The National Academies of SCIENCES ENGINEERING MEDICINE

Forum on NEUROSCIENCE and NERVOUS SYSTEM DISORDERS

# Neuroscience Training: Developing a Nimble and Versatile Workforce—A Virtual Workshop Series

## Topic # 1: Racial Justice, Diversity, Equity, and Inclusion in Neuroscience Training

August 20, 2020 via Zoom Webinar

*Panelist Biographical Sketches*

**Shelli Avenevoli, PhD**, is the Deputy Director for the National Institute of Mental Health (NIMH), the lead Federal agency for research on mental illness, with a budget of $1.4 billion and a staff of over 1,000. NIMH seeks to transform the understanding and treatment of mental illnesses through basic and clinical research, paving the way for prevention, recovery, and cure.

Dr. Avenevoli joined NIMH as a staff scientist in 2001, in the Section on Development Genetic Epidemiology of the Mood and Anxiety Disorders Program. In 2005, she moved to the extramural program to become chief of the Emotion, Mood, and Depressive Disorders Program. In 2008, Dr. Avenevoli became the branch chief of Developmental Trajectories of Mental Disorders branch. She has been heavily involved with a number of key NIMH efforts, among them the revision of NIMH's Strategic Plan, re-defining the Institute's approach to supporting research in neurodevelopment and bipolar disorder, and serving as a liaison to other agencies for special initiatives.

Dr. Avenevoli received her PhD in Developmental Psychology from Temple University and completed an NIMH postdoctoral fellowship in psychiatric epidemiology at Yale University School of Medicine.

**Daniel Colón-Ramos, PhD**, is the McConnell Duberg Professor of Neuroscience and Cell Biology at Yale University. He completed his BA at Harvard University, his PhD in the lab of Dr. Sally Kornbluth at Duke University and was a postdoctoral fellow in the lab of Dr. Kang Shen at Stanford University. In 2008, he joined the Faculty at Yale University School of Medicine. The Colón-Ramos lab is interested in how synapses are precisely assembled to build the neuronal architecture that underlies behavior. To address this, they developed tools in the thermotaxis circuit of *C. elegans*. Their system enables unbiased genetic screens to identify novel pathways that instruct synaptogenesis *in vivo*, and single-cell manipulation of these pathways to understand how they influence behavior. As mechanisms underlying synapse structure and function are conserved, the research program seeks to enhance our understanding of synaptic cell biology in higher organisms, which may be important for disease. His lab's work has been recognized by the 2018 NIH Pioneer Award, the 2018 Landis Award for Outstanding Mentorship from the National Institute of Neurological Disorders and Stroke, HHMI Faculty Scholar Award, the American Association for the Advancement of Science Early Career Award, and the Sloan Research Fellowship.

Daniel Colón-Ramos also collaborated with Dr. Giovanna Guerrero-Medina to launch the Yale Ciencia initiative, an initiative created to promote Yale scholarship among communities that underserved by science. He is a trustee of the Puerto Rico Science and Technology Trust, a founder of Ciencia Puerto Rico (CienciaPR) and a founding member of Accelerating Science and Publication in Biology (ASAPBio).

**Barry Everitt, PhD**, is Professor of Behavioral Neuroscience and Director of Research in the University of Cambridge. Having received his PhD in behavioral neuroendocrinology from the University of Birmingham Medical School and conducted postdoctoral neuroscience research at the Karolinska Institutet before being appointed lecturer, then Reader in Neuroscience in the Department of Anatomy, University of Cambridge. He moved to the Department of Psychology in Cambridge in 1994 and was appointed Professor of Behavioral Neuroscience. He is an elected Fellow of the Royal Society, Fellow of the Academy of Medical Sciences, and Member of EMBO. He is the current President of the Society for Neuroscience and was formerly President of the Federation of European

Neuroscience Societies (FENS; 2016-2018). His research is concerned with the neural and psychological basis of the learning, memory and motivational processes underlying compulsive drug use, and the mechanisms underlying vulnerability and relapse to drug addiction. He is currently Provost of the Gates Cambridge Trust, dedicated to funding Gates Scholarships that enable international graduate students to undertake PhD research at Cambridge University in the UK.

**Michelle D. Jones-London, PhD**, serves as Chief, Office of Programs to Enhance Neuroscience Workforce Diversity (OPEN). In this position, she plays a critical role in guiding the Institute's diversity efforts and chairs the NINDS Diversity Working Group. Dr. Jones-London joined NINDS as a Program Director in July, 2006. Dr. Jones-London earned her PhD in Neuroscience from the Department of Neuroscience and Anatomy at Pennsylvania State University College of Medicine. She then received postdoctoral training as a research fellow at University of Pennsylvania in the Department of Psychiatry. Dr. Jones-London came to the NIH in July 2004 as an Emerging Leader Fellow; she performed duties across the Department of Health and Human Services including the Center for Scientific Review, FDA Office of Women's Health Science Program, and the Immediate Office of the Secretary, Intergovernmental/Tribal Affairs Office. Dr. Jones-London directs the diversity training and workforce development programs at NINDS which include Diversity and Re-Entry Supplements, Predoctoral Fellowships to Promote Diversity in Health-Related Research (F31), Career Development Awards to Promote Diversity (K22 and K01) and Diversity Research Education Grants (R25) (including the Neuroscience Scholars Program with SfN). She also provides oversight for the Institute's diversity outreach initiatives at several other national scientific conferences. Her trans-NIH efforts include oversight for the NIH Blueprint ENDURE and DSPAN (F99/K00) programs, the BRAIN Initiative Diversity K99/R00, former Project Scientist for the NIH National Research Mentoring Network (NRMN), and currently serves on the Steering Committee for Common Fund Faculty Institutional Recruitment for Sustainable Transformation (FIRST) program. Her research interests have focused on understanding monoaminergic neurotransmitter regulation and mechanisms of behavioral psychopharmacology in animal models of disorders such as ADHD, Tourette syndrome, and depression.

