



Sex Differences in Brain Disorders: Emerging Transcriptomic Evidence and Implications for Therapeutic Development—A Virtual Workshop

September 23, 2020 via Zoom

Planning Committee Member Biographical Sketches.....	pages 1-4
Workshop Speaker Biographical Sketches.....	pages 5-11

Planning Committee Member Biographical Sketches

CHAIR

Eric Nestler, MD, PhD, (Workshop Chair) is the Nash Family Professor of Neuroscience at the Icahn School of Medicine at Mount Sinai in New York, where he serves as Dean for Academic and Scientific Affairs and Director of the Friedman Brain Institute. He received his BA, PhD, and MD degrees, and psychiatry residency training, from Yale University. He served on the Yale faculty from 1987-2000, where he was the Elizabeth Mears and House Jameson Professor of Psychiatry, Pharmacology, and Neurobiology, and Director of the Division of Molecular Psychiatry. He moved to Dallas in 2000 where he was the Lou and Ellen McGinley Distinguished Professor and Chair of the Department of Psychiatry at The University of Texas Southwestern Medical Center until moving to New York in 2008.

Dr. Nestler is a member of National Academy Medicine (1998) and a Fellow of the American Academy of Arts and Sciences (2005). He is a past President of the American College of Neuropsychopharmacology (2011) and the Society for Neuroscience (2017). He is a founder and scientific advisory board chair for PsychoGenics, and a member of the Board of Directors of Berg Pharma. The author of more than 600 publications and five books, the goal of Dr. Nestler's research is to better understand the molecular basis of drug addiction and depression. His research uses animal models of these disorders to identify the ways in which drugs of abuse or stress change the brain to lead to addiction- or depression-like syndromes, and to use this information to develop improved treatments of these disorders.

MEMBERS

Li Gan, PhD, is the Director of the Helen and Robert Appel Alzheimer's Disease Research Institute and the Burton P. and Judith B. Resnick Distinguished Professor in Neurodegenerative Diseases at Weill Cornell Medicine. Dr. Gan received a Bachelor of Science degree in physiology from Peking University in Beijing and a doctorate in cellular and molecular physiology from Yale University School of Medicine. She completed postdoctoral training at Harvard Medical School and the

Gladstone Institute of Neurological Disease at the University of California, San Francisco, where she became a senior investigator at Gladstone Institutes, and professor-in-residence at UCSF, joining Weill Cornell Medicine in July 2018.

Dr. Gan's research focuses on innate immunity and proteostasis, the converging and interconnected pathways in neurodegenerative diseases, such as Alzheimer's disease (AD) and Frontotemporal Dementia (FTD). Dr. Gan has published more than 60 studies in leading scientific journals, such as *Nature Medicine*, *Neuron*, *Cell Stem Cell*, *Nature Neuroscience* and *PNAS* (Proceedings of the National Academy of Sciences of the United States of America). Dr. Gan is a recipient of the Glenn Award in Aging Research and Alzheimer's Association's Inge Grundke-Iqbal Award for Alzheimer's Research, which is bestowed on the senior author of the most impactful study published in Alzheimer's research over a two-year period. Dr. Gan is on the editorial board of journal *Science Advances* and is an ad-hoc reviewer of more than 24 peer-reviewed journals. Dr. Gan also serves on the review panels for government and private grant agencies, including the National Institutes of Health.

John Krystal, MD, is the Robert L. McNeil, Jr., Professor of Translational Research, Chair, Department of Psychiatry, Yale University School of Medicine and Chief of Psychiatry at Yale-New Haven Hospital. He is a graduate of the University of Chicago, Yale University School of Medicine, and the Yale Psychiatry Residency Training Program. He has published extensively on the neurobiology and treatment of schizophrenia, alcoholism, PTSD, and depression. Notably, he led the discovery of the rapid antidepressant effects of ketamine in humans. He is the Director of the NIAAA Center for the Translational Neuroscience of Alcoholism and the Clinical Neuroscience Division of the VA National Center for PTSD. Dr. Krystal is a member of the US National Academy of Medicine. Currently, he is president of the International College of Neuropsychopharmacology (CINP), a member of the NIMH National Mental Health Advisory Council, and editor of *Biological Psychiatry* (IF=11.412).

