



# NEWSLINE

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## CPDD PRESIDENT'S COLUMN

Elise Weerts, Ph.D.  
President, CPDD

As you can imagine, it has been a really challenging year for CPDD as an organization. We were busy planning the 2020 CPDD Annual Meeting, originally scheduled for June 20-24th in Hollywood, Florida, when the corona virus (COVID-19) public health crisis emerged. The corona virus pandemic has affected every part of our lives. My heart goes out to those who are facing loss of friends and family related to the virus or feeling isolated and alone. It seems we are all adapting as best we can by acquiring skills in video conferencing and remote learning to hold virtual meetings and classes in our kitchens and living rooms. Many are also juggling caring for children or elderly family.

The health and well-being of our meeting attendees is of utmost concern for CPDD. CPDD leadership has struggled with how to best handle the upcoming CPDD annual meeting. As detailed in our prior email to members (see: <https://mailchi.mp/cpdd.org/extension-of-late-breaking-abstract-submission-and-early-bird-registration-deadlines-2630304?e=c87a97e457>) CPDD had to address legal contracts with hotels and vendors for our annual meeting, and consider the financial health of CPDD as a not-for-profit organization. After months of negotiation, CPDD successfully negotiated cancellation of the in-person meeting in Florida and cancellation of the hotel contracts under the Force Majeure (no fault to either party) condition, and rapidly shifted to a full virtual meeting platform. I want to thank the Program Committee and its Chair, Kelly Dunn, who tirelessly reworked the program to optimize materials for an online meeting platform, and developed unique opportunities for virtual networking and question/answer periods. The meeting even includes sessions for CME credits. In short, I have been so impressed by the new virtual program and the work of this committee. Some positive changes will come out of this pandemic planning. I can envision CPDD retaining this new strategy of recording sessions and offering some virtual content as an option for future meetings. If you have questions or feedback, CPDD has a single email address for contacting all CPDD management staff (Info@CPDD.org).

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Check out the new program on our website <https://cpdd.org/> For those attending the virtual meeting, follow and tag us on twitter (@CPDDorg). The Communications Committee co-chaired by Erin Winstanley and Qiana Brown has spearheaded a competition (with prizes) based on your tweets!

In addition to building a virtual meeting platform, CPDD had to determine how to handle the travel awards. CPDD receives an NIH/NIDA R13 grant (\$95k) for annual CPDD meeting. The majority of funds (~80%) cover the various Travels Awards that CPDD and NIDA offer to students and young investigators to attend and participate in the conference. After discussion with NIDA program staff, CPDD determined deferring awards was not optimal. First, the NIH/NIDA grant is for the 2020 Annual meeting which is currently under a no-cost extension. Second, the CPDD Travel awards are highly competitive and prestigious awards that are important to young investigators for careers advancement. The selected awardees for the 2020 meeting deserve to be honored and to have a venue to present their research. Third, we are confident that CPDD can provide a strong virtual program and offer unique networking activities for them at these critical junctures in their careers. After discussion with NIDA, CPDD leadership developed a plan to provide “travel awards” to the virtual meeting where there is no travel to reimburse. CPDD also recognized that many Universities are facing the financial losses due to the pandemic and some faculty and students have lost jobs or had reductions in salaries and benefits. We worked with NIDA to reallocate funds to allow the following:

- Reduced meeting registration fees by 50% and extended the early bird rate deadline
- Increased the number of CPDD Early Career Awards
- Increased the number of Primm-Singleton Awards for underrepresented populations
- Increased the number of NIDA Director's Awards
- Increased the number of NIDA Women & Gender Awards
- Increased the number of CPDD International Awards
- Increased participation by international attendees by providing co-funding of registration with NIDA for 70 presenters at the NIDA's International Poster session
- CPDD assumed AV costs and organization for the virtual meeting for NIDA's International Forum Poster session

I want to acknowledge the hard work of the Travel Awards Committee led by Co-chairs Ryan Vandrey and Leslie Lundahl who coordinated the review and selection of awardees from the hundreds of applications for the CPDD and NIDA travel awards. I also want to thank the URPOP committee (Chair Sherece Fields), the FORCE Awards Committee and the International Committee (Chair Francesca Filbey) for their role in the Primm-Singleton Awards and CPDD International travel awards. Please join me in thanking them for their effort.

