

2021
INTERNATIONAL
MENTAL HEALTH
RESEARCH
VIRTUAL
SYMPOSIUM

More than 30 Years of Research for Recovery

Mission

The Brain & Behavior Research Foundation is committed to alleviating the suffering caused by mental illness by awarding grants that will lead to advances and breakthroughs in scientific research.

Vision

To dramatically improve the lives of those living with mental illness, ultimately enabling them to live full, happy, and productive lives.

100% of all donor contributions for research are invested in BBRF grants that lead to discoveries in understanding the causes and improving treatments for brain and behavior disorders in children and adults including addiction, ADHD, anxiety, autism, bipolar disorder, borderline personality disorder, depression, eating disorders, OCD, PTSD, schizophrenia, and suicide prevention.



For more than 30 years the Brain & Behavior Research Foundation has fostered new research pathways and transformative breakthroughs.



Our 70,000 donors have joined together in the great challenge of modern medical science — overcoming mental illness.



Since 1987 the Foundation has awarded more than \$430 million to fund more than 6,200 grants.



Grants have been given to more than 5,100 leading scientists around the world.



Welcome

Welcome to our Virtual International Mental Health Research Symposium.

You will be able to watch the Brain & Behavior Research Foundation's 2021 Outstanding Achievement Prizewinners share new advances and insights on schizophrenia, bipolar disorder, depression, autism, cognitive neuroscience, and childhood psychiatric disorders. The Outstanding Achievement Prizewinners are selected by special committees of the BBRF Scientific Council, a volunteer group of 183 mental health experts across disciplines in brain and behavior

research who review all Foundation grant applications and recommend the most promising ideas to fund.

We are pleased this year to also offer informative presentations from our three winners of the 2021 Pardes Humanitarian Prize in Mental Health. These extraordinary women are advocates for mental health and each live with a mental illness. The three honorary prizewinners of the Pardes Prize have been acknowledged for their groundbreaking work in mental health which they will discuss in their presentations.

Since 1987, the Foundation has awarded more than \$430 million to fund more than 6,200 grants to more than 5,100 scientists around the world. These awards are made specifically to fund innovative research that may not be supported elsewhere, but is vital for advancement in the fields of neuroscience and psychiatry. **100% of every dollar donated for research is invested in our research grants.** Our operating expenses are covered by separate Foundation grants.

We hope the BBRF Symposium will inspire you. Thank you for joining us in our commitment to dramatically improve the lives of those with mental illness and ultimately enable more people to live full, happy, and productive lives.

Sincerely,

A handwritten signature in black ink that reads "Jeffrey Borenstein".

Jeffrey Borenstein, M.D.
President & CEO
Brain & Behavior Research Foundation

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Opening Remarks



Herbert Pardes, M.D.
Founding President, BBRF Scientific Council
2014 Inaugural Humanitarian Prize in Mental Health

Dr. Herbert Pardes has led the BBRF Scientific Council since its inception. He is Executive Vice Chairman of the Board of NewYork-Presbyterian Hospital, a position he has held since leaving the position as President and CEO of NewYork-Presbyterian Hospital and NewYork-Presbyterian Healthcare System. A psychiatrist nationally recognized for his broad expertise in education, research, clinical care and health policy, he is an ardent advocate of academic medical centers, humanistic care and the power of technology and innovation to transform 21st-century medicine.

An outspoken proponent for children's health education, mental health issues, access to care and information technology in medicine, Dr. Pardes, a past President of the American Psychiatric Association, was Director of the National Institute of Mental Health under Presidents Carter and Reagan. He is a regular guest on national television news programs and contributes opinion pieces appearing in major newspapers. He is active at the state and federal level, supporting legislation to help hospitals provide quality health care while balancing today's economic realities with making the best possible medical care available to all who need it.

Introduction



Robert M.A. Hirschfeld, M.D.
BBRF Founding Scientific Council Member
2002 BBRF Distinguished Investigator
2003 BBRF Falcone Prizewinner for Outstanding Achievement in Mood Disorders Research

Dr. Robert Hirschfeld is a Professor of Psychiatry and the DeWitt Wallace Senior Scholar in the Department of Psychiatry at Weill Cornell Medical College. Prior to joining the Weill Cornell Department of Psychiatry in April 2015, he served for nearly 25 years as Professor and Chair of the Department of Psychiatry at the University of Texas Medical Branch in Galveston where he conducted research, treated patients, and provided educational programs for medical students and residents. Before coming to Texas, Dr. Hirschfeld spent 18 years at the National Institute of Mental Health, where he was Chief of the Mood, Anxiety, Personality Disorders Research Branch.