Heather Snyder, PhD, is the Vice President of Medical Science Relations at the Alzheimer's Association. In this role, she oversees Association initiatives that accelerate innovative Alzheimer's research and provide opportunities for the global dementia community to connect and collaborate.

Dr. Snyder is responsible for the progress the Association has made in Alzheimer's and dementia research funding. She leads the Association's International Research Grant Program, the vehicle through which the Association funds promising investigations that advance understanding of Alzheimer's and moves the field toward solutions for the global Alzheimer's crisis. As the world's largest nonprofit funder of Alzheimer's research, the Association has invested over \$475 million in more than 3,000 scientific investigations since the organization's inception.

As part of this effort, Dr. Snyder is instrumental in advancing grant programs to explore sex and gender-based disease vulnerability, which contributed to the Women's Alzheimer's Research Initiative, one of the only focused funding programs in this area. This grant program funds studies to uncover how biological and genetic factors shape disease development and progression in women as compared to men, a factor that may influence diagnostic and treatment options as research moves closer to precision medicine.

To increase knowledge about prevention and risk reduction, Dr. Snyder serves on the executive team for the US Study to Protect Brain Health Through Lifestyle Intervention to Reduce Risk (US POINTER). In addition, she oversees the development and management of the leading clinical neurology journal, *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*, and its companion open-access journals, which help bridge the knowledge gaps across a wide range of dementia research disciplines.

Dr. Snyder sits on the programmatic review committee for the Department of Defense Congressionally Directed Medical Research Programs for Alzheimer's Disease. She has been a peer reviewer for the National Institutes of Health, the Polish government, the Centers for Disease Control and Prevention, and the state of California Alzheimer's funding program.

An expert in the field, Dr. Snyder has been featured in numerous TV interviews and print and online news articles, including "The Dr. Oz Show," *The New York Times*, *The Washington Post*, *Crain's Chicago Business* "40 under 40" and *The Wall Street Journal*.

She holds a PhD in molecular biology from Loyola University Chicago Stritch School of Medicine and a bachelor's degree in biology and religious studies from the University of Virginia.

Rita Valentino, PhD, is the Director of the Division of Neuroscience and Behavior at the National Institute on Drug Abuse. She received a BS in pharmacy from the University of Rhode Island and a PhD in pharmacology from the University of Michigan. She went on to postdoctoral fellowships at the University of North Carolina and the Salk Institute. Dr. Valentino has held faculty positions in the Department of Pharmacology at George Washington University, the Department of Mental Health Sciences at Hahnemann University and Department of Anesthesiology at the University of Pennsylvania. She directed the Stress Neurobiology Division within the Department of Anesthesiology at the Children's Hospital of Philadelphia. Dr. Valentino is particularly recognized for her research on the effects of stress on brain activity and the impact of sex, age and coping style in vulnerability to stress. Her laboratory was the first to demonstrate sex differences in receptor signaling and intracellular trafficking that could explain increased sensitivity of females to stressors. She is a Fellow of the American College of Neuropsychopharmacology and a member of the Scientific Advisory Board of the Brain Behavior Foundation. She is also the Editor-in-Chief of *Neurobiology of Stress*.

