects in mice. After joining the faculty at Mount Sinai School of Medicine in 2008, Dr. González Maeso was recruited to Virginia Commonwealth University in 2015, where he is currently a Professor of Physiology and Biophysics. The overall goal of his research program is to better understand the structure, function and regulation of G protein-coupled receptors (GPCRs), their interacting proteins, and psychiatric disease associations such as schizophrenia, depression and substance use disorder. His research is based on the combination of interdisciplinary approaches ranging from computer structural modeling and molecular pharmacology in tissue culture to neurochemistry, epigenetics, mouse behavioral assays relevant to psychiatric disorders, and functional testing in postmortem human brain samples. Ultimately, his goal is to use this basic knowledge to develop new approaches for treatment and prevention of neuropsychiatric conditions.
# INRC 2024 Program

**Location of all events:**
The Michigan Union  
530 S. State Street  
Ann Arbor, MI 48109

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<th>Tuesday</th>
<th>July 9&lt;sup&gt;th&lt;/sup&gt;</th>
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| 3:30 – 5:30 pm | Professional Development Session  
Presentations and Roundtable Discussions: Career Trajectories  
Wolverine 3<sup>rd</sup> Floor |
|       |   - Dr. Maggie Gardner, Senior Academic Program Manager, STEM Professional Development, Rackham Graduate School, University of Michigan  
   - Dr. Jennifer Bossert, Staff Scientist, IRP/NIDA/NIH  
   - Dr. Kevin Jones, Program Director, Untangling Addiction, Wellcome Leap & Clinical Assistant Professor, Department of Pharmacology, University of Michigan  
   - Dr. Andrew Alt, Associate Research Scientist, Department of Pharmacology and Life Sciences Institute  
   - Dr. Michael Brandt, Associate Director, Corporate Research Alliances, Life Sciences Business Development, Innovative Partnerships, University of Michigan  
   - Dr. Erica Levitt, Associate Professor of Pharmacology, Associate Professor of Anesthesiology, University of Michigan |
| 6:30 – 9:30 pm | Opening Reception  
Pendleton 2<sup>nd</sup> Floor |

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<th>Wednesday</th>
<th>July 10&lt;sup&gt;th&lt;/sup&gt;</th>
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| 7:30 – 8:15 am | Breakfast  
2210 ABC 2<sup>nd</sup> Floor |
| 8:15 – 8:30 am | Welcome & Introductions  
Pendleton 2<sup>nd</sup> Floor |
| 8:30 – 9:30 am | **Founder’s Lecture:** Dr. Howard Fields, MD, PhD, Professor Emeritus, UCSF Weill Institute for Neurosciences  
Title: *The Neurobiology of Opioid Analgesia: A Circuit Analytical Approach*  
Pendleton 2<sup>nd</sup> Floor |
| 9:30 – 10:00 am | Networking Break  
2210 ABC 2<sup>nd</sup> Floor |
**10:00 – 11:30 am** | **Location-Biased Signaling by Opioid and Related GPCRs**  
Chair: Dr. Sam Ananthan, Chief, Chemistry and Pharmacology Branch, Division of Neuroscience and Behavior, NIDA

| Speakers:  
Manojkumar Puthenveedu, PhD, Professor, University of Michigan – Subcellular location defines opioid receptor signaling outcome.  
Mark Von Zastrow, MD, PhD, Professor, University of California San Francisco – Compartmentalized signaling by opioid and related GPCRs.  
Karen O’Malley, PhD, Professor, Washington University School of Medicine - GPCR signaling from within the cell |

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**11:30 am – 12:00 pm** | **Data Blitz**

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**12:00 – 2:00 pm** | **Lunch on own & Networking**

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**2:00 – 4:00 pm** | **Concurrent Sessions**  
**Chemistry and Pharmacology of Novel Opioid Modulators**  
**Pendleton 2nd Floor**

Chair: Susruta Majumdar, Professor of Anesthesiology, Washington University, St. Louis, MO

| Speakers:  
Jessica Anand, Research Assistant Professor, University of Michigan. Design, synthesis and evaluation of mu opioid antagonists derived from the fentanyl template  
Jane Aldrich, Professor, Univ. of Florida. Development of Peptidic Kappa Opioid Receptor Antagonists as Potential Treatments for Substance Abuse  
Andrew Riley, Assistant Professor, University of Illinois at Chicago. Development of Potent Kappa Agonists Derived from Picralima nitida Alkaloids  
Susruta Majumdar, Professor of Anesthesiology, Washington University School of Medicine. Structure based design of delta opioid agonist analgesics targeting the sodium site signaling by opioid and related GPCRs. |

