BIOGRAPHIES

NANCY J. COX, PH.D.

Director, Vanderbilt Genetics Institute
Director, Division of Genetic Medicine
Mary Phillips Edmonds Gray Professor of Genetics
Vanderbilt University School of Medicine, Nashville, TN

Nancy J. Cox, PhD is a quantitative human geneticist with a long-standing research program focused on discovering and characterizing the genetic component to common human diseases and related quantitative phenotypes. Dr. Cox graduated from the University of Notre Dame in 1978 with a BS in Biology, from Yale University in 1982 with a PhD in Human Genetics and did post-doctoral work in Psychiatric Genetics at Washington University from 1982-85, as well as a post-doc in the genetics of diabetes at the University of Pennsylvania from 1985-87. She was then a faculty member at the University of Chicago until 2015, when she accepted a position at Vanderbilt University Medical Center as the Director of the Vanderbilt Genetics Institute and as Director of the Division of Genetic Medicine, and is the Mary Phillips Edmonds Gray Professor of Genetics. Dr. Cox continues to work on both the genetics of diabetes and its complications, and the genetics of neuropsychiatric disorders, including Tourette Syndrome, obsessive compulsive disorder, autism, schizophrenia, and bipolar disorder, but is also focused on research in BioVU, the biobank at Vanderbilt University with DNA on more than 215,000 subjects linked to a high-quality electronic health record going back 10-15 years on average, and > 20 years for some subjects. The ability to use genome data to survey the entire medical phenome simultaneously offers new insights into the driving biology of neuropsychiatric disorders.

MARK DALY, PH.D.

Associate Professor of Medicine, Harvard Medical School
Chief, Analytic and Translational Unit, Center for Human Genetic Research,
Department of Medicine, Massachusetts General Hospital
Senior Associate Member, The Broad Institute of MIT and Harvard, Cambridge, MA

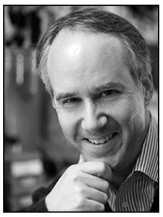
Mark Daly is the founding chief of the Analytic and Translational Genetics Unit (ATGU) at Massachusetts General Hospital and an assistant professor in the Harvard Medical School. His research has historically focused on the development and application of statistical methods for the discovery and interpretation of genetic variation responsible for complex human disease and with the creation of the ATGU, he and other core faculty are focused on the interpretation of genome sequence and the use of genome information in clinical settings. Mark is also an institute member and co-director of the Program in Medical and Population Genetics at the Broad Institute, where he leads many large scale genome sequencing studies in autism and inflammatory bowel disease.

Daly's group has developed numerous methods and widely used software tools, including GENEHUNTER and HAPLOVIEW, genetic analysis tools used in thousands of laboratories worldwide; GRAIL and DAPPLE, web-based utilities for the interpretation of genome-wide association results; and have contributed to additional widely distributed tools developed in the Broad community such as PLINK and GATK. His earlier work at the Whitehead Institute and Whitehead/MIT Center for Genome Research (precursor to the Broad Institute) was instrumental in developing an understanding of patterns of variation in the human and mouse genomes, and in the use of these patterns in disease gene mapping.

While developing computational and statistical methods that can be broadly applied, his group has several primary medical genetics research foci. He has extensive research program in neuropsychiatric genetics - particularly in autism, schizophrenia and ADHD – and has led large-scale GWAS and exome sequencing efforts in this area. His lab serves as the analytic hub for the Psychiatric GWAS Consortium, and international consortium leading the largest collaborative GWAS studies in 5 major psychiatric disorders. He also has a longstanding effort in the mapping of genes for Crohn's disease and ulcerative colitis where he helped found and lead an international effort that has identified more than 150 genetic risk factors and, in collaboration with Dr. Ramnik Xavier's group, pursues the functional interpretation and clinical ramifications of these continued gene discovery efforts.

More recently, the group also participates in numerous studies using exome sequencing to articulate the genetic origins of rare inherited diseases, early-onset and pediatric cancers, and severe adverse drug responses. He is also a visiting professor at the Finnish Institute of Molecular Medicine (FIMM) in Helsinki and has co-authored more than 50 manuscripts with Finnish scientists studying the genetic origins of human disease.

Mark received his B.S. in physics from MIT and his Ph.D. in human genetics from Leiden University, Netherlands. Mark is a recipient of the 2014 Curt Stern Award, presented by the American Society of Human Genetics for outstanding scientific achievements in human genetics. He has an extensive publication record with an h-index of 150 and has been listed multiple times by publisher Thomson-Reuters as one of the top 10 most cited scientific authors.



DAN GESCHWIND, M.D., PH.D.