Donna Werling, PhD, is an assistant professor of genetics at the University of Wisconsin-Madison. Dr. Werling completed a BS in psychology from Duke University and a PhD in neuroscience from the University of California, Los Angeles. In the laboratory of Dan Geschwind at UCLA, Dr. Werling used functional genomics, human genetics and bioinformatics approaches to investigate the relationship between sex and genetic risk in autism spectrum disorder (ASD). She completed postdoctoral training at the University of California, San Francisco in the laboratories of Stephan Sanders and Matt State, where she continued working on mechanisms underlying sex differences in ASD, while also expanding her expertise in the genetics of brain development and ASD risk. This work has included collaborative efforts to develop the Category-Wide Associate Study (CWAS) framework for association testing of de novo variants identified in whole genome sequencing of ASD families, and to characterize developmentally regulated associations between genetic variants and gene expression in the human cortex using the BrainVar data resource. Now an

independent investigator, Dr. Werling will utilize the expertise gained over the course of her PhD and postdoctoral training to characterize neurobiological sex differences at both the tissue and cellular level in humans and in rodent models of ASD-associated genetic risk mutations, with the goal to understand the mechanisms underlying the male bias in ASD prevalence.

Stevin Zorn, PhD, is the President and CEO of MindImmune Therapeutics Inc., a company targeting the immune system to treat diseases of the central nervous system, Ryan Research Professor of Neuroscience, at the George and Anne Ryan Institute for Neuroscience, both in Kingston, Rhode Island, and President of SH Zorn Consulting LLC, a company specializing in Neuroscience pharmaceutical industry consulting. He was recently the Executive Scientist in Residence at Lundbeck USA and Executive VP for Neuroscience at Lundbeck Research USA. His research focus is on discovering meaningful treatments to relieve suffering from both psychiatric and neurological diseases with underpinnings from neuro-immune mechanisms. Dr. Zorn received a BS degree in chemistry from Lafayette College and MS and PhD degrees in biomedical sciences with emphasis in neurotoxicology and neuropharmacology, respectively, from the University of Texas Graduate School of Biomedical Sciences. Subsequent postdoctoral research studies centered on basic research of brain and intracellular neuronal signaling mechanisms at Rockefeller University, in Paul Greengard's, (Nobel Laureate) laboratory of Molecular and Cellular Neuroscience. Prior to his current and most recent positions, Dr. Zorn was with Pfizer Global Research and Development for nearly 20 years where he was Pfizer's first Global Head of the Neuroscience Therapeutic area and member of the Neuroscience Therapeutic Area Leadership Team including accountability for R&D as well as commercialization. Also at Pfizer, he was head of General Pharmacology, Alzheimer's Disease Development Team Leader, Director of Psychotherapeutics Biology, and was Executive Director of Neuroscience Therapeutics and Vice President of Neuroscience Research at Pfizer. Dr. Zorn has extensive drug discovery and drug development experience across a broad range of neuro and psychiatric disorders and across the whole value chain for drug discovery and development. He has co-authored over 100 scientific research communications and patents and has contributed to the advancement of a wide variety of drug candidates. Several of these candidates, including the antipsychotic drug Geodon, which Dr. Zorn played a seminal role in discovering and developing, are now in clinical use helping to improve the lives of millions of patients suffering from CNS-related illnesses around the world.

Workshop Speaker Biographical Sketches

Janine Clayton, MD, is the Associate Director for Research on Women's Health and Director of the Office of Research on Women's Health (ORWH) at the National Institutes of Health (NIH), is the architect of the NIH policy requiring scientists to consider sex as a biological variable across the research spectrum. This policy is part of NIH's initiative to enhance reproducibility through rigor and transparency. As co-chair of the NIH Working Group on Women in Biomedical Careers with NIH Director Dr. Francis Collins, Dr. Clayton also leads NIH's efforts to advance women in science careers.

Prior to joining the ORWH, Dr. Clayton was the Deputy Clinical Director of the National Eye Institute (NEI) for seven years. A board-certified ophthalmologist, Dr. Clayton's research interests include autoimmune ocular diseases and the role of sex and gender in health and disease. She is the author of more than 80 scientific publications, journal articles, and book chapters.

Dr. Clayton, a native Washingtonian, received her undergraduate degree with honors from Johns Hopkins University and her medical degree from Howard University College of Medicine. She completed a residency in ophthalmology at the Medical College of Virginia. Dr. Clayton completed fellowship training in cornea and external disease at the Wilmer Eye Institute at Johns Hopkins Hospital and in uveitis and ocular immunology at NEI.