While the pandemic has eclipsed all other 2020 events, I do want to make you aware of other changes at CPDD. We have completed our transition to management of the CPDD office and annual meeting planning to the Parthenon Management Group (PMG). The CPDD office at Temple University in Philadelphia, which was active for over 30 years, closed on January 31, 2020. This was a sad event even though we were excited to have PMG take on management of our growing organization. The transition was smooth and seamless due to the continued dedication and grace of the CPDD Executive Officer, Loretta Finnegan and the Director of the CPDD Executive Office, Ellen Geller and the high level of

**CPDD PRESIDENT'S COLUMN** *continued from page 2*

professionalism and competence of the PMG team (Sarah Timm, the PMG Executive Officer and Lindsay Snyder the Director of Client Operations). We recently welcomed a new PMG member, Jesse Howard, who is the new CPDD program manager. The PMG team has been indispensable helping CPDD successfully weather the complexities of our annual meeting and contract negotiations during this pandemic. Many, many thanks to our Executive Officer Loretta Finnegan and our Director of the Executive Office Ellen Geller who continue to serve as consultants through this year's meeting and continue to provide their considerable expertise and passion for CPDD. Stay tuned for events at the meeting honoring their substantial contributions to the College.

I also want to thank our Past-President Meg Haney and Rules Chair Charles Gorodetzky for tackling the task of revising language in our Bylaws to accommodate management of our organization by PMG. This was a huge task. I am pleased to inform you that the revised Bylaws were approved by the Board and are available for viewing on the website. Over the last year, I greatly appreciated the team effort of the CPDD Executive Committee Members President-Elect Stacey Sigmon, Past-President Meg Haney, Treasurer Jack Bergman, Public Policy Officer Sandra Comer, CPDD Executive Officer Loretta Finnegan and the CPDD Executive Office Director Ellen Geller. In weekly meetings all of these people have worked endlessly for CPDD as an organization and its membership.

In closing, I greatly appreciate the CPDD officers, Board of Directors, and Committee members who are unpaid volunteers who donate their time and professional effort in support of CPDD. Your contributions in this difficult year are valued. I am grateful beyond words to our members and all those who serve CPDD. I hope to see you at the virtual meeting. Please support CPDD as an organization by paying your dues and attending the CPDD virtual conference. While CPDD is largely a volunteer scientific organization, CPDD has paid staff and costs associated with managing the organization, website, and our annual meetings. We need your support and value your participation!

As we go forward, I am sure we will continue to face new challenges. We will get through this together. Thank you for the opportunity to serve as President of CPDD.

## **RESULTS OF CPDD ELECTIONS**

Congratulations to these newly elected leaders of CPDD!

**President-Elect: William Stoops, Ph.D.**

Dr. Stoops will assume the office of President-Elect after the June 2020 meeting.

**Treasurer: Jack Bergman, Ph.D.**

Dr. Bergman will continue his role as Treasurer by serving a second consecutive 3-year term immediately following the Annual Scientific Meeting in June of 2020.

**Board of Directors: James Rowlett, Ph.D.**

**Marco Pravetoni, Ph.D.**

**Kelly Dunn, Ph.D.**

**Sudie Back, Ph.D.**

Those elected will begin a 4-year term immediately following the Annual Scientific Meeting in June of 2020.

## 2020 ANNUAL MEETING HIGHLIGHTS

### *Estrogen-Cannabinoid Interactions Both in Preclinical and Clinical Research (Symposium)*

*Elisa Pabon, Chair, and Julie Marusich, Co-Chair*

Both the accessibility and potency of cannabis have increased in recent years. It is imperative we deepen our understanding of its acute effects, including sources of individual differences in its effects. There is growing evidence from rodents and humans that the effects of cannabinoid drugs are sex-dependent, and that some of these differences are related to circulating levels of estrogen.

This symposium, co-chaired by doctoral candidate Elisa Pabon and Dr. Julie Marusich, will present recent research on estrogen-cannabinoid interactions, in both preclinical and clinical models. Dr. Edward Wagner will begin the session by introducing the topic of sex differences in cannabinoid-regulated biological processes. He will present his preclinical work investigating sex

differences in the effects of cannabinoids on appetite, metabolism, and excitatory neurotransmission within the hypothalamic energy balance circuitry. Dr. Peter Winsauer will then present his work on estrogen-cannabinoid interactions in learning and memory in rats, with a particular focus on tolerance to  $\Delta$ 9-tetrahydrocannabinol. To provide a translational application of estrogen-cannabinoid interactions, Dr. Ziva Cooper will present a clinical perspective on sex-dependent effects of cannabis in daily cannabis smokers. Finally, Elisa Pabon will present new data demonstrating relationships between circulating estradiol levels and responses to acute oral  $\Delta$ 9-tetrahydrocannabinol in healthy women. Dr. Margaret Haney, past president of CPDD, will conclude with a summary and discussion of the future of estrogen-cannabinoid research. Studies of estrogen-cannabinoid interactions will lay a foundation for sex-specific guidelines for safer cannabis use.