Dr. Hirschfeld is renowned internationally for his research on the diagnosis and treatment of bipolar disorder and depression. He developed the Mood Disorder Questionnaire (MDQ), the most widely used screening instrument for bipolar disorder in the world. Dr. Hirschfeld has authored nearly 300 scientific papers and abstracts in leading scientific and medical journals, and has contributed chapters on mood and anxiety disorders in four major psychiatric textbooks, as well as in nearly two dozen other books on psychiatry.

PRIZEWINNER, BBRF PARDES HUMANITARIAN PRIZE
IN MENTAL HEALTH

A Life in Moods



Kay Redfield Jamison, Ph.D.
The Johns Hopkins Hospital
2010 BBRF Productive Lives Award

Dr. Kay Jamison moved to California during adolescence and soon thereafter began to struggle with bipolar disorder. She found her calling in psychology. She flourished in this field and was extremely interested in mood disorders. Despite her studies, Dr. Jamison did not realize she was bipolar until three months into her first job as a professor in UCLA's Department of Psychology.

In addition to her over 100 published scientific works, Dr. Jamison's seminal works for the lay public are her memoir *An Unquiet Mind*, which details her experience with severe mania and depression, and *Night Falls Fast: Understanding Suicide*, providing historical, religious, and cultural responses to suicide, while examining the relationship between mental illness and suicide. Dr. Jamison wrote *An Unquiet Mind* in part to help clinicians see what patients find helpful in therapy. Her 1990 book *Manic-Depressive Illness*, co-authored with psychiatrist Frederick K. Goodwin, is considered a classic textbook on bipolar disorder. In her symposium presentation, Dr. Jamison will discuss how her life in academic medicine, psychology, clinical practice, and writing has been influenced by her bipolar illness.

James Potash M.D., MPH, psychiatrist-in-chief at Johns Hopkins Medicine, offered this tribute on the occasion of Dr. Jamison's nomination for the Pardes Humanitarian Prize:

"Dr. Kay Jamison has been an inspiration to countless people with bipolar disorder, and has transformed how society sees those with the illness. Her autobiography, An Unquiet Mind, details her struggles with the illness, and her acceptance of it. In lyrical prose, she details how bipolar disorder derailed her, but also what it taught her. With remarkable honesty about very personal elements of her experience, Dr. Jamison courageously 'out-ed' herself at a time when few people were willing to. The book has been translated into 25 languages, sold over two million copies, and made Dr. Jamison a much-in-demand spokeswoman and advocate for the mentally ill. She has been emphatic in identifying stigma as prejudice, and through living publicly with bipolar disorder she has done much to counter this stigma."

The Pardes Humanitarian Prize in Mental Health is sponsored in part by Janssen Research & Development, LLC, one of the Janssen Pharmaceutical Companies of Johnson & Johnson.

PRIZEWINNER, BBRF PARDES HUMANITARIAN PRIZE
IN MENTAL HEALTH

Making Friends with My Schizophrenia: A Lifelong Project



Elyn R. Saks, J.D., Ph.D.

University of Southern California
Gould Law School

2010 BBRF Productive Lives Award

Dr. Elyn R. Saks lives with schizophrenia and has written about her experience in her award-winning best-selling autobiography, *The Center Cannot Hold*. She uses her advanced academic position to advocate for the de-stigmatization of serious mental illness, making psychosis more approachable and understandable to others. She explains the symptoms of psychotic illness in plain language to the public. She appears on television to talk about psychiatric illnesses, and has done a TED talk about living with schizophrenia. Recently she has begun teaching psychiatric residents and medical students in the vicinity of the University of Southern California, to great praise from students and teachers alike.

Dr. Saks' talk will cover her life-long relationship with schizophrenia. Although many will find it counterintuitive to think of one's mental illness as a "friend," she says, she has found that her relationship with schizophrenia bears many similarities to other important relationships in her life. She will address how discovering and nurturing this life-long relationship—i.e., "making friends with my schizophrenia"—has helped her find a life worth living.

