

Panel on Review on In-house Laboratory Independent Research in Life Sciences at the Army's Research, Development, and Engineering Centers

Committee

Diane E. Griffin

Chair

DIANE E. GRIFFIN, NAS/NAM is University Distinguished Service Professor and former Chair of the W. Harry Feinstone Department of Molecular Microbiology and Immunology at the Johns Hopkins Bloomberg School of Public Health and was the vice president of the U.S. National Academy of Sciences (2013-2017). She is a world leader in the study of viral pathogenesis and has elucidated mechanisms that control sindbis virus neurovirulence. Her research interests are in the area of pathogenesis of viral diseases with a particular focus on measles and arboviral encephalitis. These studies address issues related to virulence and the role of immune responses in protection from infection and in clearance of infection. She has more than 400 publications and has served on multiple advisory and editorial boards. She is the U.S. chair of the U.S.-Japan Cooperative Medical Sciences Program and past president of the American Society for Virology and the American Society for Microbiology (ASM). She is a member of the Association of American Physicians and American Philosophical Society. Among other honors, she has received the Rudolf Virchow Medal from the University of Wurzburg, Wallace Sterling Lifetime Alumni Achievement Award from Stanford University, Federation of American Societies for Experimental Biology (FASEB) Excellence in Science Award, Maxwell Finland Award from the National Foundation for Infectious Diseases and MilliporeSigma Alice C. Evans Award from the American Society for Microbiology (ASM). She earned her B.A. in biology at Augustana College in Rock Island, IL, and her M.D. and Ph.D. in microbiology at Stanford University School of Medicine.

James R. Brockmole

Member

JAMES R. BROCKMOLE is professor, the Joseph and Elizabeth Robbie chair in psychology; and associate dean for the social sciences and research at the University of Notre Dame. Dr. Brockmole is a cognitive psychologist and vision scientist who studies the cognitive and brain mechanisms underlying visual perception, attention, and memory. His research focuses on understanding how human observers acquire information about objects and scenes, how that information is retained in memory, and how stored knowledge about the visual world, in turn, guides behavior. Specific interests include the allocation and control of visual attention, the representational format of short-term memory, the mechanisms underlying statistical learning of environmental regularities, the nature and functions of episodic and semantic long-term memory, the interactions between attention and memory that occur in the service of visually guided tasks, the changes in visual memory abilities that occur across the lifespan, and the relationship between visual cognitive abilities and the physical manipulation of the body. The work in his laboratory therefore sits at the intersection of research on visual attention, visual memory, gaze control, spatial cognition, embodied cognition, and cognitive ageing. Each of these interrelated issues is central to understanding how observers construct and use meaningful mental representations of visual environments. His laboratory uses a variety of tasks and dependent measures to investigate these aspects of cognition, but a major methodology involves the recording and analysis of eye movements, which reveal how visual information is processed in real time. He earned his B.S. in psychology and sociology from the University of Notre Dame, and a Ph.D. in psychology from the University of Illinois at Urbana-Champaign.

Vincent P. Conticello

Member

VINCENT P. CONTICELLO is a professor in the Department of Chemistry at Emory University. His research interests lie in the design, synthesis, and characterization of synthetic materials derived from self-assembly of sequence-specific proteins and peptides. His laboratory at Emory University studies sequence-specific biological macromolecules (i.e., proteins and nucleic acids) and how they interact with high selectivity within the nanometer to micrometer size regime to create the complex cellular machinery that performs the physico-chemical functions associated with metabolism, signal transduction, replication, and differentiation in living systems. These complex biological machines arise from self-assembly of structurally complementary combinations of biomolecules on the basis of structural features programmed into polypeptide and polynucleotide sequences at the molecular level. As a consequence of the near-absolute control of macromolecular architecture that results from such sequence specificity, biological structural platforms may have advantages for the creation of well-defined supramolecular assemblies in comparison to synthetic systems, at least at the current state of development for the latter. The conceptual design of synthetic nano-scale systems can derive significant information from structural investigations of biologically derived supramolecular assemblies and, conversely, biological structural motifs present an attractive target for the synthesis of artificial nano-scale systems on the basis of relationships between sequence and supramolecular structure that have been established for native biological assemblies. Sequence-specific biological materials represent conceptual and structural prototypes for the design of artificial smart materials and will continue to be the forefront of efforts to develop materials for specialized applications beyond those observed in the native biological context. Dr. Conticello received his Ph.D. degree in chemistry from Northwestern University. He completed post-doctoral fellowships in chemistry at Caltech and in Polymer Science at UMass-Amherst.

