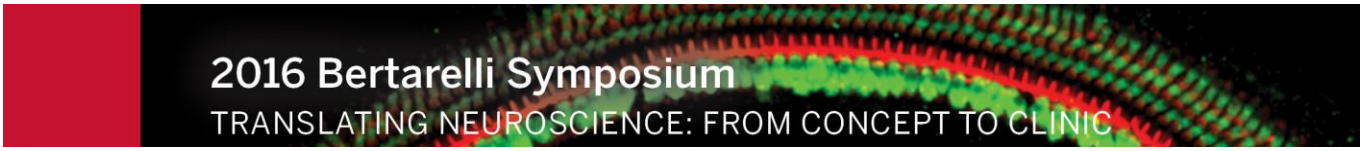

MODERATOR

David P. Corey (HMS)
David Corey is the Bertarelli Professor of Translational Medical Science at Harvard Medical School and an investigator of the Howard Hughes Medical Institute. Dr. Corey was trained in physics at Amherst College in Massachusetts and received his PhD in neurobiology from the California Institute of Technology. He was assistant professor at Yale Medical School before coming to Harvard Medical School and Massachusetts General Hospital in 1984. Dr. Corey has served as interim chair of the Department of Neurobiology at HMS, is co-director of the Harvard Medical School Center for Hereditary Deafness, and directs the Bertarelli Program in Translational Neuroscience and Neuroengineering at HMS. Research in his laboratory is focused on the molecular and biophysical basis of sensory transduction in the inner ear; it leads to insight into basic processes of mechanosensation in biology, and also to understanding and treatment of hereditary deafness. Dr. Corey has received the Young Investigator Award from the Biophysical Society and the Award of Merit from the Association for Research in Otolaryngology, and he was elected to the American Academy of Arts & Sciences.

OPENING REMARKS

9:00 a.m. Dean Jeffrey Flier (HMS); President Patrick Aebischer (EPFL)
Jeffrey S. Flier became the 21st dean of the Faculty of Medicine at Harvard University in 2007. An endocrinologist and an authority on the molecular causes of obesity and diabetes, Flier is also the Caroline Shields Walker Professor of Medicine at Harvard Medical School. Previously he had served as Harvard Medical School faculty dean for academic programs and chief academic officer for Beth Israel Deaconess Medical Center, a Harvard teaching affiliate. He is one of the country's leading investigators in the areas of obesity and diabetes. His research has produced major insights into the molecular mechanism of insulin action, the molecular mechanisms of insulin resistance in human disease, and the molecular pathophysiology of obesity.

Patrick Aebischer is president of the Ecole Polytechnique Fédérale de Lausanne (EPFL). He was trained as an MD (1980) and a neuroscientist (1983) at the Universities of Geneva and Fribourg in Switzerland. From 1984 to 1992, he was assistant and then associate professor of medical sciences at Brown University in Providence, R.I. He returned to Switzerland in 1992 to serve as a professor and director of the Surgical Research Division and Gene Therapy Center at the Lausanne University Medical School Hospital. He is a pioneer in developing viral vectors for human gene therapy. In 1999, he became president of EPFL. Patrick Aebischer is a fellow of the American Institute for Medical and Biological Engineering, a member of the Swiss Academy of Medicine and the Swiss Academy of Engineering Sciences, and a member of the World Economic Forum Foundation.

KEYNOTE LECTURE

9:15 a.m. Susan Hockfield (President Emerita, MIT)
Susan Hockfield served from 2004 to 2012 as the 16th president of the Massachusetts Institute of Technology, the first life scientist and first woman in that role. She is now president emerita, professor of neuroscience, and a member of the Koch Institute for Integrative Cancer Research. As president, Dr. Hockfield strengthened MIT's finances and campus planning while advancing Institute-wide programs in sustainable energy and the

convergence of the life, physical, and engineering sciences. Appointed by President Obama in 2011 to co-chair the steering committee of the Advanced Manufacturing Partnership, she helped shape national policy for energy and next-generation manufacturing. Under her leadership, MIT launched its online learning platform, MITx, and was joined by Harvard University in creating edX, increasing educational opportunities worldwide.