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**Of Mice and Men: The Role of Opioids (Endogenous and Exogenous) on Affect and Reward**  
**Rogel Ballroom 2nd Floor**

Chair: Jennifer Bossert, Staff Scientist, IRP/NIDA/NIH

| Speakers:  
Emmanuel Darcq, PhD, Université de Strasbourg-INSERM. Opiate responsive neuronal circuitries in negative and positive affects  
Ginervra D’Ottavio, PhD candidate, University of Rome. Pharmacokinetic correlates of heroin self-administration and their impact on social factors  
Giordano de Guglielmo, PhD, University of California San Diego. Individual and cellular variability in oxycodone addiction-like behaviors in outbred rats: The role of GABA and nociceptin systems  
Marie Eikemo, PhD, University of Oslo. How stress modulates opioid abuse liability in humans: effects on subjective experience and opioid self-administration |

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**Hot Topic Speaker:**  
Samantha Dunn, Graduate Student, Washington University. Investigating the role of locus coeruleus mu opioid receptors in drug reward
activity exploration of positive allosteric modulators of the delta-opioid receptor.

Loan Vu, Graduate Student, University of Kentucky. Searching for synthetic opioid rescue agents: identification of a potent opioid agonist with reduced respiratory depression

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<td>4:00 – 6:30 pm</td>
<td>Poster Session</td>
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**Thursday July 11th**

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<tr>
<td>7:30 – 8:30 am</td>
<td>Breakfast</td>
<td>2210 ABC 2nd Floor</td>
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| 8:30 – 9:30 am  | **Plenary Lecture:** Dr. Javier González-Maeso, PhD, Professor, Department of Physiology and Biophysics, Virginia Commonwealth University, School of Medicine  
*Title: Molecular insights into psychedelic therapy mechanisms for opioid use disorder* | Pendleton 2nd Floor |
| 9:30 – 10:00 am | Break & Networking                         | 2210 ABC 2nd Floor |
| 10:00 – 11:30 am| **Circuit, Synaptic, and Molecular Mechanisms underlying Opioid Control of Pain**  
*Chair: Elyssa Margolis, Professor in Residence, Endowed Chair in Genetics of Addiction in Neurology, Department of Neurology, Weill Institute for Neurosciences, UCSF  
*Discussant: Susan Ingram, Professor, Colorado University Anschutz*  
*Speakers:*  
*Xiaoke Chen,* Associate Professor, Stanford. *A closed-loop circuits for chronic mechanical pain*  
*Mary Heinricher,* Professor, OHSU School of Medicine. *Pain-Modulating Circuits of the Rostral Ventromedial Medulla – A Circuit Analysis*  
*Elyssa Margolis,* Professor in Residence, Endowed Chair, USCF. *The lateral habenula: a subcortical forebrain site for opioid action*  
*Hot Topic Speaker:*  
*Nicole Mercer Lindsay,* Postdoctoral Fellow, Stanford University. *Transcranial magnetic stimulation of motor cortex produces analgesia via opioidergic descending pain control circuits* | Pendleton 2nd Floor |
| 11:30 am – 12:00 pm | Data Blitz                                 | Pendleton 2nd Floor |
| 12:00 – 2:00 pm  | Lunch on own & Networking                  | Pendleton 2nd Floor |
2:00 – 4:00 pm

**Concurrent Sessions**

**Opioid Mechanisms in Breathing**

**Pendleton 2nd Floor**

Chairs: Erica Levitt, Associate Prof, Univ of Michigan; Elyssa Margolis, Professor in Residence, Endowed Chair, UCSF; Matthew O’Meara, Assistant Professor, Univ of Michigan

Speakers:
- **Gaspard Montandon**, Assistant Professor, University of Toronto. Neural mechanisms regulating opioid-induced respiratory depression and therapeutic strategies to reverse or prevent it
- **Brian Ruyle**, Postdoctoral Fellow, WashU. Peripheral opioid receptor antagonism attenuates fentanyl-induced cardiorespiratory depression and is devoid of aversive effects
- **Ryan Phillips**, Postdoctoral Associate, University of Pittsburgh. Disentangling descending pain modulation and respiratory control at the level of the rostral ventromedial medulla based on mu-opioid receptor expression
- **Jay McLaughlin**, Professor, University of Florida. Kappa opioid receptor activation increases breathing rate
- **Renata Marchette**, Research Fellow, NIDA. Understanding polydrug overdoses: additive effects and sex differences