In her own words: *"I did not make my illness public until relatively late in life and that is because the stigma against mental illness is so powerful that I did not feel safe with people knowing. If you hear nothing else today, please hear this: There are not 'schizophrenics.' There are people with schizophrenia; and these people may be your spouse, they may be your child, they may be your neighbor, they may be your friend, they may be your co-worker. The humanity we all share is more important than what we do not. What those of us with mental illness want is what everyone wants. In the words of Sigmund Freud: to work and to love."*

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PRIZEWINNER, BBRF PARDES HUMANITARIAN PRIZE
IN MENTAL HEALTH

Experts by Experience— Transforming Mental Health Worldwide



Charlene Sunkel
Founder/CEO
Global Mental Health Peer Network

Charlene Sunkel was diagnosed with paranoid schizophrenia in 1991 and her journey since then has exposed her to the challenges experienced by persons with mental illness within and outside of the mental health sector. This encouraged her to commit herself to fighting for mental health and human rights. She established the Global Mental Health Peer Network (www.gmhpn.org) in 2018 with the intention to accelerate the inclusion of people with lived experience—through research, policy development, service delivery, and stigma reduction.

The Global Mental Health Peer Network promotes empowerment of people with lived experience of mental health problems. In the words of a colleague familiar with her achievement, Ms. Sunkel’s work has “made it impossible for any global mental health initiative to be implemented without an active and meaningful involvement of people with lived experience. This is a singular achievement that needs to be recognized and celebrated.”

In her presentation, Ms. Sunkel will discuss how the field of mental health has evolved over the past decades, and in recent years has seen a growing recognition of the importance of persons with lived experience of mental health conditions to be acknowledged as key partners in this transformation. She will also address how despite this approach that changes the status quo, low- and middle-income countries are yet to fully realize the value and utilization of lived experience partnerships.

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Luck, Chance, & a Cross-Cultural Exchange Between Psychiatry in the U.S. and China



John M. Davis, M.D.

University of Illinois at Chicago
2017 BBRF Lieber Prize for
Outstanding Achievement in
Schizophrenia Research

Dr. John M. Davis has been active over many decades in supporting many and varied humanitarian efforts in mental health. He has used his resources to help others have a positive effect on the mentally ill, and to tackle neglected problems.

In the late 1970's, following President Nixon's diplomatic opening to the People's Republic of China, he was invited to be among the first group of American psychiatrists to visit and lecture in China. In his presentation he will tell the story of his initiative to bring psychopharmacology to China, where at the time psychopharmacology was not officially sanctioned. Progress took many years and during this time, the group trained 40 Chinese psychiatrists—one each in 40 medical schools. They also started a series of lectures and initiated many collaborative clinical trials, some of which are still ongoing. His presentation will reflect his belief that these developments are a very small part of a larger story about the modernization of China following Mao's death.

In other humanitarian work, Dr. Davis funded a trip to Ethiopia to organize a program modeled after Thresholds, an aftercare program for mental illness in Illinois supporting parents of schizophrenia patients and offering a wide variety of services to the serious mentally ill. Dr. Davis also has made two trips to Burma. He was with the first group to visit the mental hospital in Burma in 2012. In other work, Dr. Davis was able to interest a drug company to make a film to teach psychiatrists to diagnose movement disorders, Parkinsonian side effects, Tourette's disorder, and essential tremor caused by lithium or old age. He has also worked with the prison system in Cook County, IL to help improve the treatment of psychiatric patients in prison, including creating a mental health court, a program to divert cases in need of mental health treatment to state hospitals or clinics rather than to jail, and a training program for the police to recognize and deal with mental patients.

HONORARY PRIZEWINNER, BBRF PARDES HUMANITARIAN PRIZE
IN MENTAL HEALTH

Assessing Cognition in Older, Undereducated Individuals with Schizophrenia in China



Michael R. Phillips, M.D., MPH
Shanghai Mental Health Center

Dr. Michael Phillips is a Canadian psychiatrist who has dedicated his professional and personal life to serve mentally ill people in China. He was designated as a unit director at the WHO collaborating center, and has brought the mental illness problems faced by ordinary Chinese people to the attention of the world. One notable achievement has been his portrayal of the plight of rural Chinese young women who are raped. Facing no future prospects because of their violation, they drink pesticides to save their families from further shame. Dr. Phillips published meticulously researched major journal articles about their plight and helped the Chinese health services develop ways to reach these women and give them an alternative to suicide. He also has trained a generation of Chinese to psychiatrists to conduct research and to publish their work, to elevate the standing of their profession and thereby attract more young people to it.