Prior to MIT, Dr. Hockfield was the William Edward Gilbert Professor of Neurobiology, dean of the Graduate School of Arts and Sciences (1998-2002), and provost (2003-2004) at Yale University. She studied at the University of Rochester and Georgetown University and carried out research at the NIH and UCSF before joining the faculty at the Cold Spring Harbor Laboratory and then Yale. Her research pioneered the use of monoclonal antibody technology in brain research, identifying proteins involved in activity-dependent brain development. Dr. Hockfield also discovered a gene implicated in the spread of cancer in the brain. She currently serves as a director of General Electric, the Council on Foreign Relations, and the World Economic Forum Foundation.

PATHWAYS TO TREATMENT FOR AUTISM SPECTRUM DISORDERS

9:45 a.m. Christopher A. Walsh (HMS and BCH)

Christopher A. Walsh is Bullard Professor of Pediatrics and Neurology at Harvard Medical School, chief of the Division of Genetics and Genomics at Boston Children's Hospital, an investigator of the Howard Hughes Medical Institute, and an associate member of the Broad Institute. Dr. Walsh completed his MD and PhD degrees at the University of Chicago, his neurology residency and chief residency at Massachusetts General Hospital, and postdoctoral training at Harvard Medical School. Dr. Walsh's research has focused on the development, evolution, and function of the human cerebral cortex, pioneering the analysis of human genetic diseases that disrupt the structure and function of the cerebral cortex. His laboratory has identified genetic causes for more than 20 brain diseases of children, including those associated with autism, intellectual disability, seizures, and cerebral palsy, and he has discovered that some of these disease genes were important targets of the evolutionary processes that shaped the human brain. The work has been recognized by a Jacob Javits Award from the NINDS, the Dreifuss-Penry Award from the American Academy of Neurology, the Derek Denny-Brown and the Jacoby Awards from the American Neurological Association, the American Epilepsy Society's Research Award, the Krieg Award from the Cajal Club, the Wilder Penfield Award from the Middle Eastern Medical Assembly, and the Perl-Neuroscience Award from the University of North Carolina. He is an elected member of the American Neurological Association, the American Association of Physicians, the National Academy of Medicine, and the American Association for the Advancement of Sciences.

10:15 a.m. BREAK

10:45 a.m. Dara S. Manoach (HMS and MGH) and Dimitri Van De Ville (EPFL)

Dara Manoach is associate professor of psychology in the Department of Psychiatry at Massachusetts General Hospital. She is a neuropsychologist whose research program uses neuroimaging techniques to illuminate the neural and genetic bases of fundamental cognitive deficits in neuropsychiatric and neurodevelopmental disorders, particularly schizophrenia and autism. The ultimate goal of this work is to guide the development of targeted treatments. Dr. Manoach received her PhD from Harvard University in experimental psychology, then completed a clinical psychology internship at McLean Hospital and a postdoctoral fellowship in clinical neuropsychology at Beth Israel Hospital. At Massachusetts General Hospital, she directs the Laboratory for Multimodal Neuroimaging of Cognition in Psychopathology in the Psychiatric Neuroimaging Division of the Department of Psychiatry, which is associated with the Athinoula A. Martinos Center for Biomedical Imaging.

Dimitri Van De Ville is associate professor of bioengineering at Ecole Polytechnique Fédérale de Lausanne EPFL). He received his PhD at Ghent University in Belgium in 2002 and continued his scientific career at the EPFL, joining the Biomedical Imaging Group to develop research in computational neuroimaging. He became a junior group leader at the University of Geneva Center for Biomedical Imaging in 2005, received an assistant professorship from the Swiss National Science Foundation in 2009, and was appointed associate professor at EPFL jointly affiliated with University of Geneva in 2015. His laboratory at the Campus Biotech in Geneva focuses on extracting brain states from fMRI measurements using advanced modeling approaches based on network science and dynamical systems. He has been awarded the Pfizer Research Award in 2012, the NeuroImage Editors' Award in 2013, the NARSAD Independent Investigator Award in 2014, and the Leenaards Award in 2016. He is the founding chair of the new EURASIP Biomedical Image & Signal Analytics SAT.