**Neuroimmune Modulation of Opioids**

**Rogel Ballroom 2nd Floor**

Chair: Saadet Inan, MD, PhD, senior scientist, Temple University

Speakers:
- **Mark Ryan Oppenheimer**, Graduate Student, University of Miami. Gut Brain Axis in Opioid Use Disorder
- **Randall L Davis**, Professor, Oklahoma State University Center for Health Sciences. Modulation of neuroinflammatory signaling by the mu-opioid receptor antagonist, β-funaltrexamine
- **Saadet Inan**, Senior scientist, Temple University. Targeting IL-17A for chronic oxycodone-induced adverse effects
- **Nadia Said**, Post-doctoral fellow, NIDA, NIH. A putative role of the neuroimmune system in heroin withdrawal

4:00 – 6:30 pm

**Poster Session**

Anderson ABCD 1st Floor

Friday July 12th

7:30 – 8:30 am

**Breakfast**

2210 ABC 2nd Floor

8:30 – 9:30 am

**Young Investigator Awardee:** Dr. Lucia Hipólito, PhD, Associate Professor of Pharmacy, University de Valencia, Spain

**Title:** Alcohol, Opioids, and Pain: A Fascinating Journey from Bench to Novel Pharmaceutical Formulation Design

Pendleton 2nd Floor
9:30 – 10:00 am  Break

10:00 – 11:30 am  New Functions of Delta Opioid Receptors in Pain and Reward Circuits

Chair: Marie Walicki, Graduate Student, University of Michigan; Emily Jutkiewicz, Associate Professor, University of Michigan

Speakers:
William Birdsong, Assistant Professor, University of Michigan. Adaptations in delta opioid receptor function in the anterior cingulate cortex
Élora Midavaine, Postdoctoral Fellow, UCSF. Meningeal regulatory T cells gate nociception through an endogenous opioid circuit
Elizaveta Mangutov, Graduate Student, Washington University St. Louis. Delta opioid receptor activation blocks allodynia in a model of PACAP-induced headache
Emily Jutkiewicz, Associate Professor, University of Michigan. (Re)Evaluating the reinforcing effects of delta-opioid receptor agonists

11:30 am – 12:00 pm  Hot Topic Session

Chair: John Traynor, Professor, University of Michigan

Speakers:
Tao Che, Assistant Professor, Washington University St. Louis. The functional diversity of G proteins in opioid receptor signaling
Merel Dagher, Postdoctoral Fellow, UCLA. Inhibition of CeA-dynorphin neurons is reinforcing in mice with chronic pain
Viktor Yarotskyy, Assistant Professor, Virginia Commonwealth University. Fentanyl inhibits neuronal activity in dissociated striatal medium spiny neurons co-cultured with glia through a non-opioid receptor dependent mechanism

12:00 – 2:00 pm  Lunch on own & Networking

Lunch and Learn (Pre-registration required)
University of Michigan Opioid Research Institute: The Current Landscape of Opioid Addiction Treatment and Prescribing of Opioid-Related Medications in the U.S.

Chairs: Amy Bohnert, PhD, MHS, Professor and Co-Director, ORI; Chad Brummett, MD, Professor, Co-Director, ORI

Speakers:
Pooja Logisetty, MD. Current Treatment Practices and Access Considerations for OUD
Kao-Ping Chua, MD, PhD. U.S. trends in dispensing of prescription opioids, buprenorphine, and naloxone

2:00 – 3:30 am  Translational Advances of Nociceptin Opioid Receptor (NOP) Ligands in SUD and Other Psychiatric Diseases

Chair: Nurulain T. Zaveri, PhD, President and Chief Scientific Officer, Astra Therapeutics; Larry Toll, Florida Atlantic University

Speakers:
Valentine Pascale, Imbrium Therapeutics. Development of a selective NOP partial agonist, Sunobinop, with sleep promoting effects and utility for substance use disorders including alcohol use disorders
**Joseph Greico**, Tris Pharma. Clinical data of Cebranopadol, the NOP-MOP agonist, for pain and OUD