*Elisa Pabon,  
University of Chicago*

### *Nicotine Use in Youth: Informing More Effective Prevention and Treatment (Symposium)*

*Andrea Villanti, Chair*

Nicotine use among youth has increased over the past two years, with 2019 data suggesting that nearly 30% of high school students have used an e-cigarette in the past 30 days. This corresponds to rapid changes in the tobacco marketplace, including the introduction of novel nicotine products likely to deliver nicotine more efficiently to users. Concerns about nicotine use in youth relate to potential impacts of nicotine exposure on brain development, the likelihood of developing nicotine dependence, and the potential for transition to the most harmful tobacco products (i.e., cigarettes, cigars). More recently, emergent cases of vaping-related lung injury have raised questions about the acute impacts of e-cigarette use for young people as well. This symposium provides insight into current research on adolescent nicotine use across the spectrum of basic science, clinical, and public health.

2020 ANNUAL MEETING HIGHLIGHTS *continued from page 4*

### *Continued from Nicotine Use in Youth*

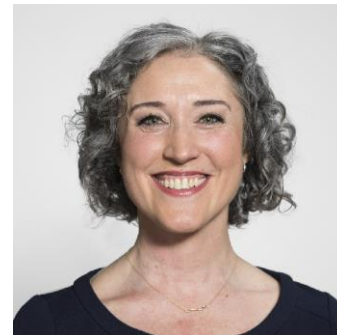
**Hugh Garavan** (University of Vermont) will describe mechanisms of addiction in young people from neuroimaging studies.

**Rachel Cassidy** (Brown University) will examine youth responses to nicotine in clinical laboratory studies.

**Andrea Villanti** (University of Vermont) will summarize recent patterns of nicotine use among youth and potential drivers of these patterns.

**Michael Amato** (Truth Initiative) will explore the effectiveness of a text message intervention for quitting vaping in youth and young adults.

Data and synthesis presented by the discussant, **Robin Mermelstein** (University of Illinois at Chicago), will provide a comprehensive view of the state of youth nicotine use in the U.S., as well as providing questions for further inquiry and recommendations for future prevention and treatment interventions, including policies.



*Andrea Villanti, Ph.D.  
University of Vermont*

### *The Resurgence of Illicit Stimulants in the Ongoing Substance Use Disorder Epidemic (Symposium)*

#### *William W. Stoops and Matthew Ellis, Chairs*

Epidemiological estimates indicate that illicit stimulant use is increasing and is complicating the ongoing drug overdose crisis. NSDUH data suggest that the number of Americans reporting current use of cocaine or methamphetamine was higher in 2018 than in 2015. Significant increases in overdose from cocaine and methamphetamine have also been observed in recent years. There is a growing recognition of the morbidity and mortality posed by illicit stimulant use, either through the noted increases in drug overdose or through health problems caused by chronic stimulant intake. This problem is made even more urgent given that there is a lack of standardized treatment protocols or approved pharmacotherapies to address stimulant use.

This symposium will feature presenters who will provide insights into the current cycle of resurgent illicit stimulant use, including epidemiology (Matthew Ellis), available treatment options (Kathleen Carroll) and clinical and preclinical medications development efforts (Frances Levin and Chang-Guo Zhan, respectively). Discussant William Stoops will then briefly synthesize these presentations, after which he will moderate a discussion between the panel and audience members, focusing on the opportunities and challenges posed by current approaches to addressing illicit stimulant use. This session consists of presentations that cover a translational spectrum and will use an interactive format that combines data presentations with the audience/panel discussion to identify and target new and important directions. The overall goal for this symposium is the identification of actionable research ideas, and potential generation of new collaborations, to help the field to address the public health concern posed by resurgent illicit stimulant use.