In his presentation, Dr. Phillips will discuss cognitive symptoms, a core component of schizophrenia. The most widely used battery for assessing cognitive dysfunction, he notes, is designed for use in persons with at least elementary education who are under 60 years of age. This effectively excludes at least 40% of all persons with schizophrenia, particularly those from low-resource settings in low- and middle-income countries. For this reason, research about cognition in schizophrenia often excludes the most severely affected individuals. Dr. Phillips' talk will describe his efforts to adapt the standard battery of cognitive tests to make them suitable for use with older, less educated patients with schizophrenia in China.

HONORARY PRIZEWINNER, BBRF PARDES HUMANITARIAN PRIZE
IN MENTAL HEALTH

Responding to Major Problems in the Field of Mental Health



**Norman Sartorius, M.D., Ph.D.,
FRCPsych**

NYU Grossman School of Medicine

Norman Sartorius, M.D., Ph.D., FRCPsych, “psychiatry’s living legend,” has helped to shape mental health and psychiatry over the past 50 years through his humanitarian efforts, research, and work to advance the understanding of mental health. He has provided hope and healing worldwide for people who are living with mental illness, particularly those who live in low-income countries.

He served as the first director of the World Health Organization Department of Mental Health. This enabled him to bring together a variety of stakeholders in areas including mental health classifications, human rights, epidemiology, ethics, stigma, comorbidity, workforce development, and the optimization and humanization of treatment. His tenure launched the world’s largest program against the stigma of mental illness and key initiatives designed to protect the human rights of the mentally ill.

In his talk Dr. Sartorius will note that in addition to its traditional task of dealing with the treatment of mental disorders, psychiatry is facing major new tasks in the early 21st century. The first of these is to address the pandemic of comorbidity of mental and physical illness that in part results from successes of medicine which now make it possible to survive physical illness. The second is to reduce stigma related to mental illness, a major obstacle to treatment. The third challenge is to revise training in psychiatry in a manner corresponding to the changes of new morbidity patterns and changes in society.

Living with Schizophrenia During the Covid-19 Pandemic



Ezra S. Susser, M.D., Dr.PH

Columbia University,
Mailman School of Public Health
New York State Psychiatric Institute
2008 BBRF Distinguished Investigator
1995 BBRF Independent Investigator
1987 BBRF Young Investigator

Ezra Susser, M.D., Dr.PH, has focused on schizophrenia, and has contributed groundbreaking research on prenatal exposure to starvation and serologically-measured biomarkers in maternal serum samples. He has also done extensive research on neurodevelopmental disorders evident in childhood, such as autism spectrum disorders. His work has encompassed the determinants of the onset and the course of schizophrenia and childhood neurodevelopmental disorders at many levels. His past and current work has had a major focus on global mental health, in regions including Latin America, Sub-Saharan Africa, India, and China. It has also encompassed the HIV/AIDS and COVID-19 pandemics, including their relation to mental disorders.

He will discuss ways in which the pandemic has affected the lives of people with schizophrenia in the United States and has illuminated unmet social and medical needs. He will also explore how inequalities in pandemic response are reflected in the lives of people with schizophrenia across regions of the globe.

“This Lieber Prize has special meaning for me. Of course, the recognition of my work is welcome. But it also has other meanings. On a personal level, I knew the Liebers well over a long period and always respected their dedication to encourage and support research on schizophrenia. On a professional level, BBRF awards were crucial in sustaining my research at several critical timepoints. Finally, this honor signifies the importance of advancing our understanding of how to prevent schizophrenia and of how to mitigate its adverse consequences while revealing the inner strengths of those who are affected.”