11:15 a.m. Mustafa Sahin (HMS and BCH)

Mustafa Sahin is associate professor of neurology at Harvard Medical School. He received his MD and PhD from Yale Medical School in 1995 and completed a pediatrics residency at The Children's Hospital of Philadelphia and a child neurology residency at Boston Children's Hospital. At BCH, he established and directs the Translational Neuroscience Center and the Multidisciplinary Tuberous Sclerosis Program. Research in the Sahin laboratory is directed generally at understanding the cellular mechanisms of neuronal connectivity and their relationship to neurological dysfunction, and is focused specifically on tuberous sclerosis complex (TSC) and spinal muscular atrophy (SMA)—two neurological disorders whose genetic basis is well understood but whose cell biology remains unknown. This work underpins the design of a clinical trial directed by Dr. Sahin investigating the effect of an mTORC1 inhibitor on neurocognition in individuals with TSC. He also directs a Rare Diseases Clinical Research Network, studying the comparative pathobiology of TSC, PTEN, and SHANK3 mutations in patients. He has received numerous awards, including a Spinal Muscular Atrophy Foundation/AAN Young Investigator Award, the 2005 Young Investigator Award from the Child Neurology Society, and a 2009 John Merck Scholar Award.

KEYNOTE LECTURE

1:00 p.m. Ricardo Dolmetsch (Global Head of Neuroscience, Novartis Institutes for BioMedical Research)

Ricardo Dolmetsch is Global Head of Neuroscience at the Novartis Institutes for BioMedical Research in Cambridge, Mass. He received his PhD in neuroscience from Stanford University in 1997, studying calcium signaling in T-cell activation, and then came to HMS for a postdoctoral fellowship with Michael Greenberg in the Department of Neurobiology, where he elucidated calcium activation of a MAP kinase pathway in controlling gene expression. In 2003, he returned to Stanford as a faculty member in the Departments of Molecular Pharmacology and Neurobiology, where his research shifted to the molecular basis of autism spectrum disorder. He has also served as senior director of the Allen Institute for Brain Research in Seattle. In 2013, Dr. Dolmetsch became Global Head of Neuroscience at the Novartis. In this position, he is moving Novartis beyond conventional neurotransmitter research to concentrate on analyzing the neural circuitry that causes complex neurological and psychiatric diseases, such as autism and intractable epilepsy in children, and addiction, bipolar disorder, depression, and schizophrenia in adults. Dr. Dolmetsch has received Searle Scholar, McKnight Scholar, Klingenstein Scholar, and NIH Pioneer awards, and he received the Young Investigator Award from the Society for Neuroscience.

PRECISION MEDICINE FOR HEARING LOSS

1:30 p.m. Cynthia Casson Morton (HMS and BWH)

Cynthia Morton received a BS from the College of William and Mary in Virginia and PhD in human genetics from the Medical College of Virginia. She is the William Lambert Richardson Professor of Obstetrics, Gynecology, and Reproductive Biology and professor of pathology at Harvard Medical School. At Brigham and Women's Hospital, she also serves as director of cytogenetics and is past director of the Biomedical Research Institute. She is an institute member of the Broad Institute of MIT and Harvard. Dr. Morton is certified by the American Board of Medical Genetics in medical genetics, clinical cytogenetics, and clinical molecular genetics. Dr. Morton has served as chair of the board of the American Board of Medical Genetics, chair of the board of scientific counselors of the National Institute of Deafness and Other Communication Disorders, and chair of the board of regents of the National Library of Medicine. She is currently a member of the counsel of scientific trustees of the Hearing Health Foundation, and chair of the Veteran's Administration Genomic Medicine Program Advisory Committee. Dr. Morton was a president of the American Society of Human Genetics and editor of *The American Journal of Human Genetics*. Her research interests are in molecular cytogenetics, human developmental disorders, genetics of uterine leiomyomata, and hereditary deafness.

