NATIONAL ACADEMIES *Sciences Engineering Medicine*

Health and Medicine Division

Committee on the State of the Science and Future Needs for Nonhuman Primate Model Systems – Public Meeting

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Speaker Biographies

Bettina Buhring, Ph.D., is a Program Director at the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). She leads the Genetic, Cellular, and Systems Neuroscience Program, which supports research on molecular, cellular, and systems neuroscience underlying cognitive, affective, and social processing in neurodevelopmental disorders. This program also fosters research on gene-directed treatments for monogenic disorders, as well as developing more effective interventions for repetitive, self-injurious behavior in persons with intellectual disability and/or autism. Prior to joining NICHD, Dr. Buhring was a program director at NIH's National Institute of Mental Health (NIMH) for over 12 years, overseeing the institute's Learning and Memory Program. One key focus of this program was understanding how neural activity patterns within and across brain regions carry out memory encoding, maintenance, recall, and relational/spatial processing. Dr. Buhring received her bachelor's degree from Princeton University and her doctorate degree in Neuroscience from Brown University. She also completed a postdoctoral fellowship in NIMH's Intramural Research Program. During her doctoral and postdoctoral research, Dr. Buhring conducted electrophysiology, neuroimaging, and behavioral testing to examine the neural underpinnings of spatial and non-spatial inference, to better understand how the brain combines learned information to infer new knowledge. Dr. Buhring has won several awards, including an NICHD Fragile X Collaboration Award and two NIMH Special Act Awards for contributions in systems neuroscience.

Daofen Chen, Ph.D., is a Program Director in the Division of Neuroscience of the National Institute of Neurological Disorders and Stroke (NINDS/NIH). He currently oversees research grant portfolios in the areas of motor systems, focusing on basic, translational, and clinical sciences of sensorimotor control and learning, neurorehabilitation, and related neurotechnologies. These funded projects include human subject and/or clinical studies, as well as studies using experimental animals, including non-human primates. Prior to joining NINDS in 2001, Dr. Chen conducted research focused on the cortical and spinal mechanisms of motor control and associated neural circuit plasticity, both in humans and in several mammalian models, including NHPs. He gained extensive NHP research experiences at several institutions in three continents, including the NPRC at the University of Washington.

Gregory K. Farber, Ph.D., has a B.S. from Penn State University in chemistry (1984) and a Ph.D. from MIT in physical chemistry (1988). Dr. Farber's research includes work on structural movies of enzyme action, molecular evolution, and mechanistic enzymology. Following his postdoctoral fellowship, Dr. Farber returned to Penn State as an Assistant Professor of Biochemistry and rose to the rank of Associate Professor with tenure by 1998. Following a sabbatical year in the Division of Biological Infrastructure at the National Science Foundation, Dr. Farber decided to stay in government service. He moved to the

National Center for Research Resources (NCRR), part of NIH, in 2000. At NCRR, he managed a number centers and individual investigator awards in technology development and bioinformatics, as well as a cohort of interdisciplinary research centers. Dr. Farber concluded his service at NCRR as the Director of the Office of Extramural Activities and the Director of the Office of Construction Grants. In June 2011, Dr. Farber became the Director of the Office of Technology Development and Coordination at the National Institute of Mental Health (NIMH). That office is responsible for coordinating all technology development and bioinformatics activities at NIMH, overseeing the NIMH Data Archive, managing a number of infrastructure programs, and is deeply involved in various aspects of the BRAIN Initiative.

Martha Flanders, Ph.D., is a Health Science Administrator at the National Eye Institute. Since 2016, she has served as Program Officer and Group Leader for visual processing, and she is also heavily involved in the NIH BRAIN Initiative. In 1984, she got her PhD in Neuroscience/Zoology from Michigan State University, and from 2000-2016 she served as Full Professor of Neuroscience at the University of Minnesota. For 30 years, her research in computational neurophysiology was supported by NINDS. During her Professorship, she also served as a rotating Program Director in the Biology Directorate of the National Science Foundation, where she led the Neural Systems Cluster and participated in programs for computational science and engineering.

Clint Florence, Ph.D., is currently a Program Officer at the National Institute of Allergy and Infectious Diseases (NIAID). He was previously a non-clinical advisor at The Tauri Group. He received his Ph.D. from Ohio State University.

