The New York Genome Center Awarded $40 Million from the NIH to Use Genomic Sequencing to Explore Common Disease

Funding Granted to Study Autism

New York, New York (January 14, 2016) – The New York Genome Center (NYGC) has been awarded $40 million, over four years, from the National Human Genome Research Institute (NHGRI), a division of the National Institutes of Health (NIH), to create a Center for Common Disease Genomics (CCDG), which will establish a collaborative large-scale genome sequencing program.

Centers for Common Disease Genomics (CCDG) will use genome sequencing to explore the genomic contributions to common diseases such as autism, heart disease, diabetes, and stroke. The NHGRI's CCDG Program will fund four centers. Collectively the program will examine a variety of disease architectures and study designs, aiming "to discern general principles of complex disease architecture" as discussed in the NHGRI's request for applications.

"The National Institutes of Health hit the bull's-eye by awarding the New York Genome Center $40 million to research the genetic links to autism," said U.S. Senator Charles E. Schumer. "This wise investment supports New York's growing scientific and medical economy and allows the New York Genome Center to pursue scientific breakthroughs to help countless families in the future."

"This grant will support the New York Genome Center's position at the forefront of biotech and modern medicine and ultimately help to further its work to improve people's lives," said New York State Governor Andrew Cuomo. "The NYGC is a proven leader in genomic study, and I am very proud to see it playing a central role in advancing such important research."

NYGC's program will emphasize family-based cohorts, or study groups, containing both affected and unaffected individuals. These cohorts provide a powerful framework for genetic comparisons that will improve statistical power and likelihood of making discoveries. To date, most studies have focused on the portion of the genome that is incorporated into proteins, known as the coding regions. Recognizing the biological importance of the entire genome, including the non-coding regions, NYGC will perform whole genome sequencing of all samples and work with collaborators to develop methods that will improve the identification of disease-relevant variants in non-coding regions. NYGC will also work to create technological innovations that lower costs and increase data quality to accelerate the pace of discovery.

"Advances in DNA sequencing are creating tremendous new opportunities for exploring how the genome plays a role in human disease," said NHGRI Director Eric Green. "Our continued focus on both rare and common diseases promises to

reveal important aspects about the genomic architecture of a wide range of human disorders."

"The New York Genome Center is honored to work with the NIH and the CCDG partners to develop new approaches to advance genomic understanding of common diseases. This award is a wonderful validation of support from NY State, of our consortium of NY area academic institutions and hospitals, and of the strong NY philanthropic community," said Robert B. Darnell, NYGC's Founding Director and CEO and Principal Investigator of the study. "NYGC will immediately begin to use our NHGRI support to advance a comprehensive understanding of the genetic basis of autism, leveraging in particular our ongoing collaborative work with the Simons Foundation."

NYGC will focus on autism and has the potential for funding to study additional diseases such as asthma and Alzheimer's disease, as well as cohorts of ethnically diverse controls which would be used in the study of numerous diseases. The autism study will be led by Evan Eichler (Professor, Washington University; Investigator, Howard Hughes Medical Institute; Associate Member, NYGC) and Mike Wigler (Professor, Cold Spring Harbor Laboratory; Associate Core Member, NYGC) in collaboration with Dan Geschwind (Professor of Human Genetics, David Geffen School of Medicine at the University of California, Los Angeles), David Goldstein (Director, Institute for Genomic Medicine, Columbia University; Associate Member, NYGC), Adam Siepel (Associate Professor, Biological Statistics & Computational Biology, Cold Spring Harbor Laboratory), Ivan Iossifov (Assistant Professor, Cold Spring Harbor Laboratory; Core Member, NYGC), Joseph Pickrell (Core Member, NYGC; Adjunct Assistant Professor in the Department of Biological Sciences, Columbia University) and Robert B. Darnell (Founding Director, CEO & Core Member, NYGC; Heilbrunn Professor and Senior Physician, Rockefeller University; Investigator, Howard Hughes Medical Institute). NYGC will sequence the entire Autism Genetic Resource Exchange and Simons Simplex Collections, the latter with significant co-funding from the Simons Foundation. Both of these cohorts are composed of families.

"The funding represents a tremendous opportunity to understand the genetic architecture of human genetic diseases," says Evan Eichler. "In the case of autism, full genome sequence data from families will allow us to access a new class of genetic risk factors at an unprecedented scale. I am excited for what this might mean to families with autism down the road."

The other Centers (Baylor College of Medicine, Broad Institute and Washington University in St. Louis) will study common diseases comprising a range of disease architectures. The program will promote collaboration across institutions and disease-focused communities, encouraging broad dissemination of knowledge. The CCDG Program aims to create durable data resources for the research community, to enrich studies beyond the program. This initiative will serve as a

locus for the development and refinement of policies and practices about genomic data collection and deposition.

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About the New York Genome Center
The New York Genome Center (NYGC) is an independent, nonprofit at the forefront of transforming biomedical research and clinical care with the mission of saving lives. As a consortium of renowned academic, medical and industry leaders across the globe, NYGC focuses on translating genomic research into clinical solutions for serious disease. Our member organizations and partners are united in this unprecedented collaboration of technology, science, and medicine. We harness the power of innovation and discoveries to improve people's lives – ethically, equitably, and urgently. Member institutions include: Albert Einstein College of Medicine, American Museum of Natural History, Cold Spring Harbor Laboratory, Columbia University, Cornell University/Weill Cornell Medicine, Hospital for Special Surgery, The Jackson Laboratory, Memorial Sloan Kettering Cancer Center, Icahn School of Medicine at Mount Sinai, NewYork-Presbyterian Hospital, The New York Stem Cell Foundation, New York University, Northwell Health (formerly North Shore-LIJ), The Rockefeller University, Roswell Park Cancer Institute and Stony Brook University. For more information, visit: www.nygenome.org.

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