2:00 p.m. Konstantina Stankovic (HMS and Mass Eye and Ear) and Demetri Psaltis (EPFL)

Konstantina Stankovic is associate professor of otology and laryngology at HMS and Massachusetts Eye and Ear. She graduated from Massachusetts Institute of Technology (BS degrees in physics and biology, PhD degree in speech and hearing bioscience and technology) and Harvard (MD degree). She completed an internship in general surgery at Massachusetts General Hospital, residency in otolaryngology and clinical fellowship in neurotology – skull base surgery at HMS and Mass Eye and Ear, and postdoctoral research fellowship at Boston Children's Hospital. She joined the staff at Mass Eye and Ear in 2008. Dr. Stankovic's basic research and surgical practice are focused on sensorineural hearing loss. Her approach is interdisciplinary, combining tools of systems neuroscience with optics, ultra-low-power electronics, molecular biology, and genomics to improve diagnostics and therapeutics for deafness. Her recent awards include Thomas McMahon Mentoring Award from Harvard-MIT Division of Health Sciences and Technology, Benjamins Prize from the Collegium Oto-Rhino-Laryngologicum Amictiae Sacrum and Honorary Howard House, MD Lectureship for Advances in Otology, American Academy of Otolaryngology-Head and Neck Surgery. She is a fellow of the American Neurotology Society, a fellow of the American College of Surgeons, and past president of the American Auditory Society.

Demetri Psaltis is professor of optics, director of the Optics Laboratory, and dean of the School of Engineering at Ecole Polytechnique Fédérale de Lausanne (EPFL). He received his BS, MS, and PhD in electrical engineering from Carnegie-Mellon University and, in 1980, joined the faculty at the California Institute of Technology in Pasadena, Calif. He rose to be the Thomas G. Myers Professor of Electrical Engineering at Caltech, and also served as executive officer for computation and neural systems, director of the National Science Foundation Center for Neuromorphic Systems Engineering, and director of the DARPA Center for Optofluidic Integration. In 2007, he moved to EPFL to head the School of Engineering. Dr. Psaltis is one of the founders of the field of optofluidics. He is also well known for his work in holography, especially with regards to optical computing, holographic data storage, and neural networks, and is an expert in nonlinear optics. His work has been honored with the International Commission of Optics Prize, Humboldt Award, Leith Medal, Gabor Prize, and Joseph Fraunhofer Award.

2:30 p.m. Bence György (HMS)

Bence György graduated from Semmelweis University in Budapest, Hungary, with an MD and a PhD in molecular genetics, where he studied the role of microvesicles in inflammatory diseases. He is currently a postdoctoral fellow at Harvard Medical School and Massachusetts General Hospital, working jointly with the laboratories of David P. Corey at HMS, Xandra O. Breakefield at MGH, and Casey A. Maguire at MGH. His major research interest lies in gene therapy and genome editing for sensory and other neurological diseases, especially the use of microvesicle-associated viral vectors for therapy of hereditary auditory and visual disorders.

3:00 p.m. BREAK

3:30 p.m. Jeffrey R. Holt (HMS and BCH)

Jeffrey Holt is professor of otology and laryngology at HMS and Boston Children's Hospital, and is affiliated with the F.M. Kirby Neurobiology Center at BCH. He received a PhD in physiology from the University of Rochester in 1995 and did postdoctoral work on auditory physiology with David Corey at Massachusetts General Hospital, where he pioneered the use of viral vectors for gene expression in inner ear hair cells. He first joined the faculty at the University of Virginia, and in 2011 was recruited to Boston Children's Hospital. With his long-term collaborator, Gwenaelle Géléoc, Dr. Holt works both on identifying the genes and proteins required for hair cell mechanotransduction and on use of viral vectors to restore cellular- and systems-level function in models of human deafness.

