

Autism Speaks to sequence world's largest collection of autism genomes

June 10 2014

Autism Speaks, the world's leading autism science and advocacy organization, today announced a collaboration with Google to develop the world's largest database of genomic sequence information on individuals with autism spectrum disorder (ASD) and their family members. The collaboration represents a significant milestone in advancing genomic research of the disorder, and could lead to breakthroughs into the causes, subtypes and better diagnosis and treatment for ASD. The Autism Speaks Ten Thousand Genomes Program (AUT10K) is valued at \$50 million dollars.

Autism Speaks will store data from AUT10K on Google Cloud Platform. Most significantly, this database will be an open resource to support autism research. Autism Speaks has accumulated the largest private collection of DNA samples, known as the Autism Genetic Resource Exchange (AGRE) from 12,000 autism cases with diagnoses and detailed phenotyping. AGRE has been a strategic resource for the autism research community for over 15 years and is valued at \$25 million dollars. The amount of data collected by AUT10K creates unique challenges for storing, analyzing, and providing remote access to the research. Google Cloud Platform provides the engineering innovation needed to address those challenges. Connecting biological discoveries with the very best in large-scale cloud storage and computation will advance the field of genomics research.

"This announcement represents an unprecedented intersection of business, science and philanthropy that will drastically accelerate the

pace of autism research," said Bob Wright, co-founder of Autism Speaks. "The insight and expertise the Google team brings to the table is unmatched. Utilizing Google Cloud Platform further advances Autism Speaks' commitment to advancing cutting-edge science."

"Modern biology has become a data-limited science. Modern computing can remove those limits," said David Glazer, engineering director for Google Genomics. "We are excited to be working with the Autism Speaks team on storage, processing, exploration, and sharing of the AUT10K data, and are even more excited about the opportunity for Google Cloud Platform to help unlock causes and treatments of autism."

Building on AGRE, Autism Speaks launched AUT10K in collaboration with the Toronto based Hospital for Sick Children's (SickKids) Centre for Applied Genomics. Dr. Steve Scherer, who directs the Center, and is a world pioneer in the study of genes, will be the director of AUT10K.

"The Autism Speaks AUT10K Program is a remarkable achievement," Scherer said. "The collaboration between a pioneering tech company and the foremost autism science organization has the potential to transform the autism research landscape in exceptional ways. No other organization outside of major health institutions and academia has accomplished this much this quickly."

Scherer oversees \$10 million dollars in funding for genomic research, including contributions from Steven Wise, Chairman of the KRG Children Charitable Foundation as well as \$7.5 million dollars from the Canadian federal government and the province of Ontario. In addition, in 2014, leadership contributions to AUT10K have totaled \$5 million, including support from the Gordon & Llura Gund Foundation, Mel Karmazin Foundation and Allerton Foundation. With the AGRE collection valued at \$25 million dollars, this represents most of the funding needed to complete the full sequence of 10,000 genomes.

"These collective assets put us within \$10 million dollars of the finish line," said Liz Feld, president of Autism Speaks. "This is the most promising [autism research](#) ever done and for those living with ASD, it will make a significant difference in the development of effective forms of diagnosis and treatment."

AUT10K is enabling discoveries in ASD genomics research in ways that will have real-life impact on medical care and quality of life for individuals and families in the autism community. Aut10K has already completed the sequencing of 1,000 cases, and currently has close to 2,000 additional samples in the sequencing queue. The majority of cases being studied come from families in the AGRE program. Results from the first 100 genomes were published in the American Journal of Human Genetics last summer. These findings have already advanced understanding of ASD, and, in some cases, provided information useful in guiding diagnosis and treatment. Once completed, this historic collaboration could lead to the uncovering of various forms of autisms, like the various forms of cancers today, and this in turn could lead to individualized treatments and therapies for those with ASD.

"The AUT10K program holds the potential to radically transform our understanding of autism, and will undoubtedly have a role in shaping the future of medical care for those affected by the disorder," said Rob Ring, Ph.D., chief science officer of Autism Speaks. "This is an incredibly important moment in autism genomic discovery, and we are poised to write a good part of the next chapter. Working with Google is a game-changer in that story."

Provided by Autism Speaks

Citation: Autism Speaks to sequence world's largest collection of autism genomes (2014, June 10) retrieved 19 April 2024 from <https://medicalxpress.com/news/2014-06-autism-sequence->

world-largest-genomes.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.