Dr. Clayton has received numerous awards, including the Senior Achievement Award from the Board of Trustees of the American Academy of Ophthalmology in 2008 and the European Uveitis Patient Interest Association Clinical Uveitis Research Award in 2010. She was selected as a 2010 Silver Fellow by the Association for Research in Vision and Ophthalmology. In 2015, she was awarded the American Medical Women's Association Lila A. Wallis Women's Health Award and the Wenger Award for Excellence in Public Service. Dr. Clayton was granted the Bernadine Healy Award for Visionary Leadership in Women's Health in 2016. She was also selected as an honoree for the Woman's Day Red Dress Awards and the American Medical Association's Dr. Nathan Davis Awards for Outstanding Government Service in 2017.

Nilüfer Ertekin-Taner, MD, PhD, is the Professor of Neurology and the Professor of Neuroscience at the Mayo Clinic in Jacksonville, Florida. She is a neurogeneticist and board-certified behavioral neurologist. Dr. Ertekin-Taner received her medical degree from Hacettepe University Medical School in Ankara, Turkey and her doctorate degree in Molecular Neuroscience from Mayo Graduate School. She completed her residency training in the Department of Neurology at the Mayo Clinic in Rochester, Minnesota and fellowship in behavioral neurology at Mayo Clinic in Jacksonville, Florida. Dr. Ertekin-Taner's laboratory aims to discover and characterize genetic factors underlying the complex genetics of Alzheimer's disease (AD) and related neurodegenerative conditions. Her earlier work contributed to the establishment of the endophenotype approach in genetic studies of AD and pioneered the use of amyloid β peptide levels as an endophenotype in AD genetic research. Dr. Ertekin-Taner's laboratory currently uses biological traits such as gene expression levels and cognitive scores and leverages combined genome, transcriptome and epigenetic data to uncover multi-omics risk factors for neurodegenerative conditions.

Dr. Ertekin-Taner is the Principal Investigator (PI) of numerous NIH and foundation grants. She leads multiple collaborative projects aimed at gene and pathway discoveries in AD and other neurodegenerative diseases, as part of the NIH initiatives Accelerating Medicines Partnership Alzheimer's Disease (AMP-AD), Molecular Mechanisms of the Vascular Etiology of AD (M2OVE-AD) and Resilience-AD consortia. Dr. Ertekin-Taner is the PI of the Florida Consortium for African-American Alzheimer's Disease Studies (FCA3DS). Dr. Ertekin-Taner has led and continues to lead large, multi-site projects that leverage complex -omics data along with phenotypes from post-mortem and ante-mortem series with an overarching goal of uncovering the genetic underpinnings of AD and other neurodegenerative conditions to ultimately identify therapeutic targets and biomarkers. In addition to her basic science research, Dr. Ertekin-Taner works as a behavioral neurologist in the Memory Disorders Clinic at Mayo Clinic in Jacksonville, Florida. In that capacity, she evaluates and manages patients with Alzheimer's disease and other neurodegenerative diseases and aspires to improve the quality of care provided to patients and their families.

Li Gan, PhD, *please see planning committee biographical sketches.*

Matthew Girgenti, PhD, is an investigator in the Clinical Neuroscience Division of the NCPTSD at the US Department of Veterans Affairs (VA) and the Associate Research Scientist in the Department of Psychiatry at Yale School of Medicine. Dr. Girgenti's research interests broadly center on integration of high-throughput biological data, particularly gene expression and proteomics in large rodent and human-based studies. As a graduate student at the University of Connecticut, he worked on the epigenetic basis of schizophrenia (SCZ) using neural stem cells. He was the first to demonstrate a role for the SCZ associated gene ZNF804a as a gene transcription regulator of neurodevelopment. After completion of his PhD, he began postdoctoral work in the laboratory of Ronald Duman at Yale. He initiated the first functional genomics studies of postmortem PTSD brain tissue and has extended that work to other neuropsychiatric disorders including major depression and suicide.