*William W. Stoops, Ph.D.  
University of Kentucky*

2020 ANNUAL MEETING HIGHLIGHTS *continued from page 5*

## ***Aging and Addiction: Promoting Crosstalk between Two Fields of Research (Symposium)***

*Cassandra D. Gipson-Reichardt, Chair*

Recently, there have been significant efforts to discover efficacious treatments for neuropsychiatric disorders within the aging and addiction fields. Importantly, there is a dearth of knowledge regarding how the biological impact of aging and addiction interact, which may have an important influence on clinical trial outcomes in aging individuals with a history of chronic drug use. Thus, there is a large gap between two fields of research which could contribute to slowed progress in treating both substance use disorders (SUDs) as well as age-related diseases. This invited symposium, chaired by Dr. Cassandra Gipson and co-chaired by Dr. Amy Copeland, will explore evidence from human and animal studies that drugs of abuse may contribute to accelerated aging and age-related illness.



*Cassandra D. Gipson-Reichardt, Ph.D.  
University of Kentucky*

The studies that comprise this panel highlight potential overlapping mechanisms, which may lend insight into how drugs of abuse alter the trajectory of aging. First, Dr. Andrew Huhn (Johns Hopkins University) will demonstrate that the proportion of older adults seeking treatment for SUDs has increased in recent years.

Dr. Copeland (Louisiana State University) will then describe the relationship between smoking and factors unique to women's reproductive health during transitional menopause.

To follow, Dr. Andrew George (Barrow Neurological Institute) will describe interactions between amyloid peptides and nicotinic acetylcholine receptors (nAChRs), and how this can alter neural stability and contribute to cognitive decline associated with aging (specifically, Alzheimer's Disease). This is important as the cholinergic system, and specifically, nAChRs, are heavily involved in addiction processes.

$\alpha 4\beta 2$ \*nAChRs have been shown to play a critical role in drug use and related anxiety phenotype. Next, Dr. Darlene Brunzell (Virginia Commonwealth University) will show that a decline of  $\alpha 4\beta 2$ \*nAChR expression during aging supports changes in anxiety-like behavior and intracellular signaling with age-dependent effects of selective pharmacological manipulation of these receptors suggest that an aging population may not only respond differently to nicotine and withdrawal, but also to pharmacotherapies for tobacco cessation.

Finally, Dr. Gipson will highlight gaps in the two fields of research and will synthesize findings from several areas in which SUDs and aging-related diseases may interact. In summary, this translational panel will present data highlighting overlapping mechanisms of addiction and aging in order to promote crosstalk between two fields and address the medical complexities of older adults with SUDs.

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### ***Innovative Solutions to Expand Treatment for Opioid Use Disorder in Rural Communities (Symposium)***

*Yih-Ing Hser, Chair, and Larissa Mooney, Co-Chair*

Dramatic increases in opioid use disorder (OUD) and opioid overdose deaths across the U.S. and other nations, particularly in rural areas, call for a rapid expansion of access to medication treatment for opioid use disorder (MOUD) in order to effectively address this public health crisis. Office-based opioid treatment (OBOT) is the prevailing standard of care for OUD treatment in primary care settings, but uptake of OBOT in rural areas has been slow, with significant shortages of buprenorphine prescribers in rural counties. In this session, we will discuss emerging innovative approaches to OUD treatment, including telemedicine-based and pharmacy-based models, and integrated MOUD with HIV/HCV treatment to address unique barriers faced in rural communities.

Lewei (Allison) Lin, MD from the University of Michigan and Ann Arbor VA Center for Clinical Management Research will discuss telemedicine-delivered OUD treatment for veterans in rural areas and the utilization and effectiveness of telemedicine-delivered treatment for veterans with OUD in the U.S. Veterans Health Administration.

Judith Feinberg, MD from West Virginia University School of Medicine will describe strategies for providing integrated care for OUD and the infectious sequelae (HIV, HCV) of injection opioid use in rural settings.

Suzanne Nielsen, PhD from the Monash Addiction Research Centre in Melbourne will review international models of care that have engaged pharmacists to increase the reach of MOUD, including efforts to develop and demonstrate a Prescriber/Pharmacist collaborative shared-care model of MOUD delivery in Australia.

Yih-Ing Hser, PhD from the University of California, Los Angeles will discuss the integration and sustainability of OBOT with telemedicine within a NIDA Clinical Trials Network study focused on the expansion of OUD treatment in rural primary care clinics across the U.S.