**Larry Toll**, Professor, FAU. PPL-138, non-addicting analgesic and more

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<tr>
<td>3:30 – 4:30 pm</td>
<td>Business Meeting</td>
<td>Pendleton 2nd Floor</td>
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<tr>
<td>6:30 – 10:00 pm</td>
<td>Dinner and Dancing</td>
<td>Rogel Ballroom 2nd Floor</td>
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**Saturday July 13th**

Depart. Thanks for visiting Ann Arbor. See you at INRC 2025!
POSTERS

Wednesday Posters

1) Lucy Hoying, Amynah Pradhan, David Kendall, Bengt von Mentzer, Emily M Jutkiewicz. Investigating self-administration of delta-opioid receptor agonists in morphine withdrawn rats

2) Luca Posa, Giovanna Romano, Xiang Ji, Bruno Matos Paz, Vsevolod Katritch, Dirk Trauner, Joshua Levitz. A photoswitchable morphinan agonist for reversible optical control of peripheral mu-opioid receptors

3) Salma Elsherbiny, Abbi Ouimet, Shalana Atwell, Ayah Sbeih, Matthew Hearing. Sex- and time-dependent shifts in cortico-striatal circuits underlying opioid self-administration in mice


5) Lauren Rysztak, Aaron Ajlen, Kenner Rice, David Kendal, Amynah Pradhan, Emily Jutkiewicz. Evaluating the convulsant and reinforcing properties of the novel DOR agonist PN6047

6) Farzanna Mohamed, Alan Smrcka, Emily Jutkiewicz. The Gβγ inhibitor gallein produces naloxone-sensitive antihyperalgesia and potentiates the antihyperalgesic effects of morphine

7) Akiyoshi Saitoh, Toshinori Yoshioka, Daisuke Yamada, Hiroshi Nagase. Delta opioid receptors in the insular cortex ameliorate irritable bowel syndrome-like symptoms in chronic vicarious social defeat stress mice

8) Brigitte M Browe, Karan Rai, Matthew Warden, Caroline Szujewski, Alfredo Garcia III. Interactions of isoflurane and fentanyl on opioid-induced respiratory depression in an in-vivo mouse model of repeated opioid use

9) María Ros-Ramírez de Arellano, Jesús D Lorente, Javier Cuitavi, Lucía Hipólito. Morphine treatments decreases binge drinking induced by inflammatory pain only female rats

10) Jesús D. Lorente, Francisco Molins-Correa, Ana Mínguez-Martí, Vicente Monsalve-Dolz, José De Andrés, Miguel Ángel Serrano, Lucía Hipólito. Negative affective states mediate the impact of pain in opioid medications misuse among chronic pain patients admitted in a hospital pain unit

11) Michael Emery, Aram Parsegian, Sharon Koonse, Stephen Chang, Cortney Turner, Elaine Hebda-Bauer, Shelly Flagel, Stanley Watson, Huda Akil. Rats modeling internalizing vs. externalizing temperament display different acquisition patterns of intravenous heroin self-administration as compared to cocaine

12) Wanjiru Kamau-Devers, Tally M. Largent-Milnes, Todd W. Vanderah. Prenatal Opioid Exposure and Adverse Respiratory Outcomes

13) Nicole Ochandarena, Jesse Niehaus, Riley Picken, Mae Rowley, Hongkui Zeng, Gregory Scherrer. Comprehensive transcriptomic and anatomical mapping of mu opioid receptor-expressing neurons across mouse neocortex

14) Arpit Doshi, Dennis Yasuda, Willma E. Polgar, Nurulain T Zaveri. Spiro[isoquinoline-4,4'-piperidin]-3-one: A Promising Scaffold for Design of Partial Opioid Agonists

15) Sierra C. Moore, Rasha H. Hamoudi, John R. Traynor, Jessica P. Anand. Novel Fentanyl Analogs to Replace Naloxone as Reversal Agents for Fentanyl Overdose

16) Adrienne Jo, Yihan Xie, Amrith Rodrigues, Kate Townsend Creasy, Kevin Beier, Julie Blendy, Greg Corder. Mu-Opioid Receptor Neurons in the Ventral Tegmental Area Mediate Low Sociability

17) Takanori Matsubara, Jesse Niehaus, Grégory Scherrer. Mu-opioid receptor expression and function in dopaminergic neurons of the ventral tegmental area
Wednesday Posters, continued

