Life Sciences and Biotechnology Program Area

Committee

Diane DiEuliis

Chair

Diane DiEuliis is an expert consultant in emerging biotechnology, biosecurity, and biodefense, with over 26 years of experience in science, technology, and policy with the Federal government across multiple departments. Previously, she was a distinguished research fellow at the National Defense University (NDU), where she continues as an emerita expert consultant. Her career appointments have included deputy director for policy and acting deputy assistant secretary for policy and planning, both in the Office of the Assistant Secretary for Preparedness and Response (ASPR). DiEuliis began her federal career as a program director at the National Institutes of Health (NIH), where she managed a diverse portfolio of neuroscience research in neurodegenerative diseases. She completed a fellowship at the University of Pennsylvania in the Center for Neurodegenerative Disease Research and completed her postdoctoral research in the NIH Intramural Research Program. DiEuliis is a National Merit Scholar and a recipient of the Distinguished Civilian Service Medal from the Joint Chiefs of Staff of the Department of War. She has a PhD in biology from the University of Delaware.

Tanya Y. Berger-Wolf

Member

Tanya Berger-Wolf is professor of computer science engineering, electrical and computer engineering, and evolution, ecology, and organismal biology at The Ohio State University, where she also serves as the director of the Translational Data Analytics Institute. A pioneer in AI for ecology, biodiversity, and conservation, she leads the NSF-funded Imageomics Institute and the US-Canada co-funded AI and Biodiversity Change (ABC) Global Center. Berger-Wolf serves on advisory and governance bodies including the Global Partnership on AI (GPAI)/OECD, National Ecological Observatory Network (NEON), and The Nature Conservancy. She co-led Wild Me (now part of Conservation X Labs), one of the first AI conservation nonprofits, where she co-created Wildbook, recognized by UNESCO for advancing the UN Sustainable Development Goals. Her contributions have earned numerous honors, including recognition as the AI 100 Global Thought Leaders by H20.ai. She is an elected fellow of the Association for the Advancement of Artificial Intelligence (AAAI) and AAAS. She received her PhD in computer science from the University of Illinois at Urbana-Champaign.

Frederic M. Bertley

Member

Frederic Bertley serves as president and CEO of the Center of Science and Industry (COSI) and CEO of the National Veterans Memorial and Museum (NVMM). Positioned on the Scioto Peninsula, COSI and NVMM form a cultural hub under Bertley’s leadership—where science, service, and community converge. He advances global science literacy, reimagines the STEM pipeline, and leads award-winning programs like the COSI Science Festival, The Color of Science™, EiPIC™, and the animated series Dr. B in 3. He also champions national efforts to honor and celebrate Veterans. Bertley has received 13 EMMY™ Awards, three Honorary Doctorates, the Harold W. McGraw, Jr. Prize in Education, the IMLS National Medal, and the Spirit of Columbus Award. He earned a PhD in immunology from McGill University and completed postdoctoral training at Harvard and MIT. A passionate health and education advocate, he has worked across five continents, using global experience and lifelong learning to advance science for a better world and has served on the National Academies of Sciences, Engineering, and Medicine Board on Life Sciences since 2024.

R. A. Charo

Member

Alta Charo is the Knowles professor emerita of law and bioethics at the University of Wisconsin law and medical schools, and the principal at Alta Charo Consulting LLC. Her primary expertise is in ethical governance of emerging technologies, with an emphasis on genome editing, human therapeutics, and reproductive technologies, as well as biosecurity and agriculture. Charo previously served as a policy analyst for Congress, USAID, and the FDA, and as a member of President Clinton’s National Bioethics Advisory Commission. She has been elected to the American Academy of Arts and Sciences, the AAAS and the National Academy of Medicine, where she was as member of the NAM Council, and was awarded the Adam Yarmolinsky Medal for her service on over a dozen IOM and NAS committees. Charo’s NRC service includes co-chairing the seminal studies on embryonic stem cell research and genome editing research, and as a member on the Board on Life Sciences, the Board on Population Health, and the Board on Health Sciences Policy. She received her JD from the Columbia University Law School.