Global Mental Health and Stigma: Advancing Science by Reaching the Most Vulnerable Groups with Psychosis



Lawrence H. Yang, Ph.D.
School of Global Public Health,
New York University
2010 BBRF Young Investigator

Dr. Lawrence Yang's work focuses on psychosis, early detection of psychosis risk, and global mental health. Dr. Yang will discuss his work evaluating the preventive potential and risks associated with the "clinical high-risk" state for psychosis (CHR) designation, particularly as it concerns potential stigma. He has completed the first and largest systematic study of stigma among youth identified as CHR in North America via a NIMH-funded grant. Since concern about stigma affecting designation of an individual as CHR is a significant barrier preventing its universal adoption, findings from this study could aid in guiding the implementation of this diagnosis among youth worldwide.

Dr. Yang will also discuss his work examining cognition in people with untreated psychosis in China. This project examines the "natural state" of cognition in a large untreated community sample of individuals with psychosis who have not yet received antipsychotic medications; they are being compared with a treated sample and with healthy controls. Prior studies have not been able to disentangle whether cognitive deterioration associated with psychosis onset is predominantly attributable to the disease process or exposure to antipsychotic medication. Dr. Yang will present data showing that cognitive performance may continue to decrease as the duration of untreated psychosis becomes prolonged. These findings have the potential to shift scientific thinking about schizophrenia by suggesting possible processes contributing to pathophysiological variations later in the natural course of chronic psychosis.

"Receiving the Maltz Prize is a remarkable and unforgettable honor. This award will enable me to undertake novel research in schizophrenia among low-resource populations and youth worldwide who are among the most in need of new intervention approaches."

Cognitive Impairment and Functional Disability in Bipolar Disorder — How Can We Optimize Outcomes?



Katherine E. Burdick, Ph.D.

Brigham and Women's Hospital
Harvard Medical School
2014 BBRF Independent Investigator
2005 BBRF Young Investigator

Dr. Katherine E. Burdick is the Jonathan F. Borus, M.D. Distinguished Chair in Psychiatry and the Vice Chair for Research in Psychiatry at Brigham and Women's Hospital (BWH) in Boston. She is also Director of the Mood and Psychosis Research Program at BWH and holds the rank of Associate Professor of Psychology in Psychiatry at Harvard Medical School.

In her presentation, Dr. Burdick will explain that many patients with bipolar disorder suffer from persistent cognitive impairments, even during periods of remission, which contribute directly to functional disability. At the group level, the severity of these deficits is three-fourths to one full standard deviation below average; however, she will note, substantial heterogeneity exists. Some patients function very well throughout their lives, while others struggle to hold down a job. Dr. Burdick's work has focused on gaining a better understanding of these differential outcomes to identify: 1) which patients are likely to follow a declining cognitive and functional course and which are resilient; 2) clinical factors and biological mechanisms that drive poor outcomes in bipolar disorder; and 3) modifiable targets for intervention. Her overarching goal is to promote full recovery in every patient with bipolar disorder.

"It is a tremendous honor to be recognized among this year's and prior awardees of the Colvin Prize. This award serves as inspiration to continue to work toward improving outcomes for all people living with bipolar illness."

Neuropeptide Y in Normal Brain Function and in Mood Disorders



Aleksander Mathé, M.D., Ph.D.
Karolinska Institute

Over several decades, **Dr. Aleksander Mathé** and collaborators have investigated preclinical and clinical aspects of depression and PTSD pathophysiology and treatment mechanisms and have sought to develop novel treatments. Dr. Mathé notes that understanding of the pathophysiology of mood disorders remains limited and optimal treatments continue to be lacking. While dysregulated neurotransmission may be sufficient to cause depression, this is not a necessary condition; extensive evidence shows that changes in other endogenous compounds, such as neuropeptides, also play a role in depression.

In his presentation, Dr. Mathé will discuss his research on a class of compounds called peptides and report findings regarding neuropeptide Y (NPY). Peptides are chains of amino acids and are found in all living organisms. They play a panoply of basic physiological roles. NPY is of particular importance as it plays many roles in a wide variety of normal brain functions and is altered in depression and PTSD. Consistently in models of depression and chronic stress, researchers have observed decreased NPY expression in brain regions involved in depression and anxiety.

Dr. Mathé will note well documented dysregulation of the NPY system in preclinical models and clinical data of reduced NPY in cerebrospinal fluid in depression and PTSD patients, as well as findings that NPY treatment rescued pathology in animal experiments. He will describe testing of NPY treatment in depressed patients, including his team's demonstration in a double-blind placebo-controlled trial of NPY administration that NPY significantly alleviates major depressive disorder. He suggests that this is an opening to new treatment possibilities.