18) Cristina Peterson, Kelley Kitto, George Wilcox, Carolyn Fairbanks. Opioids and strategically substituted agmatine (SSA) reduce post-incisional pain in mice

19) Thomas Prince, Benjamin Clements, John Traynor. Structural Relationships Between Orthosteric Antagonists and Positive Allosteric Modulators of the Mu-Opioid Receptor

20) Lukas Caye, Benjamin Clements, Kelley Kitto, Cristina Peterson, Carolyn Fairbanks, George Wilcox. Agmatine-based analog inhibits morphine tolerance and reduces tactile hyperalgesia through antagonism of NR2B-containing spinal NMDAr

21) Nicole Mercer Lindsay, Simon Haziza, Yanping Zhang, Thomas Baer, Mark Schnitzer, Grégory Scherrer. Transcranial magnetic stimulation of motor cortex produces analgesia via opioidergic descending pain control circuits

22) Ryan Pauly, Jessica Whitaker-Fornek, Keiko Arakawa, Erica Levitt. Serotonin neuron influence on pontine breathing circuitry impaired by opioids

23) Ben Clements, Katherine Kerrigan, Stephen Kemp, John Traynor. An Opioid Positive Allosteric Modulator Improves Methadone-Mediated Anti-Alloodynia in a Rat Model of Neuropathic Pain

24) Brandon Shepherd, Kerim Cakir, Ellen Walker. Assessment of precipitated withdrawal and conditioned place aversion for fentanyl and xylazine in Swiss Webster mice


26) Catherine Demery-Poulos, Sierra C. Moore, Erica S. Levitt, Jessica P. Anand, John R. Traynor. Fentanyl-Xylazine Combination Decreases Respiration and Heart Rate More than Fentanyl Alone

27) James Zadina, Lajos Szabo, Fahad Al-0beidi, Xing Zhang, Leticia Ferreira-Nakatani, Nicholas Luciano, Chidiebere Ogbu, M. Leandro Heien, Torsten Falk, Mitchell Bartlett, Robin Pelt. Cyclic Glycopeptide Endomorphin-1 Analogs Provide Highly Effective Antinociception Without Conditioned Place Preference in Mice

28) Cecilia Barajas, Cristina Peterson, Kelley Kitto, George Wilcox, Carolyn Fairbanks. The non-opioid analgesic, Agmatine, induces a recruitment of peripheral immune cells to the dorsal horn in female mice only

29) Justin James, Nora McCall, Alex Hsu, Corinna Oswell, Gregory Salimando, Malaika Mahmood, Lisa Wooldridge, Benjamin Reiner, Karl Deisseroth, Eric Yttri, Gregory Corder. Mimicking opioid analgesia in cortical pain circuits

30) Jacob Reeves, William Birdsong. Investigating the role of ACC SST interneurons within the opioid system


32) Gilles Zribi, Stefania Volpe, Lawrence Toll, Andrea Cippitelli. Bifunctional partial opioid compound effective against MUD in rodents

33) Stefania Volpe, Gilles Zribi, Andrea Cippitelli, Lawrence Toll. The Therapeutic Potential of PPL-138 as an Agent for Managing Addiction and Chronic Pain

34) Tongzhen Xie, Rachel Schorn, Kelley Kitto, Ezequiel Marron Fernandez de Velasco, Cristina Peterson, Lucy Vulchanova, Carolyn Fairbanks. GluN2B as an effector of inhibitory and pronociceptive neuromodulators
Wednesday Posters, continued


36) Isaiah Williamson, Bridget Asare-Owusu, Cassie Nelson, Barbara Juarez. Profiling cFos Activation in the Parabrachial Nucleus after Opioid Withdrawal in Mice

37) Julia Ferrante, Khaled Althobaiti, Molly Estill, Julie Blendy, Michelle Erlich. Perinatal opioid exposure alters microglia in mice during exposure and withdrawal


39) Anna Leonard, Elizabeth Heller, Julie Blendy. Alternative splicing in a mouse model of Oprm1 A118G

40) Brian Ruyle, Juhi Modh, Mubariz Tahirkheli, Sofia Angulo-Lopera, Jose Moron-Concepcion. Examination of the critical roles of nTS subpopulations in mediating fentanyl-induced cardiorespiratory depression