**Ayana Jordan, MD, PhD**, is an Associate Program Director of Yale's Psychiatry Residency Program. As an undergraduate, Dr. Jordan attended Hampton University, a historically Black university, where she became interested in basic science. After college, Dr. Jordan conducted HIV research at the National Institutes of Health, where she contemplated combining her love for basic science with the clinical sciences. In 2003, Dr. Jordan began an MD-PhD program at Albert Einstein College of Medicine of Yeshiva University in New York City. In medical school, Dr. Jordan became passionate about serving minority populations, specifically within psychiatry. She completed a general adult psychiatric residency at Yale University in 2015, where she served as Program-Wide Chief. During residency, Dr. Jordan became interested in treating patients with substance use disorders, given the intense stigma witnessed from other disciplines. As such, Dr. Jordan completed specialized training in Addiction Psychiatry at Yale. Dr. Jordan is currently an assistant professor at Yale and an attending physician at Connecticut Mental Health Center. She is committed to increasing access to addiction services within minority communities, both nationally and abroad. Dr. Jordan has done research in Sierra Leone, West Africa examining the link between, mental illness, substance use and stigma, and has served as an expert witness discussing the current mental health system in Sierra Leone. Locally, Dr. Jordan is working on a project to provide a computer based cognitive behavioral therapy program (CBT4CBT) within the Black Church, an evidenced based therapeutic modality shown to be effective in decreasing substance use. Dr. Jordan is interested in making connections with key stakeholders in the Black community to make this project a success. Most recently, Dr. Jordan was appointed the Associate Program Director of Yale's Psychiatry Residency Program. Dr. Jordan is the proud recipient of various clinical and research awards and was recently inducted into the Top 40 under 40 society, by her undergraduate alma mater.

**Elizabeth McNeil, MD**, graduated from Columbia University Vagelos College of Physicians and Surgeons, with subsequent training at Texas Children's Hospital (Pediatrics), Children's Hospital of Philadelphia (Pediatric Neurology and Neuro-Oncology), NIH-NCI (Genetic Epidemiology), and the London School of Tropical Medicine and Hygiene (Epidemiology). She has 9 years of experience at the FDA as a clinical reviewer in the Division of Anesthesia, Analgesia, Addiction and Rheumatoid Products, team leader in the Division of Neurology Drug Products and clinical reviewer in the Office of Orphan Product Development. She subsequently spent 4 years at NIH 's National Institutes of Neurologic Disorders and Stroke, where she helped pioneer and lead the NeuroNEXT initiative. While she was there she also served as acting Associate Director for the Office of Clinical Research. More recently, she has worked at Biogen,

where she was involved in the Spinraza program and at bluebirdbio, where she is medical lead for the cerebral adrenoleukodystrophy program.

**Gentry Patrick, Ph.D.**, is a Professor in the Neurobiology Section of the Division of Biological Sciences at the University of California at San Diego. His lab studies the role of protein turnover in synaptic plasticity and neurodegenerative disease. He also is the Director of Mentorship and Diversity for the Division of Biological Sciences at UC San Diego. Dr. Patrick was born and raised in South Central Los Angeles (where he attended King/Drew Medical Magnet high school in Watts, CA). Dr. Patrick received his Ph.D. from Harvard University in 1999 after working in the laboratory of Dr. Li-Huei Tsai. He was a Damon Runyon Cancer Research Foundation and a United Negro College Fund/Merck postdoctoral fellow with Dr. Erin Schuman at California Institute of Technology. Dr. Patrick joined the UCSD faculty in 2004. Dr. Patrick recently created The Pathways to STEM (PATHS) through Enhanced Access and Mentorship scholarship program. The PATHS Scholarship program, together with it partners at UC Berkeley and the University of Maryland Baltimore (UMBC) has recently been funded by a $6.9M grant from the Chan Zuckerberg Initiative (CZI), which is designed to enhance the number, persistence, and success of underrepresented students in the sciences. As a true replication of the Meyerhoff Scholars Program (MSP), PATHS includes key programmatic elements, including: outreach to high-achieving underserved and underrepresented high school students; research experiences; cohort community building; high-touch, stratified mentorship; targeted academic coaching and advising; pre-matriculation summer bridge programming; and engagement of Scholars' families.