Jean-Paul Chretien

Member

Jean-Paul Chretien leads Renaissance Philanthropy's Big if True Science Accelerator (BiTS), which trains ambitious scientists, engineers, and entrepreneurs to translate bold concepts into actionable programs. Previously, he served in the U.S. Navy and most recently as a program manager at the Defense Advanced Research Projects Agency (DARPA)'s Biological Technologies Office, where he initiated and led complex multi-institution efforts to develop life-saving medical technologies. His prior experience includes: head of the Department of Defense Pandemic Warning Team; senior advisor for biodefense in the White House Office of Science and Technology Policy; lead of the innovation and evaluation team at the Armed Forces Health Surveillance Center; and he oversaw health protection for tens of thousands of U.S. Marines and NATO personnel in Afghanistan. Chretien graduated from the U.S. Naval Academy, where he was a Truman Scholar, and received his MD and PhD in epidemiology from Johns Hopkins. His honors include the Skelton Award for Public Service, Harry S. Truman Scholarship Foundation; Rising Star Award, American College of Preventive Medicine; and Innovators Shaping the Future of Health, Fortune. He is a life member of the Council on Foreign Relations.

Barbara A. Han

Member

Barbara A. Han is an associate scientist and disease ecologist at the Cary Institute of Ecosystem Studies in New York. Her research focuses on advancing infectious disease intelligence to improve the prediction and prevention of zoonotic disease emergence. By integrating machine learning with data across scales and disciplines, her work enhances upstream surveillance and management strategies, aiming to preempt spillover transmission and mitigate epidemic spread in humans. Before joining the Cary Institute, she held research fellowships at the National Science Foundation (ecological informatics), National Institutes of Health (machine learning), and the U.S. Department of State (Fulbright Scholar). Han is a pioneer in applying AI and ecoinformatics to predict spillover risks associated with zoonoses, including Ebola, SARS-CoV-2, and understudied hemorrhagic fevers. Her research program seeks to provide actionable predictions about when, where, and from which species future disease risks are likely to arise. A trusted advisor to global organizations, she has contributed her expertise to the World Health Organization, Food and Agriculture Organization, United Nations Environment Programme, the U.S. National Academies, and the National Security Council. She earned her PhD in zoology from Oregon State University.

F. Claire Hankenson

Member

F. Claire Hankenson is the associate vice provost for research and executive director of University Laboratory Animal Resources at the University of Pennsylvania. She serves as the attending veterinarian and holds a faculty position as professor and division chief of comparative medicine and research within the Department of Pathobiology at the School of Veterinary Medicine. Hankenson has been active on committees within AALAS, including the AALAS editorial review board, and has served on the ACLAM executive board and as ACLAM president, and is an ad hoc specialist and member organization delegate with AAALAC. She is a past chair of the board of directors for Public Responsibility in Medicine and Research (PRIM&R), a nationally recognized nonprofit organization that provides education and professional resources to scientific and research oversight communities for both animal and human patients. Most recently, she served as a member on the Board of Animal Health Sciences, Conservation, and Research within NASEM. Hankenson earned her veterinary degree from Purdue University, completed her graduate work and residency at the University of Washington, and is certified as a Diplomate of the American College of Laboratory Animal Medicine (ACLAM).

India G. Hook-Barnard

Member

India Hook-Barnard is the chief executive officer of the Engineering Biology Research Consortium (EBRC). Her primary interests are in the areas of engineering biology, precision medicine, responsible innovation, and security. She works with leaders from across academia, industry, and government sectors to identify and shape scientific opportunities, technical feasibility, and policy issues. Her goal is to build community to advance and accelerate engineering biology solutions across all application areas, drive innovation, and grow the bioeconomy for all. Hook-Bernard previously worked at the National Academies of Sciences, Engineering, and Medicine (NASEM), where she directed six consensus reports, including Toward Precision Medicine: Building a Knowledge Network for Biomedical Research and a New Taxonomy of Disease (2011) and Industrialization of Biology (2015). She earned her PhD in microbiology-medicine at the University of Missouri. She served on the NASEM Board on Life Sciences until 2025, and the NRC consensus study committee: External Review of Environmental, Biosafety, and Biosecurity Considerations for Synthetic Cell Research and Development until 2025.