41) Jacob A. Ormes, Michael Burroughs, Alexander L. Schwartz, Alan V. Smrcka, Emily M. Jutkiewicz. Screening novel G protein βγ subunit inhibitors for potentiation of morphine-induced antinociception

42) Amal El Daibani, Yanping Zhang, Emily Jutkiewicz, David Kendall, Amynah A Pradhan. A novel G-protein biased δ Opioid Receptor Agonist PN6047 Attenuates Allodynia in Models of Migraine and Opioid-Induced Hyperalgesia

43) Yolanda Campos-Jurado, Youssef M. Saad, Bilal Zahoor, Alexandre Neptune, Haziq Latif-Jangda, Jose A. Moron. Inflammatory Pain Alters Alcohol Dose-Response in a Self-Administration Paradigm in Male and Female Rats

44) Loan Vu, Dan Luo, Kai Johnson, Emily Denhey, Judy Songrady, Jocelyn Martin, Riya Trivedi, Alexia Alsum, Jakcob Shaykin, Chhabi Chaudhary, Eric Woloshin, Lindsay Kornberger, Nazmul Bhuiyan, Sean Parkin, Qianru Jiang, Tao Che, Warren Alilain, Jill Turner, Michael Bardo, Thomas Prisinzano. Searching for Synthetic Opioid Rescue Agents: Identification of a Potent Opioid Agonist with Reduced Respiratory Depression

45) Omar Koita, John Williams. Opioid inhibition of projection-specific rat thalamic anterior paraventricular neurons

46) Norah Alhosan, Damiana Cavallo, Marina Santiago, Eamonn Kelly, Graeme Henderson. Potency, dissociation kinetics and reversibility of fentanyl and nitazenes by naloxone at the μ opioid receptor

47) Michael Keith, Daniel Castro. Mu opioid receptors are expressed in mouse islet of Langerhans and exhibit basal activation

48) Raajaram Gowrishankar, Madelyn Hjort, Abigail Elerding, Sofia Shirley, Josie Van Tilburg, David Marcus, Chunyang Dong, Lin Tian, Garret Stuber, Michael Bruchas. Endogenous opioid dynamics in the dorsal striatum promote goal-directed behavior
Thursday Posters


2) Tao Che, Qianru Jiang, Jianming Han, Jingying Zhang, Antonina Nazarova, Sarah Bernhard, Jordy Homing Lam, Susruta Majumdar, David Nichols, Vsevolod Katritch, Peng Yuan, Jonathan Fay. The Functional Diversity of G Proteins in Opioid Receptor Signaling

3) Parthasaradhireddy Tanguturi, Brain Blagg, Karen Houseknecht, Deborah Barlow, John M Streicher, Michael Serwetnik, Terin D'Amico. Development of Orally Bioavailable HSP90β Inhibitors for Opioid Dose Reduction Therapy

4) Krystal Flores-Felix, Star Fernandez, Bridget Asare-Owusu, Isaiah Williamson, Cassie Nelson, Barbara Juarez. Effects of fentanyl on VTA dopamine neurons and in opioid associative learning using conditioned place preference in mice

5) Daniel Berg, David Lee, Michelle Chen, Xiqian Jiang, Yuxi Ke, Nicole Mercer Lindsay, Adrien Tassou, Stephen Quake, Mark J. Schnitzer, Gregory Scherrer. Profiling of nociceptive neurons enables synergistic pharmacology against pain unpleasantness

6) Rita Fagan, David Lee, Matan Geron, Gregory Scherrer, Mark von Zastrow, Aliza Ehrlich. Selective targeting of mu opioid receptors to primary cilia

7) Jerry Carr, Abigail Schwarz, John Streicher. Identifying the anti-nociceptive mechanism of action for Cannabis sativa terpenes in mouse chemotherapy-induced peripheral neuropathy

8) Adrian Pena, Emma Gevelhoff, John Streicher. Identification of GPR63 and GPR153 as Novel Modulators of Opioid-Induced Antinociception in Mouse Models of Post-Operative and Neuropathic Pain

9) Chongguang Chen, Kathryn Bland, Peng Huang, Simone Creed, Andrew P. Riley, Lee-Yuan Liu-Chen. 10-I-Akuammicine and 10-Br-Akuammicine, Novel Selective KOR agonists, Produced Anti-Scratch effect and CPA but no Hypolocomotion or KOR Phosphorylation in mouse brains