*Yih-Ing Hser, Ph.D.  
UCLA Integrated Substance  
Abuse Programs*



*Larissa Mooney, M.D.  
University of California,  
Los Angeles*

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### ***FMRI Drug Cue Reactivity as a Drug Development Tool: from the Clinical and Experimental Evidence to FDA Standards (Symposium)***

*Hugh Garavan, Chair*

Assessing efficacy is a core requirement for the development of novel treatments for substance dependence. Consequently, there is a critical need for developing measures of treatment response in drug addiction that are objective, sensitive, reliable and valid. While neuroscientific research into addiction has utilized functional brain imaging extensively, these techniques thus far have had very small impact on treatment development. In this symposium, we make the argument that fMRI drug cue reactivity (FDCR) is one of the very few proxy measures that has shown promising evidence to cover three core elements of drug addiction including incentive salience, negative emotionality and cognitive control in an ecologically validated context (drug cues). Moreover, FDCR has been shown to predict abstinence and to detect response to novel drugs that are relevant to clinical outcomes.

Our review identifies 42 clinical trials using FDCR as an outcome measure and 318 published studies providing evidence for FDCR as a diagnostic, prognostic, predictive or treatment monitoring marker. This symposium will focus on the opportunities and challenges involved in qualifying FMRI measures as surrogate markers for drug development. We will describe the current status of FDCR as a drug development marker and will review empirical evidence regarding its validity (e.g., as a reliable predictor of relapse), replicability within subjects, consistency between subjects, and its time course over treatment duration. Speakers will include a complementary set of current FDCR practitioners and fMRI methodology experts. Throughout the talks, promising avenues for future work to further develop FDCR as a Drug Development Tool (DDT) will be identified.



*Hugh Garavan, Ph.D.  
University of Vermont*

### ***Advancing Polysubstance Research with Translational Approach (Symposium)***

*Heather Kimmel, Chair and Shelley Su, Co-Chair*

This symposium will highlight the NIH-supported research program, “Integrative Research on Polysubstance Abuse and Addiction,” a funding opportunity of the Collaborative Research on Addiction (CRAN), a NIAA, NIDA and NCI partnership. The goals are to (1) characterize how the neurobiological alterations, associated behaviors, and public health consequences arising from polysubstance use differ from, or are similar to, those observed in single drug use and (2) promote integrative polysubstance research along a translational pipeline, consisting of basic science research in animals, human-based laboratory investigations, and epidemiological studies. This is accomplished with a Phased Innovation (R21/R33) mechanism, where polysubstance research can occur in any translational stage during the R21 phase and these findings are rapidly integrated into another stage during the R33 phase. This program is unique in addressing the reality of polysubstance use as well as the challenges in conducting rigorous research in this area. In addition, the translational component deliberately brings together researchers from different fields to facilitate public



*Heather Kimmel  
National Institute on  
Drug Abuse*



2020 ANNUAL MEETING HIGHLIGHTS *continued from page 8*

### ***Continued from Advancing Polysubstance Research with Translational Approach***

communication and understanding between the disciplines to address important health questions.

In this symposium, awardees of this program will discuss their research findings as well as how this mechanism facilitated their research. Kat Kantak will discuss how preexisting inhibitory control deficits predict compulsive drug use in an animal model of harm avoidance. Lori Knackstedt will describe the development of novel tools and models to study the patterns and consequences of polysubstance use in humans and rodents. Gita Pathak will present findings from integrative genomic analyses of hidden phenotypes across polysubstance use disorders. Cynthia Arfken will examine opioid and benzodiazepine polydrug abuse. Finally, Jenny Wiley will provide a synthesis including a discussion of her own work characterizing cannabis-tobacco polysubstance use patterns in animals and humans. In addition, we will provide program updates and facilitate discussions to identify research priorities based on current events as well as mechanisms for successful collaborations.

### ***Artificial Intelligence Technologies to Enable Drug Development for Substance Use Disorders (Mini Symposium)***

*Susan Wright, Chair, and Kristopher Bough, Co-Chair*

There are significant unmet needs in substance use disorder (SUD) research including: (1) an understanding of the genetic, cellular, and molecular mechanisms underlying SUD; (2) clinical and outcome studies; (3) the identification of translational biomarkers; and (4) the discovery of a new generation of therapeutics and combinations of therapeutics that can more effectively treat SUDs.

At the same time, the world now faces a technological revolution in artificial intelligence (AI). AI algorithms can analyze huge databases of chemical and biological data sets, electronic health records (EHRs), and the literature to describe complex drug-disease relationships in ways that will advance the development of new treatments and personalize healthcare.

This mini-symposium will feature three speakers.

Dr. Rong Xu (Case Western Reserve) will discuss how innovative new Natural Language Processing(NLP)-based approaches can be used to develop disease ontologies of addiction and identify drugs for repurposing.