Jose M. Eirin-Lopez

Member

JOSE M. EIRIN-LOPEZ is assistant professor in the Department of Biological Sciences at Florida International University. His laboratory, the Eirin-Lopez Environmental Epigenetics Laboratory (EELab) is part of the Marine Sciences Program in the Department of Biological Sciences at the University. The labotory studies environmental changes which drive evolution through natural selection, specifically, the different factors that are speeding up the pace of global change and challenging the genetic ability of many species to respond and adapt accordingly, as well as the strategies these organisms have to rapidly acclimatize to environmental stressors, involving modifications in the organization of their hereditary material modulating the epigenetic expression of specific genes. Dr. Eirin-Lopez is the executive associate editor for AgriGene, serves on the editorial board for Environmental Epigenetics (Oxford University Press), Toxins (Multidisciplinary Digital Publishing Institute), Frontiers in Genetics and Frontiers in Marine Science (Frontiers Media). He has also served as a reviewer for more than 30 different scientific journals including Nature Climate Change, Nature Structural and Molecular Biology, Bioessays, Briefings in Functional Genomics, and PLoS One, among others. Dr. Eirin-Lopez earned a B.S. and Ph.D. in biology and an M.S. in genetics from the University of A Coruna (Spain), and served a post-doctoral fellowship in biochemistry at the University of Victoria.

Jasper Rine

Member

JASPER RINE, NAS is a professor of genetics, genomics, and development at the University of California, Berkeley. His current research interests include the epigenetic inheritance of transcriptional states in *Saccharomyces*, cofactor remedial genetic variation in humans, and the genetic basis of some common birth defects. His past interests include building the dog genetic map, regulation of isoprene biosynthesis and protein prenylation, and fungal pathogens. He is a member of the National Academy of Sciences, the National Academy of Inventors, the American Academy of Arts and Sciences, fellow of the American Society for Microbiology, former Director of the Lawrence Berkeley National Laboratory Human Genome Center, Howard Hughes Medical Institute professor, and past president of the Genetics Society of America. He has authored approximately 200 research papers and multiple patents. He is the founder of several successful biotech companies. He earned a Ph.D. in molecular genetics from the University of Oregon.

David W. Russell

Member

DAVID W. RUSSELL, NAS is vice provost, dean of research, and McDermott Distinguished Professor at University of Texas (UT) Southwestern Medical Center. He joined the faculty of the UT Southwestern Medical Center in 1982, and received the McDermott Distinguished Chair of Molecular Genetics in 1992. Russell's research interests are in cholesterol metabolism, in particular the enzymatic pathways that dispose of cholesterol. His laboratory has identified the molecular bases of eight human genetic diseases characterized by abnormal lipid metabolism. As vice provost and dean of research at UT Southwestern, his responsibilities include strategic planning and development of research initiatives across campus, research faculty recruitment to departments and centers, and oversight of the basic science departments, oversight of clinical research, the Animal Resource Center, and core laboratory facilities. Dr. Russell is an elected member of the American Academy of Arts and Sciences. He received a B.A. degree in biology from UT, Austin, and a Ph.D. in chemistry from the University of North Carolina. He was a Damon Runyon Cancer Research Foundation Postdoctoral Fellow with the Nobel laureate Michael Smith (Chemistry, 1993) at the University of British Columbia.

David Sept

Member

DAVID SEPT is professor of biomedical engineering and director of the Center for Computational Medicine and Biology. His research interests include: bio-micro nanotechnology and molecular engineering, bio-nanotechnology, biomedical computation and modeling. Research in the Sept laboratory covers four primary areas. The first focuses on the molecular interactions underlying cell migration, a process central to many aspects of development, differentiation and the cellular response to diseases such as cancer. Related to this is work characterizing and developing drugs that target sub-cellular filaments to treat parasitic diseases like toxoplasmosis, leishmaniasis and malaria. The third area of research is on channels that regulate the flow of ions in and out of the cell— how these channels are activated and how they malfunction in diseases such as epilepsy. The final research area is on nanoparticle based drug delivery and how these particle drug combinations are metabolized and distributed within the body. Dr. Sept earned a Ph.D. from the University of Alberta in theoretical physics.