4:00 p.m. Yvan Arsenijevic (EPFL)

Yvan Arsenijevic is associate professor and head of the Fundamental Research Section at the Jules-Gonin Hospital of the University of Lausanne, where he explores the mechanisms of retinal degeneration to develop new therapies to treat blindness. Dr. Arsenijevic graduated in 1990 as a biologist in the Department of Pediatrics and Genetics at Geneva University in Switzerland, and pursued additional training in neurosciences at the University of Geneva. From 1995 to 1997, he trained at the University of Calgary in Canada, isolating and identifying neural stem cells during development and in the adult brain. He returned to Switzerland in 1997, working with Patrick Aebischer at the University of Lausanne, and demonstrated that the adult human brain contains multipotent progenitors in different brain areas. He then developed a research laboratory center at the Department of Ophthalmology at the Jules-Gonin Eye Hospital of the University of Lausanne to focus on retinal degeneration and regenerative medicine using gene therapy strategies and pluripotent cells to validate therapeutic approaches. To facilitate preclinical studies, he generated—with Bruce Whitelaw at the University of Edinburgh—transgenic pigs developing retinal dystrophies. He received the Alfred-Vogt Recognition Award and the Global Ophthalmology Awards Program from Bayer.

4:30 p.m. Daniel J. Lee (HMS and Mass Eye and Ear) and Stéphanie P. Lacour (EPFL)

Daniel Lee is associate professor of otology and laryngology at HMS and Massachusetts Eye and Ear. He received his MD from Johns Hopkins School of Medicine and continued there to complete an internship in general surgery, a residency in otolaryngology, and a fellowship in otology, neurotology, and skull-base surgery. He was then a clinical associate in the Neurosurgical Service at Massachusetts General Hospital. In 2008, he joined the Department of Otolaryngology at Mass Eye and Ear, where he is director of the Auditory Brainstem Implant Program and director of Pediatric Otology and Neurotology. His research is on novel optogenetic and opto-electronic methods for direct stimulation of auditory brainstem, and he has a special interest in superior canal dehiscence surgery. He is assistant editor of *Otology and Neurotology*.

Stéphanie P. Lacour holds the Bertarelli Foundation Chair in Neuroprosthetic Technology at the School of Engineering at the Ecole Polytechnique Fédérale de Lausanne (EPFL). She received her PhD in electrical engineering from INSA de Lyon, France, and completed postdoctoral research at Princeton University and the University of Cambridge (UK). Her research focuses on the materials, technology, and integration of soft bioelectronic interfaces, including artificial skin and ultra-compliant neural electrodes for therapeutic neuroprosthetics. Dr. Lacour is the recipient of the 2006 MIT TR35, a University Research Fellowship from the Royal Society (UK), a European Research Council ERC Starting Grant, a SNSF-ERC Consolidator Grant, and was elected a 2015 Young Global Leader by the World Economic Forum. She is a member of EPFL Centre for Neuroprosthetics, http://cnp.epfl.ch.

KEYNOTE LECTURE

5:00 p.m. Al Sandrock (Executive Vice President, Neurology Discovery and Chief Medical Officer, Biogen)
Alfred Sandrock Jr., MD, PhD, is executive vice president of the Neurology Discovery & Development Center, Neurodegeneration Therapeutic Area, and chief medical officer of Biogen. Dr. Sandrock received his BA in human biology from Stanford University and came to Harvard Medical School for his MD and a PhD in neurobiology. At Massachusetts General Hospital, he completed an internship in medicine, a residency and chief residency in neurology, and a clinical fellowship in neuromuscular disease and clinical neurophysiology. Dr. Sandrock joined Biogen in 1998, where he has held several senior executive positions including senior vice president of development sciences, senior vice president of neurology research and development, and vice president of clinical development, neurology. In these roles, he led the development of drugs, including Tysabri, Plegridy, and Tecfidera, for multiple sclerosis, Alprolix and Eloctate for hemophilia, and the antibody aducanumab for Alzheimer's disease. New target diseases for Biogen include amyotrophic lateral sclerosis and spinal muscular atrophy, as well as neuralgia, stroke, and pain. Dr. Sandrock is a director of FORUM Pharmaceuticals and of Neurocrine Biosciences, and is a frequent lecturer in the HMS neurobiology curriculum.