

Connecting Minds • Advancing Neuroscience • Improving Lives

## Addressing the Complex Disease of Addiction

*‘Combined biological, epidemiological, and social science discoveries of the last 3 decades have given us a detailed understanding of the risks, mechanisms, and consequences of drug abuse and addiction’*

—National Institutes of Health

Addiction was once thought to be a moral failing; today we know it is a chronic, often relapsing/remitting illness affecting millions worldwide. In the U.S., it costs thousands of lives and billions of dollars a year. At DIBS, we are bringing together outstanding faculty and students from multiple disciplines to address the complex issues around addiction, prevention, treatment, and recovery.

### Bass Connections Team Researches Extent of N.C., Durham Opiate Epidemic

Whether alcohol, cocaine, nicotine, or opiates such as heroin and fentanyl, addictive substances stimulate the brain’s reward center, releasing the “feel-good” chemical dopamine. Over time, this alters the dopamine system and a higher dose is required to achieve the same “high.” This phenomenon, known as tolerance, is especially dangerous with opiates, because it can lead to respiratory depression and even death as users increase their doses.



*Onuoha, left, with Bass Connections faculty adviser Nicole Schramm-Sapyta, PhD, and fellow Duke undergraduate team members Katie Kanter, Madeline Thornton, and Grace Feng.*

*‘Through this project I was able to learn a lot about substance use, addiction and how policy affects treatment options. ... Addiction is a disease and we have the resources to do something about it.’*

—**Erica Onuoha, T ’18, Biology**  
radio interview, WNCU-FM

The Bass Connections Brain & Society team project, “Stemming the Opiate Epidemic

through Education and Outreach,” looked at the epidemic from many perspectives, then took action. Members mapped heroin overdose deaths by county in North Carolina, worked with the Duke Hospital Emergency Department to begin distributing the life-saving overdose reversal drug naloxone to at-risk patients, and helped deliver mental health first aid training to over 100 members of the Duke community.



### Light Smokers Remain at Risk for Health Effects

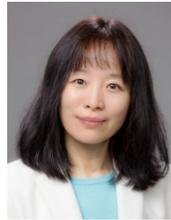
Nicotine is a highly addictive substance. That makes it very difficult to quit tobacco use. Duke researchers are studying dependence, cessation, and tobacco-related health issues. The symposium pictured above, “Tackling the Final Few: Bringing Light Smokers to Cessation,” attracted dozens of area researchers and was co-sponsored by DIBS, the Center on Addiction & Behavior Change, and the Duke Cancer Institute.

# DIBS Leaders among Duke Scientists Awarded \$24M on Pain, Opioid Crisis

Research teams from Duke recently received more than \$24 million in federal grants to address challenges related to pain and the opioid crisis. Among those receiving the grants are Warren Grill, PhD, Biomedical Engineering, and Fan Wang, PhD, Neurobiology. Dr. Grill serves on the DIBS Faculty Steering Committee; Dr. Wang is a former member, and both are Faculty Network Members.

The grants are part of the National Institutes of Health Helping to End Addiction Long-term Initiative (NIH HEAL), which aims to apply scientific solutions to Improve treatments for chronic pain, curb the rates of opioid use disorder and overdose, and achieve long-term recovery for opioid addiction.

“Duke researchers continue to be at the forefront of tackling some of the biggest issues that impact health and wellness in our world today,” said Mary Klotman, Dean of the School of Medicine.



## Symposium Seeks to Inform Drug Policy through Latest Science, Data

People have used cannabis medicinally, spiritually, and recreationally for millennia. In recent years, cannabis use in the U.S. has become more generally acceptable. Regulation of cannabis use must proceed in light of potential medical applications and toxicological risks.



The 2019 Center on Addiction & Behavior Change (CABC) symposium, “Altered States of Cannabis Regulation: Informing Policy with Science,” brought together experts on the medical uses of cannabis and the risks posed by cannabis abuse, as well as potential developmental impacts on children of parents using cannabis. Policy and legal scholars provided insight on how medical and toxicological science can inform policy on optimal regulation of cannabis and its derivatives. Co-sponsors were DIBS, CABC, Duke CIPHERS Center (Cannabis-Induced Potential Heritability of Epigenetic Revisions in Sperm), and the John Templeton Foundation.



**Duke**  
Institute for  
Brain Sciences

*Through its interdisciplinary mission, DIBS is able to convene seminars and symposia to tackle difficult issues such as addiction. Duke experts, plus those from other universities, nonprofits, industry, and the community, are able to discuss the latest science and share information about policies and solutions.*

## Help DIBS Expand Addiction Research, Education Activities

Help us make it possible for DIBS to continue to support research, education, and outreach around addiction. To support this vital work at DIBS, please contact:

**Shannon L. Reavis**  
Senior Program Director  
Special Initiatives  
Duke Office of Major Gifts  
shannon.reavis@duke.edu  
919.613.8894 (office)  
336.817.6119 (cell)

December 2019