11) Damyan Hart, Yanaira Alonso-Caraballo, Britta Hornback, Angel Robert, Manuel Esguerra, Wayne Childers, Magid Abou-Gharbia, Mark Thomas. The beta-lactam derivative MC-100093 does not reduce cue-induced reinstatement following extinction to oxycodone self-administration in male and female rats

12) Jessica Whitaker-Fornek, Erica Levitt. Influence of Endogenous Opioids on Breathing Development

13) Lawrence Toll, Ariana Perez, Akihiko Ozawa, Andrea Cippitelli, Katarzyna Targowska, Akanksha Mudgal. NOP Receptor Involvement in Migraine Circuity

14) Shue Liu, Jun Gu, Xun Zhu, Hyun Yi, Kentaro Hayashi, Marta Pardo, Roy C. Levitt, Shuanglin Hao. The role of astrocytes-selective TLR4 in morphine physical dependence in mice

15) Jay McLaughlin, Evan O'Brien, Vipin Rangari, Amal El Daibani, Shainnel Eans, Haylee Hammond, Betsy White, Haoqing Wang, Yuki Shimura, Kaavya Kumar, Qianru Jiang, Kevin Appourchaux, Weijiao Huang, Chensong Zhang, Jesper Mathiesen, Tao Che, Susruta Majumdar, Brian Kobilka. A novel negative allosteric modulator at the µ-opioid receptor potentiates naloxone-mediated antagonism
Thursday Posters, continued

16) Joshua Watkins, Rachel Hahn, Michael Dempsey, Andrea Hohmann. Xylazine Exacerbates Fentanyl-induced Respiratory Depression in Awake Mice

17) Matthew O'Meara, Walter German, Elayne Vieira Dias, James Zadina, Elyssa Margolis. The missing rung? Using ex vivo electrophysiology to bridge the causal gap for mu opioid ligands with different effects in vivo but similar effects in vitro

18) Emma Tyner, Kyle A Windisch, Nadia Ngom, Seema Bhatnagar, Julie A. Blendy. Increased remifentanil self-administration in susceptible mice following chronic social defeat stress


20) Iffat Hasnin Era, Kabirullah Lutfy, Abdul Hamid. The involvement of mu opioid receptor in binge eating, food devaluation and food reward

21) David Cooper, Joseph DePaolo-Boisvert, Stanley Nicholson, Barien Gad, David Minh. Intracellular pocket conformational changes determine signaling through the mu opioid receptor

22) Bethany S Boston, Kylie B McPherson, Basile Coutens, Cassidy M De Anda Gamboa, Lorenzo C Patti, Susan L Ingram. The effects of opioids on PACAP modulation of vPAG neurons


24) Catalina Zamorano, Hannah Bahram Pour, Andre Berndt, Michael Bruchas. Isolating the role of endogenous mu-opioid activity in the Ventral Tegmental Area during natural reward

25) Carol Paronis, Valerie McBride, Teneille W. Mason. Antinociceptive and discriminative stimulus effects of fentanyl and nitazene analogs in rats


27) Ginevra D'Ottavio, Sara Pezza, Jacopo Modoni, Ingrid Reverte, Claudia Marchetti, Soami F. Zenoni, Daniela Maftei, Roberta Lattanzi, Michele S. Milella, Roberto Ciccioppo, Fabio Fumagalli, Marco Venniro, Aldo Badiani, Fernando Boix, Daniele Caprioli. Translating human drug taking patterns into rat models: investigating spontaneous interindividual differences via refined self-administration procedure

28) Lisa Wooldridge, Angela Lee, Jacqueline Wu, Malaika` Mahmood, Gregory Corder. Central amygdala Protein Kinase C-δ neurons are required for fentanyl withdrawal in mice

29) Haruka Hosoki, Chihiro Nozaki. “Anti-inflammatory” cannabinoid CB2 receptors enhanced high-fat diet evoked neuroinflammation in mice

30) Yahia Adla, Lisa Goldberg, Britahny Baskin, Jacob Beierle, Julia Kelliher, Emily Yao, Stacey Kirkpatrick, Eric Reed, David Jenkins, Alexander Luong, Kimberly Luttik, Julia Scotellaro, Timothy Drescher, Sydney Crotts, Neema Yazdani, Martin Ferris, William Johnson, Megan Mulligan, Camron Bryant. Fine mapping and multi-level functional analysis in C57BL/6 substrains identify Atp1a2 and Kcnj9 as candidate genes underlying oxycodone behavioral sensitivity and withdrawal
Thursday Posters, continued