Dr. Olivier Elemento (Weill Cornell Medical College) will discuss how ultrafast genome sequencing, high-performance computing, and big data approaches can be used to develop entirely new ways to help prevent, diagnose and treat disease.

Dr. Xiaoqiang Jiang (UT-Houston) will discuss how an innovative new method for high-throughput propensity score weighting to identify drug combinations can be used to reduce the onset rate of diseases using data from EHRs. This mini-symposium will showcase the power of AI technologies in drug development and highlight how these approaches will significantly facilitate addiction research.



*Susan Wright, Ph.D.  
National Institute on  
Drug Abuse*



*Kristopher Bough, Ph.D.  
National Institute on  
Drug Abuse*

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## ***Calling Tech Support: Technology-Facilitated Interventions to Reduce Substance Use and Advance HIV Prevention and Care (Mini Symposium)***

*Cathy J. Reback, Chair*

Given the proliferation of mobile phones, tablets, and computers, technology offers the option of immediate intervention delivery. The popularity of technology-facilitated interventions has increased in the field of addiction, and HIV prevention and care. As mobile health (mHealth) and electronic health (eHealth) interventions are easily accessible, portable, convenient, and private, these modalities are particularly appealing to sexual (gay, bisexual, and other men who have sex with men [MSM]) and gender (transgender and gender non-conforming/expansive) minority individuals experiencing stigma and discrimination.



*Cathy J. Reback, Ph.D.  
Friends Research Institute*

This symposium will address a diversity of current, state-of-the-art technology modalities including mobile applications, WebApps, text-messaging platforms, and Internet-based recruitment strategies. Specific attention will be paid to the utilization of interventions grounded in evidence-based theoretical constructs that can be delivered through these technology modalities. Findings from technology-facilitated intervention studies with sexual and gender minority individuals will be presented. Further, the limitations of these interventions will be explored such as the (in)ability to impact structural barriers to treatment and care and the challenge of immediate linkage to either substance use or HIV treatment, especially among those who live at the intersection of poverty and housing instability.

Dr. Cathy Reback, Friends Research Institute, will present results from a NIDA-funded Randomized Control Trial (RCT) that compared bidirectional text message conversations versus unidirectional text message delivery versus text-based self-monitoring (no text messages) for reducing methamphetamine use and HIV risks among MSM.

Dr. Sabina Hirshfield, SUNY Downstate Health Sciences University, will present data from a NIMH-funded study assessing differential engagement in eHealth intervention activities among MSM living with HIV who use methamphetamine.

Dr. Keith Horvath, San Diego State University, will present results from the NIDA-funded RCT of a mobile-optimized intervention to improve antiretroviral adherence among MSM living with HIV, with a specific focus on MSM who use stimulants.

The symposium will conclude with an exploration of technology-facilitated intervention options for advancing the fields of addiction health services and HIV care.

2020 ANNUAL MEETING HIGHLIGHTS *continued from page 10*

### ***Immunotherapeutic Approaches to Counteract the Fentanyl Overdose Epidemic (Mini Symposium)***

***Marco Pravetoni, Chair***

More effective strategies are needed to prevent the widespread illicit use and fatal overdoses related to fentanyl or drug mixtures containing fentanyl and its analogs. This 30-minute mini-symposium features ongoing efforts in developing vaccines and monoclonal antibodies (mAb) against fentanyl, its analogs, or other highly abused opioids. In part I, Dr. Matyas will discuss ongoing efforts toward pre-clinical and clinical development of vaccines against heroin and other opioids. In part II, Dr. Pravetoni will discuss development of vaccines and mAb to counteract fentanyl as well as biomarkers predictive of individual variability in vaccine efficacy against fentanyl and other opioids. Vaccines and mAb can be used in combination with FDA-approved medications to improve treatment of opioid use disorders and survival after overdose.



***Marco Pravetoni***  
*University of Minnesota*

### ***Catalyst for Change: Novel Treatments in Substance Use Disorder (Mini Symposium)***

***Megan J. Shram, Chair, and Deborah Mash, Co-chair***

Effective treatment of substance use disorders and withdrawal management continues to be a challenge and presents a large unmet medical need in the United States and worldwide. A common pharmacological approach includes substitution therapy, which relies on long-term administration and may be associated with abuse potential. However, several novel treatments under development utilize different mechanisms and may have a different safety and abuse potential profile compared with existing treatments. This mini-symposium will highlight emerging data on 3 such products currently in clinical stages of development.