Principal Investigator
Gordon and Virginia Macdonald Distinguished Professor
Director, UCLA Center for Autism Research and Treatment (CART)
University of California, Los Angeles, CA

Dr. Daniel Geschwind is the Gordon and Virginia MacDonald Distinguished Professor of neurology, psychiatry and human genetics at the UCLA School of Medicine, and the Senior Associate Dean and Associate Vice Chancellor of Precision Health in the UCLA Health System and David Geffen School of Medicine. He is director of the Neurogenetics Program and the Center for Autism Research and Treatment (CART) and co-director of the Center for Neurobehavioral Genetics in the Semel Institute at UCLA. His laboratory aims to develop a mechanistic understanding of neuropsychiatric diseases, such as autism and neurodegenerative diseases, and their relationship to the range of normal human higher cognitive function and behavior. The lab's approach relies heavily on computational and bioinformatic methods in addition to wet laboratory experimentation. The ultimate goal is to use these integrative approaches to help develop effective therapeutics for neurologic and psychiatric disorders, focusing on autism and neurodegenerative disorders. Dr. Geschwind is also a strong advocate for data and biomaterial sharing, having provided scientific oversight for the Autism Genetic Resource Exchange (AGRE). He has served on numerous scientific advisory boards, including the Faculty of 1000 Medicine, the Executive Committee of the American Neurological Association, the NIMH Advisory Council and the NIH Council of Councils. He has published over 300 papers and serves on the editorial boards of several journals including Biological Psychiatry, Cell, Human Molecular Genetics, Neurobiology of Disease, Neuron and Science. He received the Derek Denny-Brown Neurological Scholar Award from the American Neurological Association in 2004, the Scientific Service Award from Autism Speaks in 2007, the Ruane Prize for Child and Adolescent Psychiatric Research from the Brain and Behavior Foundation in 2012, the Taking on Tomorrow Innovation Award (Research/Scientific Breakthrough in Autism) -Boston Children's Hospital in 2013 and is an elected member of the Institute of Medicine of the National Academies.

CHUNYU LIU, PH.D.

Associate Professor
Department of Psychiatry
University of Illinois at Chicago, Chicago, IL

Dr. Liu has a long-term interest in understanding of molecular basis of psychiatric diseases. His laboratory participated one of the bipolar genetics research consortiums and discovered the rare copy number variant (CNV) burden in early-onset bipolar disorder. His lab is one of the leading research groups on genome-wide study of postmortem brain gene expression and DNA methylation, pioneered in study of gene expression regulatory network in human brain. He established the methylation quantitative trait loci (mQTLs) in human brain, indicating that DNA methylation of some sequences could be highly regulated by genetic variants. His lab currently focuses more on understanding genomic and epigenomic mechanisms of gene expression regulation in human brains and its relevance to psychiatric disorders. His research has been supported by NIH, NARSAD, and Brain Research Foundation. He has published more than 90 peer-reviewed papers and several book chapters, cited for more than 4,000 times. He has served as reviewer for dozens of journals and foundations including NIH.

PETER PENZES, PH.D.

Professor
Departments of Physiology, and Psychiatry and Behavioral Sciences
Feinberg School of Medicine
Northwestern University, Chicago, IL

Peter Penzes, Ph.D. is a Professor in the Departments of Physiology and Psychiatry and Behavioral Sciences at Northwestern University Feinberg School of Medicine in Chicago. He received his B.Sc. in Biochemistry from the University of Bucharest, Romania, and Ph.D. in Biochemistry from the State University of New York at Buffalo. He completed postdoctoral training with Drs. Betty Eipper and Richard Huganir in the Department of Neuroscience at Johns Hopkins University School of Medicine and Howard Hughes Medical Institute in Baltimore. Dr. Penzes' work centers on understanding the molecular and cellular substrates of synaptic structural plasticity in the brain, and their role in psychiatric and neurodegenerative disorders. These mechanisms underlie the normal development and remodeling of brain circuits, and contribute to cognition and social behavior. However, when they go awry, they lead to psychiatric and neurological disorders, including autism, schizophrenia, and Alzheimer's disease. His lab employs a multidisciplinary and integrative approach that includes advanced cellular and *in vivo* microscopy, super-resolution imaging, biochemistry, electrophysiology, *in vivo* manipulations of gene expression, human induced pluripotent cell (iPSC)-derived neurons, bioinformatics, mouse models, as well as human genetics, brain imaging, and neuropathology. The ultimate goal of these studies is to develop therapeutic approaches to prevent or reverse neuropsychiatric disorders by targeting synapse remodeling. Dr. Penzes' research has continuously been funded by multiple grants from NIH and non-governmental agencies, and his work has been published in *Neuron, Nature Neuroscience, PNAS, Molecular Psychiatry, PLOS Biology, Nature Communications,* and *Journal of Neuroscience*.

BARBARA STRANGER, PH.D.

Assistant Professor
Department of Medicine, Section of Genetic Medicine
Core Member, Institute for Genomics and Systems Biology
Senior Fellow, Center for Data Intensive Science
The University of Chicago, Chicago, IL

Dr. Barbara Stranger is an Assistant Professor of Medicine in the Section of Genetic Medicine, in the Department of Medicine at the University of Chicago. She is also a Core Member of the Institute for Genomics and Systems Biology and Senior Fellow in the Center for Data Intensive Science. She has a longstanding interest in understanding how genetic variation influences molecular traits such as gene expression, and how these shape phenotypic variability. Her lab collects and analyzes multi-dimensional human genomics data, particularly transcriptome data and genetic variation data, in the context of health and disease. A core focus of research in her lab is on characterizing context-specificity of function, i.e., how genetic variants can exert different functional effects under different conditions, for example in different human tissues, or in each sex, or in resting versus stimulated cell types. She is a member of the NIH Genotype-Tissue Expression Consortium (GTEx), where she leads the working group focused on sex differences, and leads a project to characterize inter-individual variation in protein expression levels across tissues. Her lab also has projects focusing on the genomics of cancer, neuropsychiatric phenotypes, cardiac phenotypes, and immune-mediated traits.