Franziska Grieder, Ph.D., joined the NIH in 2000 and is now the Director of the Office of Research Infrastructure Programs (ORIP) within the Division of Program Coordination, Planning, and Strategic Initiatives (DPCPSI). ORIP supports research infrastructure and related research programs, by funding animal model programs, research training opportunities for veterinary scientists, and construction and shared instrument awards. Dr. Grieder attended Veterinary School at the University of Zurich in Switzerland and subsequently earned both an MS and PhD degree in viral pathogenesis from the University of Wisconsin-Madison. She was a faculty member in the School of Medicine of the Uniformed Services University (USU) in Bethesda, Maryland, and she continues to serve as an Adjunct faculty member in the Department of Pathology at USU.

Ji-Yong Julie Kim, Ph.D., is the Susy Y. Hung Professor of Obstetrics and Gynecology at Northwestern University in Chicago, Illinois. She received her Ph.D. from the Université Laval in Canada. Her expertise lies in the molecular mechanisms of uterine disease development and growth. She has studied uterine diseases including endometrial cancer, uterine fibroids and endometriosis in the context of hormone response, influence of obesity and race disparities. She has also developed new models to study the endocrinology of the female reproductive tract and its diseases to more closely mimic human physiology.

Douglas Lauffenburger, Ph.D., is the Ford Professor of Bioengineering in the Departments of Biological Engineering, Chemical Engineering, and Biology at MIT. He was the founding Head of the Department of Biological Engineering at MIT and served in that capacity 1998-2019. The Lauffenburger research program centers on systems biology approaches to cell-cell communication and cell signaling in pathophysiology, emphasizing translational application to therapeutics discovery and development in cancer, pathogen infection, and inflammatory disease. Lauffenburger has co-authored the monograph Receptors: Models for Binding, Trafficking & Signaling (Oxford Press, 1993) and co-edited the book

Systems Biomedicine: Concepts and Perspectives (Elsevier Press, 2010). More than 130 doctoral students and postdoctoral associates have undertaken research education under his supervision. He is a member of the National Academy of Engineering and American Academy of Arts & Sciences, and a fellow of the American Association for Advancement of Science and the American Scientific Affiliation. Lauffenburger has served as President of the Biomedical Engineering Society, Chair of the College of Fellows of American Institute for Medical & Biological Engineering, on the Advisory Council for the National Institute of General Medical Sciences, and as a co-author of the 2009 National Research Council report A New Biology for the 21st Century. He was a co-awardee of the National Academy of Engineering Gordon Prize for Innovation in Engineering & Technology Education in 2021.

Nancy Miller, Ph.D., has been in the Division of AIDS, NIAID, for almost 30 years, supporting extramural investigators in their efforts to find an AIDS vaccine. She serves as the COR for the DAIDS Simian Vaccine Evaluation Unit contracts and coordinate and oversee nonhuman primate AIDS vaccine studies designed to evaluate the *in vivo* immunogenicity and efficacy of candidate AIDS vaccines. She has also served as Program Officer for AIDS vaccine grants.

Manuel Moro, Ph.D., joined the Biological Resources Branch in the Division of Aging Biology at the National Institute on Aging (NIA) in February 2017. His responsibilities focus on animal models of aging and the handling of several of NIA biological resources. Before joining NIA, he was a program official at the Office of Research Infrastructure Programs (ORIP) in the Office of the NIH Director, where he developed several initiatives related to the use of animals as models of several human diseases and conditions, developed biomedical research training initiatives, served as coordinator for almost all ORIP training programs for veterinarian-scientists, and served as the official representative for contracts supporting operations of the federal chimpanzee sanctuary and for NIH research chimpanzees. Before joining the NIH, Dr. Moro was an assistant professor at the college of veterinary medicine at Kansas State University in Manhattan, where he worked in the immunopathology of Lyme disease and other tick-borne diseases, including the development of new animal models to study these human pathogens. Dr. Moro received his veterinary degree from the National University of San Marcos in Lima, Peru. He earned a master's in public health from the Johns Hopkins School of Public Health in Baltimore, and a doctorate from the College of Veterinary Medicine at Iowa State University in Ames. He also performed a fellowship in immunopathology at the Mayo Clinic in Rochester, Minnesota.