Dr. Deborah Mash (University of Miami; DemeRx) will open the mini-symposium by presenting preclinical and clinical data that support the development of noribogaine as a non-opioid alternative for the management of withdrawal symptoms following abrupt discontinuation.



***Megan J. Shram,***  
*Altreos Research Partners Inc.*

2020 ANNUAL MEETING HIGHLIGHTS *continued from page 11*

### ***Continued from Catalyst for Change (Mini Symposium)***

Then, Dr. Brent Blackburn (Amygdala Neurosciences) will focus his presentation on the discovery and development of selective and reversible aldehyde dehydrogenase 2 inhibitors for the treatment of alcohol and other substance use disorders. Finally, Dr. Lynn Webster (PRA Health Sciences) will discuss a first-in-class treatment for methamphetamine addiction, for which there are no approved pharmacologic therapies. The approach is based on highly selective immunotherapy that reduces the rate and extent of methamphetamine penetration into the CNS.

Attendees of the mini-symposium will hear the latest regarding the development of 3 products that are each intended to provide a unique approach to managing substance use disorders. Dr. Mash and I are excited to be co-chairing this event and look forward to seeing you there!

### ***Substance Use Behaviors among Sexual and Gender Minority Individuals: A Multi-Level and Mixed-Methods Approach (Mini Symposium)***

*Morgan Philbin, Chair, and Megan Schuler, Co-Chair*

Sexual and gender minority (SGM) individuals experience elevated rates of substance use and disordered use compared to their heterosexual counterparts, including tobacco, marijuana, alcohol, non-medical prescription drug use, and illegal drug use. Importantly, SGM individuals are not a homogenous group, and analyses demonstrate significant differences across age, gender and sexual identity (gay/lesbian versus bisexual). In addition, substance use disparities are particularly stark for transgender individuals and bisexual women. The drivers of these disparities occur at the structural-, community- and individual-level. Examples include sexual minority stress, namely that sexual orientation-based health disparities result from sexual minorities' exposure to stigma and discrimination, state-level policies (e.g., around sexuality-based discrimination, marijuana, and housing), community-level norms, and treatment access. This mini-symposium will present data from mixed-methods studies that explored substance use among youth and adults from across the US and Canada.



*Morgan Philbin, Ph.D.  
Columbia University*

Dr. Megan Schuler, Associate Policy Researcher at RAND Corporation, will describe results from the National Survey on Drug Use and Health (NSUDH) that indicate the heterogeneity of substance use disparities among sexual minority adults, highlighting important differences by age, gender, and sexual identity. Dr. Rod Knight, Assistant Professor at the University of British Columbia, will present qualitative findings from a program of research that identifies how young sexual minority men in Canada navigate substance use in the context of the opioid overdose crisis and a highly contaminated drug supply. Lastly, Dr. Philbin, Assistant Professor at Columbia University, will discuss mixed-methods findings from the NSDUH and qualitative interviews across 25 US states that highlight the multi-level drivers of substance use among SGM youth, including the mechanisms through which these drivers differentially impact these young people. The mini-symposium will conclude with discussions of the next steps for substance use research among SGM individuals, including potential intervention targets.

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## PRECLINICAL MEMBERS HIGHLIGHTS

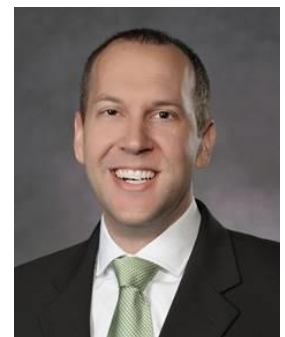
### *Dr. Matthew Banks: Investigating novel treatment approaches for opioid use disorder*

*By Paul W. Czoty, Ph.D., Animals in Research Committee Member*

At Virginia Commonwealth University in Richmond, Dr. Matthew Banks and his colleagues developed a procedure in which rats could choose to receive either an intravenous injection of fentanyl or a food reward. Compared to procedures in which animals have a single response option, choice procedures better reflect the fact that drug abusers choose to allocate their time, resources and behavior towards procurement of drugs rather than other stimuli in the environment such as work, family or education.

In previous attempts to study choice behavior in rodents, however, rats typically chose to respond to receive food reinforcement rather than injections of opioids. In the procedure developed by Dr. Banks and colleagues, rats responded almost exclusively for food when the simultaneously available fentanyl dose was low but chose fentanyl more and more as the fentanyl dose increased, consistent with human laboratory and nonhuman primate choice studies.