"This honor, for which I am grateful, recognizes 50 years of clinical work in psychiatry and translational work in physiology, pathophysiology, and pharmacology of brain disorders with focus on affective disorders and PTSD."

Circadian Genes, Rhythms, and the Biology of Bipolar Disorder



Colleen A. McClung, Ph.D.

University of Pittsburgh
School of Medicine

2016 BBRF Independent Investigator
2007, 2005 BBRF Young Investigator

Dr. Colleen McClung has advanced our understanding of the molecular basis of bipolar disorder, focusing on the role of circadian genes and central rhythm disruptions in the development and progression of this and other psychiatric diseases. Through work in mouse models, her team has identified some of the key mechanisms by which circadian genes are involved in the regulation of the brain's reward and mood-related circuitry. They have found that specific types of circadian gene disruptions in mice can lead to behavioral profiles which are strikingly similar to human mania or depression, suggesting a causative role for these disruptions.

In studies of the human postmortem brain, they have identified the changes in molecular rhythms that occur in patients with psychiatric diseases, findings which have challenged ideas about what is causing these gene expression changes and how they are involved in disease pathology. This work has led to the development and testing of novel therapies.

Dr. McClung will discuss work from her group and others illustrating the strong relationship between circadian rhythm abnormalities and bipolar disorder. She will then discuss data from her laboratory which has identified some of the ways that circadian genes control process in the brain that regulate mood, and how disruptions of their function can lead to mood-related episodes. She will explain how this knowledge is informing development of therapeutics targeting the circadian clock for the treatment of bipolar disorder.

"I'm extremely honored to receive this award from BBRF, a foundation that has been the springboard for so many deserving scientists over the years. I received my first BBRF Young Investigator Award 16 years ago, and I have been so grateful for the continued encouragement and support of the BBRF over the years. They are truly making a difference in the lives of those suffering from mental illness."

The Development, Consequences and Prevention of a Defensive Mindset



Kenneth A. Dodge, Ph.D.
Duke University

Dr. Kenneth Dodge studies the developmental psychopathology of conduct disorders, their prevention, and public policy. His laboratory experiments and longitudinal studies have led him to formulate a social information processing model of the development of aggressive behavior that asserts that early adverse life events lead some children to develop a defensive mindset that includes hypervigilance, hostile attributional bias, and impulsive decision making. This pattern, in turn, leads to increasingly violent behavior across the lifespan. Dr. Dodge's work has led him to develop interventions to prevent aggressive behavior and to pursue the prevention of early child abuse.

In his presentation, Dr. Dodge will discuss how the difficulty of treating chronically violent adolescents has led to the search for an understanding of how this pattern develops and might be prevented. Laboratory studies show these children enter social situations with a defensive mindset that includes hypervigilance to threat, a bias to attribute hostile intent to others, and impulsive decision making that ignores long-term consequences in favor of immediate safety. Although adaptive in truly threatening circumstances, a defensive mindset leads to social failure in the long term. Longitudinal studies show that early adverse events such as physical abuse and chronic peer rejection predispose children to develop a defensive mindset. According to Dr. Dodge, structured intervention can steer this mindset toward more adaptive behavior, with modest success. Greater promise, he contends, lies in prevention of child abuse in the first several years of life.

"I am honored to win the Ruane Prize and humbled to see the names of past winners. I am particularly pleased that research in prevention of psychopathology could be highlighted in this way."

From Clinical Trials to Population Health: Closing the Mental Health Gap and Meeting the Needs of Children and Families



John T. Walkup, M.D.

*Lurie Children's Hospital of Chicago
Northwestern University
Feinberg School of Medicine
Johns Hopkins University*

Dr. Walkup's scholarly activity covers three main areas of investigation. His work with movement disorders, specifically Tourette disorder, uniquely spans psychiatry, child psychiatry, and neurology. His expertise in child and adolescent psychiatry clinical trials focuses on the development and evaluation of psychopharmacological and psychosocial treatments. He also has been involved in developing and evaluating interventions to reduce the large mental health disparities facing Native American youth, specifically focusing on drug use and suicide prevention.