Eric Horvitz

Member

??E?ric Horvitz is chief scientific officer of Microsoft, where he leads initiatives at the intersection of science, technology, and society, with a focus on artificial intelligence, biosciences, and healthcare. He previously served as director of Microsoft Research. A recipient of the Allen Newell Award and the Feigenbaum Prize for his contributions to AI, he has been inducted into the CHI Academy for his work on human–AI collaboration and received Columbia University's Second Century Award for Excellence in Health Care for advances in AI in medicine. Horvitz's recent research advances methods in learning and reasoning with frontier models, explores applications in biology and medicine, and develops approaches to support effective human–AI collaboration. He is a member of the National Academy of Engineering, the American Academy of Arts and Sciences, and the American College of Medical Informatics, and a fellow of the ACM, AAAI, and AAAS. He earned his MD and PhD from Stanford University.

Colleen Iversen

Member

Colleen Marie Iversen is an ecosystem ecologist who uses a variety of field and laboratory techniques to understand and predict how ecosystems – from upland forests to flooded peatlands to thawing Arctic tundra – are shaped by their environment. She is a distinguished staff scientist in the Environmental Sciences Division at Oak Ridge National Laboratory, group leader of the plant-soil interactions group, and director of the Next-Generation Ecosystem Experiments in the Arctic (NGEE Arctic) project. Iversen also serves as an editor at the international plant journal New Phytologist. Her previous positions have included an elected early career fellow of the Ecological Society of America and as a member of the inaugural cohort of 'New Voices' at the National Academies of Sciences, Engineering, and Medicine. She earned her PhD in ecology and evolutionary biology from the University of Tennessee in Knoxville. Iversen sees science communication as the foundation for a shared understanding of society's future, and she has shared her scientific vision on Public Radio International's 'Science Friday', and in the Alda School's 'Flame Challenge', as well as in organized symposia, sessions, and workshops.

Yann Joly

Member

Yann Joly is director of the Centre of Genomics and Policy (CGP) and James McGill professor at the Faculty of Medicine and Health Sciences, Department of Human Genetics, McGill University. His research lies at the intersection of scientific innovation, health law (biotechnology and emerging health technologies), and bioethics. Joly is also the founder and director of the Genetic Discrimination Observatory (GDO), the first international initiative of its kind. He has authored more than 300 peer-reviewed publications in leading legal, ethical, and scientific journals. He serves as a fellow of the Canadian Academy of Health Sciences and as a member of the Canadian Commission for UNESCO. Internationally, he serves on the Strategic Leadership Steering Committee of the Global Alliance for Genomics and Health (GA4GH). Joly serves as a steering committee member of the International Cancer Genome Consortium (ICGC) and as a member of the Human Genome Organization (HUGO) Committee on Ethics, Law, and Society (CELS). He has a PhD in civil law from McGill University.

Jennifer Martiny

Member

Jennifer Martiny is a professor in the Department of Ecology and Evolutionary Biology at UC Irvine. She is also the co-director of the UCI Center for Microbiome Science and leads the Microbiome Centers Consortium, a national network of microbiome centers. Martiny’s research aims to uncover fundamental principles of the generation and maintenance of diversity in microbial communities—she brings together perspectives from microbiology, ecology, and evolutionary biology. Her current work focuses on investigating the ecological and evolutionary responses of soil microbiomes to environmental changes such as drought. She serves as a member of the American Academy of Arts and Sciences and as a fellow of the Ecological Society of America, the American Academy of Microbiology, and the American Association for the Advancement of Science. Martiny earned her PhD in biological sciences from Stanford University.