Charles Murry, M.D., Ph.D., is a cardiovascular pathologist whose clinical interests span ischemic heart disease, cardiac transplantation, atherosclerosis, heart failure, cardiomyopathy, valvular disease and non-atherosclerotic vascular disease. Dr. Murry's research interests center on stem cell biology and cardiovascular diseases. His laboratory studies pluripotent human stem cells (embryonic stem cells and induced pluripotent stem cells) and also carries out some adult stem cell biology. They use differentiating stem cells as systems to understand molecular regulation of cardiovascular development, and they use tissue engineering approaches to learn the rules for tissue assembly and growth. They use induced pluripotent stem cells to model genetic diseases such as cardiomyopathy in vitro. A large portion of the lab's efforts are directed at harnessing stem cells to promote muscle regeneration of the injured heart.

Julia Shaw, Ph.D., is the Transplantation Branch Basic Sciences Section Chief (DAIT/NIAID) and Co-Chair of the NIH-Wide Nonhuman Primate (NHP) Resource Planning Working Group. She has a Ph.D. in

Microbiology from the University of California, Davis, where she studied the role of regulatory T cells in HIV and SIV pathogenesis. As a postdoctoral researcher, she explored the immunogenicity of adenovirus vectors as a platform for oral vaccination at the Ecole Nationale Veterinaire d'Alfort before joining NCI's Vaccine Branch where she studied the immunogenicity and efficacy of multi-modal SIV vaccines in rhesus macaques. In 2016 she transitioned to NIAID extramural and currently serves as the program officer for the NHP Transplantation Tolerance Cooperative Study Group and the contracting officer's representative for the Maintenance of NIAID Specific Pathogen Free Macaque Colonies contract and the NHP MHC and KIR Gene Discovery and Typing Technology Development contract.

Marisa St. Claire, D.V.M., oversees the Comparative Medicine Program, including all aspects of animal care and use. She is board-certified by the American College of Laboratory Animal Medicine (ACLAM) and has over 20 years of experience conducting infectious disease research using animal models for NIAID.

John Tisdale, M.D., graduated from the College of Charleston in South Carolina with a B.A. in chemistry in 1986. He then earned his M.D. from the Medical University of South Carolina in 1990. He did his internship and residency at Vanderbilt University School of Medicine and was Chief Resident at the Nashville Veterans Administration Medical Center from 1993 to 1994. He joined the NHLBI in 1994, where he has been a Hematology Fellow, Senior Staff Fellow, Clinical Investigator, and Senior Clinical Investigator. He joined the Molecular and Clinical Hematology Branch of the National Institute of Diabetes and Digestive and Kidney Diseases in 1998 as a tenure track Investigator and was tenured in 2007. He is Chief of the Cellular and Molecular Therapeutics Branch of NHLBI. In 2011 the College of Charleston recognized Dr. Tisdale with the Alumni of the Year Award and the Pre-Medical Society's Outstanding Service Award in Medicine. He was elected to the American Society for Clinical Investigation and is a member of the American Society of Hematology. Dr. Tisdale has authored or coauthored more than 200 papers.

Frank Verreck, Ph.D., is responsible for the TB Research & Immunology programme and since 2010 has served as deputy chair of the department of Parasitology at the Biomedical Primate Research Centre (BPRC) in the Netherlands. Through international networks and collaborations with TBVI and Aeras his team contributes to the preclinical evaluation of new vaccines for TB in non-human primate models. Trained as a biologist/biochemist and with a PhD in immunology, he investigated molecular aspects of HLA-restricted antigen processing and presentation at Leiden University and the German Cancer Research Centre (DKFZ). He investigated functional macrophage polarisation and innate anti-TB immunity, again at Leiden University, before joining BPRC in 2003. While using and refining non-human primate models for vaccine evaluation in general and for TB therapies in particular, fundamental research focuses on the identification of correlates of protection through investigating cellular and molecular aspects of innate and adaptive anti-mycobacterial host defense in the primate host.

Anne-Marie Zeeman, Ph.D., is a molecular biologist at the Biomedical Primate Research Center in the Netherlands. She obtained her Ph.D. through two universities; Leiden University and Delft University of Technology, where she studied pyruvate metabolism in the yeast *Kluyveromyces lactis*. Today she uses her expertise to search for genetic traits that are responsible for drug resistance in malaria parasites. She is involved in drug discovery and hopes to figure out which processes and pathways are still active in these dormant parasites.