Dr. Girgenti is a member of National PTSD Brain Bank Oversight Board and the Psychiatric Genomics Consortium PTSD Systems Biology Working Group. He was recently awarded a VA Career Development Award (CDA) and a Brain & Behavior Research Foundation (NARSAD) Young Investigator Award to study the molecular intersections of PTSD and suicide in human postmortem brain tissue. Dr. Girgenti joined the faculty at Yale in 2018.

Timothy Hohman, PhD, is an associate professor of neurology, a cognitive neuroscientist, and a computational geneticist, with secondary appointments in the Vanderbilt Genetics Institute and Department of Pharmacology. Dr. Hohman's research leverages advanced computational approaches from genomics, proteomics, and neuroscience to identify novel markers of Alzheimer's disease risk and resilience. At the Vanderbilt Memory and Alzheimer's Center, Dr. Hohman oversees the development of neuroimaging, proteomic, and big-data analytical pipelines as the director of the Biomarker Core. He is also the Principal Investigator of the Computational Neurogenomics Team focused on Alzheimer's Resilience and Sex Differences. Outside of Vanderbilt, he has directed numerous multi-site collaborative initiatives, with as many as four analysis sites and 40+ contributing universities. Dr. Hohman directs the Genomics Core for the

Preclinical Alzheimer's Disease Consortium and is co-chair of the Alzheimer's Disease Sequencing Project (ADSP) Harmonization Consortium.

Orna Issler, PhD, is a postdoctoral fellow at Icahn School of Medicine at Mount Sinai. She performed her graduate research work under the mentorship of Dr. Alon Chen in the Weizmann Institute of Science. There she elucidated a role of a specific microRNA in controlling serotonergic activity at both baseline and stress conditions, as well as depression- and anxiety-related abnormalities. Following her continued interest in the epigenetics of depression, she joined the laboratory of Dr. Eric Nestler at Icahn School of Medicine at Mount Sinai. There she established that the novel class of long noncoding RNAs (lncRNAs) are key players in depression, as they are robustly regulated in a brain-site and sex-specific manner in depressed subjects. Specifically, she identified several key lncRNAs that mediate depression susceptibility or resilience in a sex-specific manner. For her studies, Dr. Issler won multiple awards, including, basic research award from the Israeli Society for Biological Psychiatry, Israeli post doc woman in science award and the NARSAD Young Investigator Grant Brain & Behavior Research Foundation.

Melissa Laitner, PhD, MPH, is the Director of Science Policy at the Society for Women's Health Research (SWHR) in Washington, DC. In this role, she leads SWHR's federal legislative efforts and coordinates with women's health stakeholders and patient advocacy coalitions on SWHR's policy agenda. Prior to joining SWHR, Dr. Laitner worked as an American Association for the Advancement of Science health policy fellow in the office of Senator Michael Bennet. As a fellow, she covered a wide-ranging portfolio with an emphasis on matters related to CMS, FDA, prescription drugs, mental health, and topics relevant to health care transparency, costs, and coverage. Before her time in the Senate, Dr. Laitner worked for six years at an academic medical center while obtaining a doctorate in clinical health psychology and a master's degree in public health at the University of Florida. Her research focused on behavioral management of chronic health diseases. Clinically, her work targeted low-income and indigent populations facing acute and chronic medical conditions, including chronic pain, cancer, and organ/stem cell transplant. She is a licensed clinical psychologist in the District of Columbia.

Farah Lubin, PhD, is an associate professor in the Department of Neurobiology at the University of Alabama at Birmingham. Dr. Lubin received her undergraduate degree from Alabama State University in Montgomery, Alabama and her PhD in Cell/Molecular Biology and Immunology from Binghamton University in Binghamton, New York. After completing two postdoctoral fellowships at Baylor College of Medicine in Houston Texas, she joined the faculty at Alabama State University. Dr. Lubin is a past recipient of a K99/R00 Pathway to Independence Award from the National Institutes of Health (NIH/NIMH) and FASEB Award. Dr. Lubin is co-Director of the NINDS Neuroscience Roadmap Scholar (RMS) Program at UAB. The goal of the RMS program is to enhance engagement and retention of underrepresented graduate trainees in the neuroscience workforce. She is also co-Director of the NIGMS Mentored Experiences in Research, Instruction, and Teaching (MERIT) Program for postdoctoral fellows.