Margaret J. McFall-Ngai

Member

Margaret McFall-Ngai is a senior staff scientist at Carnegie Science and a faculty associate at the California Institute of Technology. She holds emerita professorships at the University of Wisconsin-Madison and the University of Hawaii. Her laboratory studies focus on two areas: 1) the role of beneficial bacteria in health using the squid-vibrio model and 2) the biochemical and molecular ‘design’ of tissues that interact with light. McFall-Ngai has been heavily involved in promoting microbiology as the cornerstone the field of biology. Previously, she held positions as a Moore scholar at the California Institute of Technology, a Guggenheim fellow, and an AD White professor-at-large at Cornell University. She is a member of the American Academy of Microbiology, the American Academy of Arts and Sciences, the National Academy of Sciences, European Academy for Microbiology, and as an HHMI professor. McFall-Ngai received her PhD in biology from UCLA, and had two postdoctoral fellowships, one at Jules Stein Eye Institute at UCLA and one at UC San Diego, both in protein biochemistry and biophysics. She holds three Honoris Causa PhD degrees from: Ecole Polytechnique Federale de Lausanne, University of Lyon (Claude Bernard), and University of Kiel.

Milan Mrksich

Member

Milan Mrksich is the Henry Wade Rogers professor at Northwestern University, with appointments in the Departments of Chemistry, Biomedical Engineering, and Cell and Developmental Biology. He previously served as the Northwestern’s vice president for research, was the founding director of the Center for Synthetic Biology, and as an associate director of the Robert H. Lurie Comprehensive Cancer Center. His honors include the Camille Dreyfus Teacher-Scholar Award, the TRl00 Innovator Award, the Arthur C. Cope Scholar Award, the Illinois Bio ICON Innovator Award, the Pittsburgh Analytical Chemistry Award, and is an elected member of the American Institute for Medical and Biological Engineering. Mrksich is a leader in the science and engineering of materials that contact biological environments. His laborato1y has pioneered several technologies, including strategies to integrate living cells with microelectronic devices, the SAMDI biochip technology for high throughput experiments, and the megamolecule approach to making synthetic proteins for therapeutic applications. He earned a PhD in chemistry from Caltech.

Barbara J. Natterson-Horowitz

Member

Barbara Natterson-Horowitz is a cardiologist and evolutionary biologist on the faculty of UCLA School of Medicine, Harvard Medical School's Department of Global Health and Social Medicine, and Harvard University's Department of Human Biology, Behavior, and Evolution. She serves as the current chair of the National Academies of Sciences, Engineering, and Medicine's Board on Animal Health Sciences, Conservation, and Research. Natterson-Horowitz's work integrates human medicine, veterinary science, and evolutionary biology to uncover the origins of disease vulnerability and resilience. She develops comparative and phylogenetic approaches to identify bioinspired solutions for major health challenges, including cardiovascular disease, mental health disorders, and women's health across species. She delivered a keynote at the 2019 Nobel Conference and has been recognized with multiple Alpha Omega Alpha Visiting Professorships and teaching honors. She is the award-winning author of Wildhood and the New York Times bestseller Zoobiquity, both recognized for excellence in science writing. Natterson-Horowitz has a PhD in molecular, cellular, and integrative physiology from UCLA, where she also completed residency and fellowship training, and an MD from the University of California, San Francisco.

Karen E. Nelson

Member

Karen E. Nelson is the chief scientific officer at Thermo Fisher Scientific and a member of the company leadership team. She oversees the R&D organization, which is an approximately $1.4 Billion annual investment with 7400 colleagues. Nelson leads the company scientific strategy to accelerate discoveries and translate advances in science into real-world solutions and also oversees the Thermo Fisher Scientific Advisory Board. Widely recognized as a pioneer in the human microbiome field, she has authored or coauthored more than 220 peer-reviewed publications, edited three books, and currently serves as editor-in-chief of the journal Microbial Ecology. Her scientific contributions and leadership have been honored by election to the National Academy of Sciences and by fellowship in the American Academy of Microbiology. Nelson earned her PhD in animal science and microbiology from Cornell University.