**Kimberlei Richardson, PhD**, is an Associate Professor in the Department of Pharmacology at Howard University College of Medicine. She earned her undergraduate (BS, Chemistry) and graduate degree (PhD, Pharmacology) from Howard University. While conducting postdoctoral training at Johns Hopkins and the Medical University of South Carolina, she developed an interest in neural mechanisms that affect motivated behaviors. Currently, her laboratory at Howard has two major focuses: 1) exploring neuropeptide regulation of binge eating and drug seeking and 2) exploring how neuropeptide regulation and the gut microbiota influence foraging behavior. She has been awarded grants from the National Science Foundation, National Institutes of Health, Charles and Mary Latham Foundation, and the Center for Hemoglobin Research in Minorities. She has also served as an ad hoc reviewer for the National Institutes of Health. She has received several awards in recognition of her accomplishments in research and was selected as a Forty under Forty Prince George's County Leader. In addition to teaching, service, and research, she has trained and mentored numerous undergraduate, graduate, and medical students at Howard. She is passionate about increasing the number of African American students who pursue careers in biomedical research. She loves mentoring and enjoys interacting with her students. She believes that she has learned as much from them as they have learned from her. She has also volunteered as a motivational speaker in the Prince George's County School system and serves as Chair of the Scholarship Review Board for Kingdom Citizens Youth Empowerment, Inc. (based in Prince George's County, MD).

**Rosalind Segal, MD, PhD**, is a Professor of Neurobiology at Harvard Medical School and Dean of Graduate Education at Harvard Medical School. The long-standing goal of her lab is to understand how extracellular cues in the microenvironment affect neural cells during development and in neurologic disorders. In the developing nervous system, signaling pathways initiated by extracellular growth factors and morphogens regulate and coordinate proliferation, differentiation, migration and survival. Importantly these growth factor signaling pathways provides a propitious approach to treating neurologic diseases as these pathways exhibit extensive amplification and are eminently druggable.

Dr. Segal has identified mechanisms for NGF-dependent signaling during development in her work, including the role of receptor internalization and dynein-dependent transport in mediating long range signals in developing neurons, and the role of PI3K-Akt in preventing cell death. Her lab has identified critical roles of NGF, BDNF and NT3 in synaptic biology, cell migration, and tumor biology, and addressed the importance of the downstream signaling pathways PI3-Kinase and B-RAF in brain tumor biology. Her lab has also identified the anti-apoptotic protein Bclw as a NGF-regulated component that promotes axonal survival, and is locally translated in axons. In her work Dr. Segal has demonstrated that this axonal survival pathway plays a critical role in preventing axon degeneration in chemotherapy induced peripheral neuropathy and in other neurodegenerative disorders, and we have begun to address novel therapeutic approaches in CIPN. Her studies on the morphogen Sonic Hedgehog (Shh) demonstrated that proliferative effects of Shh involve glypican proteoglycans, chemokine signaling by CXCR4, PI3 kinase, and the phosphatase Eya1,

and have addressed the roles of the microenvironment in Shhdependent development and tumor growth. These contributions have enabled clinical trials for brain tumors.

Dr. Segal has a major commitment to training and mentoring. She is currently advising twelve PhD students, including three MD-PhD students, and three additional MD students, as well as 12 undergraduates. Dr. Segal was previously the Director of the Harvard PhD Program in Neuroscience, and she is currently Dean for Graduate Education. She was a standing member of the NINDS training study section NST2, and is currently the chair of the SFN Neuroscience Training Committee. Dr. Segal has been honored by the Casty award for mentoring, the HMS Harold Amos Award for Enhancing Diversity, and the Benz award for mentoring female faculty.

**Kaela S. Singleton, PhD**, is a developmental neuroscientist completing her postdoctoral training with Dr. Victor Faundez at Emory University. She earned her bachelor degree in Neuroscience & Classical History from Agnes Scott College, and her a PhD in Neuroscience from Georgetown University. As a postdoc she investigates mitochondria integrity and localization in Menkes Disease, a progressive form of childhood neurodegeneration that is triggered by dysregulation of copper.

Dr. Singleton is an NINDS ENDURE Alum, DSPAN scholar, and IRACDA FIRST fellow. She is a co-organizer of #BlackInNeuroWeek and @BlackInNeuro initiative to increase visibility of Black scholars in neuro related fields. Her teaching, mentoring and service philosophies are rooted in her research interests. She believes the formation of a successful, productive researcher is similar to the formation of a neuron. Both processes are driven by intrinsic and extrinsic factors, which interact to create a mature and unique individual. Regarding Dr. Singleton's maturation into a scientist, her identity as a Black Queer woman represent intrinsic factors, while her experiences at an all-women's college and in an interdisciplinary graduate program represent extrinsic factors. Her career goals are enriched by the opportunity to promote diversity, representation and accountability within the field, and her experiences in inclusive training environments contribute to her past and present ambition. As an independent researcher, she seek to 'pay it forward' by continuing to generate high-quality science, participating in the education and mentorship of students, and remaining active in service to the neuroscience community.