Dr. Lubin is focused on studying the epigenetic basis for transcriptional regulation of genes in cells within the hippocampus that integrate and encode information in the brain. She and others have observed that neurons have "hijacked" epigenetic processes such as DNA methylation and histone

methylation to coordinate gene transcription changes in the hippocampus, thus revealing an unexpected role for chromatin structure regulation in mature, non-dividing neurons during memory formation. Dr. Lubin's work is currently funded by grants from NIMH and NINDS, the Epilepsy Foundation, Civitan International, and the Evelyn F. McKnight Brain Institute.

David Michelson, MD, is currently the Chief Medical Officer at Regenacy Pharmaceuticals. He trained in psychiatry at Yale. After completing his residency, Dr. Michelson joined the clinical neuroendocrinology branch at the NIMH studying the neuroendocrine components of the stress response. In 1996, he joined Lilly Research Laboratories and held a number of positions over a 10-year span that included leading the clinical development of atomoxetine and then leading the early phase clinical neuroscience group. From 2006 until 2017, Dr. Michelson was the Neuroscience Therapeutic Area Head and Vice President for Clinical Development at Merck, where he oversaw multiple development projects including suvorexant, tafluprost, sugammadex and the BACE inhibitor program.

Eric Nestler, MD, PhD (Workshop Chair), *please see planning committee biographical sketches.*

John Ngai, PhD, is the Director of the NIH's Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, where he oversees the long-term strategy and day-to-day operations of this ground-breaking enterprise. Dr. Ngai earned his bachelor's degree in chemistry and biology from Pomona College, Claremont, California, and PhD in Biology from the California Institute of Technology (Caltech) in Pasadena. He was a postdoctoral researcher at Caltech and at the Columbia University College of Physicians and Surgeons before starting his faculty position at the University of California, Berkeley. During more than 25 years as a UC Berkeley faculty member, Dr. Ngai has trained 20 undergraduate students, 24 graduate students and 15 postdoctoral fellows in addition to teaching well over 1,000 students in the classroom. His work has led to the publication of more than 70 scientific articles in some of the field's most prestigious journals and 10 US and international patents. Dr. Ngai has received many awards including from the Sloan Foundation, Pew Charitable Trusts, and McKnight Endowment Fund for Neuroscience. As a faculty member, Dr. Ngai has served as the director of Berkeley's Neuroscience Graduate Program and Helen Wills Neuroscience Institute. He has also provided extensive service on NIH study sections, councils and steering groups, including as previous co-chair of the NIH BRAIN Initiative Cell Census Consortium Steering Group.

Rohan Palmer, PhD, is a behavior geneticist who uses statistical genetic approaches to understand risk for drug addiction. Dr. Palmer received his training at the Institute for Behavioral Genetics (IBG) at the University of Colorado at Boulder with a focus on quantitative genetic approaches. This included statistical programming and the use of multivariate and longitudinal methods to conduct research on comorbid substance use and disorders (SUDs). Upon earning his PhD in 2010, he became a postdoctoral fellow in the Department of Psychiatry & Human Behavior at Brown University where he conducted research on childhood/adolescent behaviors that predispose individuals to substances of abuse. In 2012, he received a NIAAA Mentored Research Scientist Award (K01) to study the genetics of alcoholism, and later (2017) a NIDA Pioneer award and a separate R01 to conduct systems-based genetic studies of drug addiction across species, and

complex traits related to addiction, respectively. Dr. Palmer has been recognized as a Rising Star by the Association of Psychological Science for his research contributions to psychological science.