31) Merel Dagher, Gabriella Sigal, Jamie Mondello, Catherine Cahill. Inhibition of CeA-dynorphin neurons is reinforcing in mice with chronic pain

32) Viktor Yarotskyy, Sara R. Nass, Yun-Kyung Hahn, Liangru Contois, A. Rory McQuiston, Pamela E. Hauser. Fentanyl inhibits neuronal activity in dissociated striatal medium spiny neurons co-cultured with glia through a non-opioid receptor dependent mechanism

33) Yueyi Chen, Adam Kimbrough. Escalation of intravenous fentanyl self-administration and assessment of withdrawal behavior in male and female mice

34) Elisabetta Cuna, Monica Baiula, Andrea Bedini. In vitro molecular pathway analysis evaluating pregabalin effects on morphine signaling to implement a Quantitative Systems Pharmacology platform for chronic pain therapy

35) Andrea Bedini, Elisabetta Cuna, Marco Francescato, Luca Gentilucci. In vitro characterization of novel endomorphin-1 analogues to develop innovative opioid ligands with distinct binding profiles and improved pharmacological activity

36) Monica Baiula, Elisabetta Cuna, Chiara Cimetti, Pedro Renault, Jesus Giraldo, Andrea Bedini. Effects of morphine and THC co-administration to human and rodent neuronal cell models in vitro: evaluation of MOR-CB1 heterodimerization and intracellular signaling

37) Wakako Fujita. Sex differences in opioid-induced tolerance and hyperalgesia

38) Barnali Paul, Emily Wells, Kevin Appourchaux, Nokomis Ramos-Gonzalez, Rohini Ople, Susruta Majumdar. Efficacy modulation by semi-synthetic diversification of mitragynine pseudoindoxyl

39) Courtney Wood, Maria Balaguer, Giordano de Guglielmo. Perinatal Fentanyl Exposure in a Rat Model: Investigating Long-Term Neurobehavioral Consequences and Implications for Neonatal Opioid Withdrawal Syndrome

40) Amanda Fakira, Scarlett Johnson, Prapti Patel. Establishing the effect of GPR83 antagonist, Cpd25, on the systemic effects of morphine

41) Nokomis Ramos-Gonzalez, Balazs Varga, Sarah Bernhard, Kevin Appourchaux, Antonina Nazarova, Saheem A. Zaidi, Vsevolod Katrich, Tao Che, Susruta Majumdar. Modulation of kappa opioid receptor efficacy by targeting subpockets

42) Svetlana Bobkova, Mason Hochstetler, Brandon Curry, Craig Werner, Craig W Stevens. Exploring the Pharmacodynamic Properties of Fentanyl: A Comparative Analysis of Intraperitoneal Injection and Vapor Self-Administration in mice

43) Qiang Wei, Vivek Kumar, Huzefa Khalil, Stanley Watson, Huda Akil. Fos-TRAP reveals distinct brain-wide neural activation patterns after initial morphine exposure and after morphine sensitization within the same animal

44) Chao-cheng Kuo, Jordan McCall. Multiplexed pharmacological targeting of prefrontal cortex-projecting locus coeruleus neurons drives antinociception

45) Elizaveta Mangutov, Yanping Zhang, Kendra Siegersma, Jhoan Aguilar, Ayodeji Asuni, Amynah Pradhan. Development of PACAP and PAC1 targeting therapies for the Treatment of Opioid-Induced Hyperalgesia/Medication Overuse Headache

46) Samantha Dunn, Makenzie Norris, Gustavo Borges, Ream Al-Hasani, Jordan McCall, Jenny Kim, Chao Cheng-Kuo. Investigating the role of locus coeruleus mu opioid receptors in drug reward
Thursday Posters, continued

47) Jhoan Aguilar, Stephane Cui, Wesley Page, Amy Lasek, Amynah Pradhan. A Decrease in Perineuronal Nets in the Mesencephalic Reticular Formation is Observed in Mouse Models of Migraine and Opioid Induced Hyperalgesia

48) Toshinori Yoshioka, Daisuke Yamada, Hiroshi Nagase, Akiyoshi Saitoh. Delta opioid receptor agonists facilitate neuroexcitability in the infralimbic cortex via the PI3K-mTOR pathway in inhibitory neurons to exert antidepressant-like effects