Christine A. Petersen

Member

Christy Petersen is the associate dean for research and graduate studies at The Ohio State University College of Veterinary Medicine. Over the past decade, she has led multiple NIH-funded research programs focused on emerging zoonotic diseases, including visceral leishmaniasis and Lyme disease. Petersen's primary expertise lies in immunopathology, vaccine development, and One Health approaches to infectious disease prevention. Her work integrates laboratory and field-based research, including international collaborations in Brazil and India, to study multi-species disease systems and develop reservoir-targeted interventions. She currently serves as chair of the NIH Vaccines for Infectious Diseases Study Section and has contributed to CDC-funded research on perceptions of infectious disease prevention strategies. Petersen is an elected member of the National Academy of Medicine and has held leadership roles in the American Society for Tropical Medicine and Hygiene. She received her PhD in immunology and infectious diseases from Harvard University.

Nathan D. Price

Member

Nathan Price is professor and co-director of the Center for Human Healthspan at the Buck Institute for Research on Aging, and chief scientific officer of Thorne, a science-driven wellness company that serves 5 million+ customers and 47,000 health-care practitioners. Price is co-author with biotechnology pioneer Lee Hood of a 2023 bestselling book, The Age of Scientific Wellness, published by Harvard University Press. In 2019, he was named one of the 10 Emerging Leaders in Health and Medicine by the National Academy of Medicine, and in 2021 he was appointed to the Board on Life Sciences of the National Academies of Sciences, Engineering, and Medicine. He served as chair of the NIH Study Section on Modeling and Analysis of Biological Systems (MABS) from 2018-2020. He is also a fellow of the American Institute for Medical and Biological Engineering, and Camille Dreyfus Teacher-Scholar, and was the 2023 recipient of the Alexander and Mildred Seelig Award for science from the American Nutrition Association. Price earned his PhD in bioengineering (with additional specialty in bioinformatics) from UCSD.

Peter Rabinowitz

Member

Peter Rabinowitz is professor of environmental and occupational health sciences, family medicine, global health, and medicine at the University of Washington Schools of Public Health and Medicine, and director of the University of Washington Center for One Health Research. Rabinowitz's work focuses on complex living systems at the human–animal–environment interface, with emphasis on emerging infectious diseases, zoonotic and vector-borne diseases, and One Health approaches that integrate medicine, ecology, and public health practice. He leads interdisciplinary initiatives for global disease surveillance, including serving as principal investigator for a CDC Cooperative Agreement strengthening global disease surveillance systems and as multiple principal investigator for the NIH-funded United World Antiviral Network (UWARN). His recent work has involved training clinicians to assess and manage the interplay of social and environmental health determinants in their care of patients. Rabinowitz has served as a visiting scientist at the World Health Organization Global Influenza Program and the United Nations Food and Agriculture Organization. He earned his MD from the University of Washington School of Medicine, and his MPH from the Yale School of Medicine.

Pamela A. Silver

Member

Pamela Silver is the Adams professor of biochemistry and systems biology at Harvard Medical School and a founding member of the Wyss Institute for Biologically Inspired Engineering at Harvard University. Silver was one of the first members of the new Department of Systems Biology at Harvard Medical School, where her laboratory now resides and focuses on the engineering of biological systems. She is an elected member of the American Academy of Arts and Sciences and the National Academy of Sciences and the past Daniel's fellow of the Radcliffe Institute for Advanced Study. Her honors include the Distinguished Alumni Award from UCSC, the Innovative Technology Prize (BIO), the FastCompany Innovation Award, and the Joseph Henry Lecture of the Philosophical Society. Silver has been recognized as one of the top Global Synthetic Biology Influencers and her work named as one of the top 10 Breakthroughs by the World Economic Forum. She is the founder of several companies and served as a member of the National Science Advisory Board for Biosecurity (NSABB). She received her PhD in biochemistry from UCLA, followed by postdoctoral work at Harvard University.