Theodore Price, PhD, is the Eugene McDermott Professor and Chair of the Department of Neuroscience in the School of Behavioral and Brain Sciences at University of Texas (UT) at Dallas. He is also the Director of the Center for Advanced Pain Studies at UT Dallas. He did his PhD work with Chris Flores and Ken Hargreaves at UT Health San Antonio and a postdoctoral fellowship at McGill University with Fernando Cervero. He started his independent laboratory in 2007 at University of Arizona School of Medicine and moved to UT Dallas in 2014. His lab is interested in molecular mechanisms driving the transition to chronic pain with a focus on drug development for chronic pain disease modification and on peripheral and central mechanisms of neuronal plasticity in response to injury. He has won numerous awards including The Patrick D. Wall Young Investigator Award from IASP. He is co-section editor for neurobiology for PAIN and is on the editorial board of Journal of Neuroscience. Ted has published more than 125 peer reviewed studies, has been continuously funded by NIH for more than 10 years, and is a standing member of the Somatosensory and Pain Study Section for NIH.

Panos Roussos, MD, PhD, is an associate professor of Genetics and Genomic Sciences and psychiatry at the Icahn School of Medicine at Mount Sinai. He is a member of Icahn Institute for Data Science and Genomic Technology and Friedman Brain Institute. He is also a VA/MIRECC Research Physician at the James J. Peters VA Medical Center. He received his medical and doctorate degrees from the University of Crete in Greece and he completed his residency in psychiatry at the Icahn School of Medicine at Mount Sinai followed by a MIRECC research fellowship in schizophrenia. His early research focused on the genetic exploration of intermediate cognitive phenotypes, including the prepulse inhibition of the startle reflex in human subjects and restoration of deficits using a pharmacogenomic approach. During his residency in psychiatry at Icahn School of Medicine at Mount Sinai, he worked on human postmortem studies by integrating genomics with gene expression and gene network approaches. His research focuses on the integration of high-dimensional data, such as genomic, epigenomic and transcriptomic, using advanced biostatistical methods in order to identify some of the mechanisms through which risk genetic variants increase the risk for neuropsychiatric diseases.

Marianne Seney, PhD, is an assistant professor in the Translational Neuroscience Program and Department of Psychiatry at the University of Pittsburgh. She received her BA from the College of the Holy Cross and her PhD from the Center for Neuroendocrine Studies at the University of Massachusetts. She performed her postdoctoral training in the Psychiatry Department at the University of Pittsburgh and joined the faculty there in 2014. Work in the Seney lab is funded by the National Institute of Mental Health, the National Institute on Drug Abuse, and the Brain and Behavior Research Foundation.

Dr. Seney's research uses a synergistic approach, combining skills in sexual differentiation, neuroendocrinology, human postmortem brain investigations, and molecular mechanisms of depression, to study sex differences in mood at the gene, cellular, neural network, and behavioral levels. Her research is driven by the hypothesis that the biological liability to depression is reflected in molecular pathology in brain regions involved in mood regulation, and that sex differences in

these molecular features underlie sex differences in the incidence and symptomatology of depression. The translational strategy for testing this hypothesis involves investigations of the primary pathology of depression in mood-relevant brain regions in both men and women as well as investigations in mice. The ultimate goal is to better understand the mechanisms underlying sex differences in depression in order to identify novel targets and/or provide new research trajectories for development of better, possibly sex-specific treatment.

Beth Stevens, PhD, is an associate professor at Harvard Medical School in the FM Kirby Neurobiology Center at Boston Children's Hospital. She is a member of the Broad Institute and Stanley Center for Psychiatric Research, a Howard Hughes Medical Institute Investigator and member of the National Academy of Medicine.

Dr. Stevens is focused on researching how neural-immune interactions in the brain sculpt synapses during normal development and disease. Dr. Stevens and her team discovered that microglia, the brain's resident immune cells, prune neural connections in response to signals from the classical complement pathway, a branch of the immune system. Her lab has uncovered a diverse set of immune molecules that regulate this process in the brain during normal development, providing insights into the pathological synapse loss of Alzheimer's disease, dementia, and schizophrenia. She has adopted an interdisciplinary approach that straddles the fields of genetics, immunology, and neuroscience to understand how neural-immune interactions regulate brain wiring, neural circuit function, and behavior.