In the April 2019 issue of *Neuropsychopharmacology*, Dr. Banks' group reported results that help to validate the translational utility of this model. Male and female rats chose between injections of fentanyl and access to liquid food. When treated with the mu-opioid receptor antagonist naltrexone continuously for 7 days, the choice of fentanyl decreased to a degree that was related to naltrexone dose. That the model was sensitive to naltrexone, an FDA-approved treatment for opioid use disorder, supports the contention that results from the model will translate to humans. Dr. Banks and colleagues then used the procedure to test whether a fentanyl vaccine could reduce fentanyl choice. In non-dependent, vaccinated rats, fentanyl choice decreased, and food choice increased over 15 weeks, indicating a highly effective attenuation of the reinforcing effects of fentanyl. These results present compelling evidence of the effectiveness of immunotherapies in combating the ongoing opioid epidemic.



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*Virginia Commonwealth University*

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***Dr. Jay McLaughlin: Screening Novel Compounds as  
Analgesics and Therapeutics***

*By Lance McMahon, Ph.D., Animals in Research  
Committee Member*

Dr. Jay McLaughlin, Associate Professor of Pharmacodynamics at the University of Florida, screens novel compounds as analgesics and therapeutics for drug abuse. Continuing a 14-year collaboration, he works with Jane Aldrich to explore peptide kappa-opioid agonists and antagonists as therapeutics for substance abuse. These include a set of cyclic tetrapeptides showing both mixed opioid-receptor agonism and kappa-opioid receptor antagonism which may have promise as both analgesics and therapeutics for drug abuse. Newer compounds arising from this series show multifunctional opioid activity while preventing relapse to extinguished cocaine-seeking behavior, and in recent tests, morphine-seeking behavior.



*Jay McLaughlin  
University of Florida*

An additional collaboration seeking novel analgesics is currently underway with Chris McCurdy. This collaboration has yielded two lines of research. In the first, novel sigma receptor ligands are being characterized for analgesic effects, particularly for alleviation of neuropathic pain, without addictive or sedative effects. In a second project, small molecule guanidine-piperidine agonists and antagonists selective for neuropeptide FF (NPFF)-receptor subtypes are showing promise as an approach to prevent acute morphine antinociceptive tolerance.

In a final line of research, Dr. McLaughlin is using animal models to examine the mechanisms of HIV-induced neuropathology. The HIV regulatory protein, Tat, has been implicated in the pathogenesis of HIV-1 neurological complications, but direct demonstrations of the effects of Tat on behavior and neurodegeneration in an intact organism in vivo are limited. Dr. McLaughlin is currently on the front lines working with innovative animal models to test the hypothesis that the activity of Tat in the brain is sufficient to produce neuronal dysfunction and neurodegeneration leading to behavioral deficits in learning and memory performance, mood disorders, and increases in drug-seeking behaviors.

**DRUG AND ALCOHOL DEPENDENCE CORNER**

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<https://www.journals.elsevier.com/drug-and-alcohol-dependence/editors-choice/editors-choice-2020>

**Nonhuman animal models of substance use disorders: Translational value and utility to basic science**

*Mark Smith*

(This article has been published in Drug and Alcohol Dependence, volume 206, 1 January 2020)

Recently, the National Institute on Drug Abuse requested comments about the strengths and weaknesses of animal models of substance use and asked for recommendations on how these models may best be used to mimic substance use disorders (SUD). A survey of the literature revealed that animal models that permit subjects rather than experimenters to control drug delivery, use complex/unpredictable schedules of drug availability similar to those found in human environments, measure behaviors that mimic the diagnostic criteria of SUD, and use species that are behaviorally and neurobiologically similar to humans are optimal for translating research findings to the human condition.

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**Opioid prescribing rates from the emergency department: Down but not out**

*Mir M. Ali, Eli Cutler, Ryan Mutter, Rachel Mosher Henke, Maryann Mazer-Amirshahi, Jesse M. Pines, Nicholas Cummings*

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Emergency departments (EDs) are a common source for opioid prescriptions. This study examined ED opioid-prescribing rates in the United States, using a dataset with a large number of patients enrolled in private health insurance and Medicaid from multiple states. From 2005 to 2016, 1 in every 5-6 ED visits resulted in an opioid prescription written upon discharge and subsequently filled. Patients with acute back pain were most likely to receive an opioid prescription. Rates climaxed in 2009 then declined steadily; however, in 2016 about 15% of ED patients received opioid prescriptions amidst a national opioid crisis, especially in southern states.