Paul D. Thomas

Member

Paul D. Thomas is a professor of population and public health sciences, and of quantitative and computational biology, at the University of Southern California (USC). He also serves as co-director of the Swiss-Prot Group at the Swiss Institute of Bioinformatics. Prior to joining USC, Thomas held positions at SRI International research institute (director of evolutionary systems biology), Celera Genomics (director of protein informatics, working on the first human genome sequence) and SmithKline Beecham Pharmaceuticals (investigator). His research focuses on computational analysis of the functions and evolution of genes, and of the role of human genetic variation in disease. He also directs the Gene Ontology Consortium, a major biomedical data resource on gene functions, which is a mainstay of omics data analysis and used in over 30,000 scientific publications per year. He has authored numerous high impact papers and has been named a Clarivate Highly Cited Researcher every year since 2014. He received his PhD in biophysics, developing statistical mechanics models of protein folding, from the University of California at San Francisco.

H. H. Thorp

Member

Holden Thorp is editor-in-chief of the Science family of journals at the American Association for the Advancement of Science and professor of chemistry and medicine at George Washington University. Prior to this, he was a professor and the provost of Washington University and spent three decades at the University of North Carolina at Chapel Hill (UNC), where he served as the 10th chancellor. He earned his PhD in chemistry from the California Institute of Technology and completed postdoctoral work at Yale University. Thorp holds honorary degrees from the Olin College of Engineering, Hofstra University, and North Carolina Wesleyan College and is a fellow of the American Academy of Arts and Sciences, the National Academy of Inventors, and the American Association for the Advancement of Science.

Sara Yeo

Member

Sara K. Yeo is a professor and associate chair in the Department of Communication, and director of the STEM Ambassador Program (STEMAP), at the University of Utah. Her research interests include science, environmental, and risk communication with a focus on strategic tactics, information seeking and processing, emotion, humor, and curiosity. Yeo's work has been published in journals such as the Proceedings of the National Academy of Sciences, Public Understanding of Science, Risk Analysis, Energy Policy, Journalism and Mass Communication Quarterly, and Materials Today. She is trained as a bench and field scientist and her training in ecology and the life sciences has informed her research program at the intersection of science, media, and politics. Yeo has served on various committees at the National Academies of Sciences, Engineering, and Medicine, the Department of Energy, and NASA. Her research has been featured on The Scope radio at the University of Utah and the London School of Economics' U.S. Central blog. She has also written articles for science magazines, such as Issues in Science and Technology, The Scientist and New Scientist. She earned her PhD in science communication from the University of Wisconsin-Madison.

Kavita M. Berger

Staff Officer

Kavita Berger is Senior Program Director for Life Sciences and Biotechnology at the National Academies of Sciences, Engineering, and Medicine. She is a life scientist with extensive experience in the addressing a various technical, policy, national security, and societal issues associated with the life sciences and biotechnology. Dr. Berger leads and oversees the Program's work across a variety of life science areas, including basic and applied life sciences and biotechnology research, development, and application ecosystem; biotechnology innovation and innovation ecosystem; foundational life sciences and biotechnology for health across species and ecosystem levels; analysis, prevention, and reduction of biological risks and threats; and opportunities and concerns related to the use of artificial intelligence, and computational models, and data in life sciences and biotechnology research. Prior to joining the National Academies, Dr. Berger was a principal scientist at Gryphon Scientific, where she led numerous projects involving biotechnology landscape analyses, biosecurity and biodefense policy, risk and benefits of life science research and technologies, and international bioengagement. Dr. Berger was responsible for several biosecurity and biodefense initiatives at the American Association for the Advancement of Science, including a meeting series on topics ranging from health security to preventing biological weapons. Dr. Berger has served on two National Research Council committees related to cooperative biological engagement, and as a subject matter expert for various government and nongovernmental organizations. Dr. Berger has a Ph.D. in genetics and molecular biology from Emory University and conducted pre-clinical research on HIV vaccines.