Dr. Stevens was named a MacArthur Fellow in 2015. She has also shared the National Alliance on Mental Illness (NAMI) Research Award with Steven McCarroll and Michael Carroll in 2016 for their collaborative work on C4 and schizophrenia.

Dr. Stevens received her BS at Northeastern University. She carried out her graduate research at the National Institutes of Health and received her PhD from University of Maryland, College Park. She completed her postdoctoral research at Stanford University with Ben Barres.

Barbara Stranger, PhD, is an associate professor of pharmacology at Northwestern University Feinberg School of Medicine. She is also a member of the Center for Genetic Medicine and the Robert H. Lurie Comprehensive Cancer Center of Northwestern University. She is a human geneticist with a longstanding interest in understanding how genetic variation influences molecular traits such as gene expression, and how these shape phenotypic variability. She leads a human genetics research group that investigates how variation in DNA sequence contributes to trait differences through gene regulation. She utilizes modern genomics and statistical genetics approaches to identify links that connect genetic variation to cellular function to a higher-order trait, such as immune response or disease risk. Her lab collects and analyzes multi-dimensional human genomics data, particularly transcriptome data and genetic variation data, in the context of health and disease.

A core focus of research in her lab is on characterizing context-specificity of function, i.e., how genetic variants can exert different functional effects under different conditions, for example in different human tissues or cell types, or in each sex, or in resting versus stimulated cells. She is a member of the NIH Genotype-Tissue Expression Consortium (GTEx), Encyclopedia of DNA Elements (ENCODE) Consortium, and the Psychiatric Genomics Consortium (PGC). In the GTEx and

PGC Consortia, she leads working groups focused on sex differences. Her lab is currently pursuing research projects to elucidate the role of sex in the genetics and genomics of cancer, as well as neuropsychiatric, cardiac, and immune-mediated traits.

Rita Valentino, PhD, *please see planning committee biographical sketches.*

Kaveeta Vasisht, MD, PharmD, is the Associate Commissioner for Women's Health and Director of the Office of Women's Health (OWH) in the Office of the Commissioner of the US Food and Drug Administration (FDA). OWH provides leadership and policy direction for the Agency and coordinates efforts to establish and advance a women's health agenda. Under her leadership, OWH works to protect and advance the health of women through scientific programs, policy development, research, education, stakeholder collaboration, and outreach that incorporates an understanding of sex and gender differences to facilitate FDA regulatory decision making.

Dr. Vasisht is board-certified in both internal medicine and adult endocrinology and holds a Doctor of Pharmacy degree. She completed her internal medicine internship and residency as well as fellowship training at the University of Chicago Hospitals, where she also served on the faculty.

Deena Walker, PhD, is an assistant professor of behavioral neuroscience at Oregon Health and Science University. She received her PhD from the University of Texas at Austin under the mentorship of Dr. Andrea Gore. Her graduate work focused on how gestational exposure to environmental contaminants affects sex-specific hypothalamic gene expression throughout development and alters the timing of reproductive transitions - both puberty and reproductive senescence. As a postdoc under the mentorship of Dr. Eric Nestler, Dr. Walker built on her expertise on adolescent development to study how adolescent experience reprogrammed the transcriptome and sex-specific anxiety and reward-associated behaviors in adulthood. As an assistant professor, Dr. Walker has combined her interests in neuroendocrinology, molecular biology, adolescent development and sex-specific behavioral reprogramming to develop a research program that is focused on understanding the cellular and molecular mechanisms underlying sex-specific programming of the adolescent brain and the functional consequences on behavior.

Donna Werling, PhD, *please see planning committee biographical sketches.*

Stevin Zorn, PhD, *please see planning committee biographical sketches.*