Dr. Walkup will explain that his research has been greatly influenced by his clinical experiences. He began by studying Tourette disorder and expanded his focus to include obsessive compulsive disorder, anxiety disorders, ADHD in young children, depression, suicide, and bipolar disorder. These early studies significantly expanded the evidence base that clinicians worldwide rely on to effectively treat children with psychiatric disorders.

Dr. Walkup will explain how he pursued a concurrent line of research with the team at the Center for American Indian Health, Johns Hopkins Bloomberg School of Public Health, to develop interventions delivered by members of the Native community that reduced the substantial mental health disparities facing Native American youth in substance use and suicidal behavior. This work has direct applicability to the population health approaches he is now using in Chicago. He stresses that locating mental health care in the community and focusing on prevention and early intervention holds promise to improve access and reduce the mental health disparities facing all youth and families who live in large urban communities.

"It is a great honor to be awarded the 2021 Ruane Prize. I am humbled to be included among Ruane Prize recipients, many of whom have inspired and mentored me over my career."

From Knowledge to Action: Roles of the Primate Prefrontal Cortex



Elisabeth A. Murray, Ph.D.
National Institute of Mental Health

Dr. Elisabeth Murray's overarching goal is to understand mental health disorders at the level of brain mechanisms. The proximate goal of her lab is to develop a causal theory of the functional interactions between the amygdala and the prefrontal cortex (PFC). Specifically, they seek to understand how the primate prefrontal cortex and amygdala process feedback, produce decisions, and generate both autonomic and emotional responses.

In her presentation, Dr. Murray will explain that some of the most sophisticated behaviors of primates, including humans, depend on the prefrontal cortex, yet there are few well defined and experimentally verified functional specializations within the primate PFC, especially at a causal level. Recent work from her laboratory has contrasted the functions of two parts of the PFC: the ventrolateral PFC (VLPFC) and the orbital PFC (OFC), which they found play complementary roles in updating representations of value used to translate acquired knowledge into behavioral goals for action. Dr. Murray will explain this work and another study, which addressed social cognition. In the second study she found that the anterior cingulate cortex (ACC) is essential for expressing prosocial tendencies. These findings suggest that three parts of the primate PFC make different contributions to goal selection, which collectively promoted the survival of our anthropoid ancestors and influence human behavior to this day because we have inherited these areas from those ancestors, albeit in modified form.

"Before her time at Yale, Pat Goldman-Rakic worked in the Laboratory of Neuropsychology at NIMH, where I have been for more than 30 years. In fact, we overlapped briefly in 1979. As a current member and chief of that laboratory, I am honored to follow Pat's example, both in studying the prefrontal cortex and in transcending traditional research disciplines to do so."

Preconfigured Dynamics in Our Brains



György Buzsáki, M.D., Ph.D.
New York University

The work of **Dr. György Buzsáki** has contributed to the emerging understanding of the dynamics of hippocampal systems and the recognition of the importance of temporal firing properties in the formation of neural codes. In the early 1980s, he introduced the concept of feedforward inhibition, which is now a widely recognized property of neural circuits. Dr. Buzsáki went on to develop the two-stage model of memory formation in the hippocampus, which is still the dominant model for consolidation of hippocampal memory. More recently, he has developed a conceptual framework to understand the fundamental synaptic mechanisms underlying brain rhythms, including theta, gamma, and sharp-wave ripple oscillations. Throughout his career, Dr. Buzsáki has been a strong advocate for studying the intact brain in its natural state, a view that has been widely adopted and transformed the way neuroscience is done today.

In his talk, Dr. Buzsáki will demonstrate that skewed distributions of anatomical and physiological features permeate nearly every level of structural and functional brain organization. This organization implies that the brain comes with a preconfigured and self-organized dynamic that constrains how it acts and views the world and stores experiences. Instead of constructing representations from scratch, an alternative view, he will explain, is that preexisting “nonsense” brain patterns become meaningful through action-based experience. He will refer to recent experiments that support this framework.

“There is no greater honor than being saluted by one’s own colleagues. To me, this is a particularly special award because Pat Goldman-Rakic was both a good friend and admired scientist.”

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can avoid the pain of the ascent, but we will forever miss the
thrill of the summit. And in such a terribly scandalous trade-off,
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