## NIH Partnership Launches Big Data Portal for AD Drug Discovery

he National Institutes of Health (NIH) announced on March 4 that its public–private partnership to transform and accelerate drug development had achieved a significant milestone with the launch of a new Alzheimer disease (AD) big data portal, including the delivery of initial data for use by the research community. The new data sharing and analysis resource is part of the Accelerating Medicines Partnership (AMP), a "precompetitive" cooperative venture of NIH, the U.S. Food and Drug Administration (FDA), industry, and academic scientists from a variety of disciplines, intended to translate knowledge faster and more successfully into new therapies.

The opening of the AMP-AD Knowledge Portal and first release of data are intended to enable sharing and analyses of large and complex biomedical datasets. It is anticipated that this approach will accelerate the development of predictive models of AD and enable identification of novel therapeutic targets. "We are determined to reduce the cost and time it takes to discover viable therapeutic targets and bring new diagnostics and effective therapies to people with Alzheimer's. That demands a new way of doing business," said NIH Director Francis S. Collins, MD, PhD. "The AD initiative of AMP is one way we can revolutionize Alzheimer's research and drug development by applying the principles of open science to the use and analysis of large and complex human datasets."

The portal was developed by Sage Bionetworks (Seattle, WA), a nonprofit organization promoting open science, and will include several "waves" of big data to be generated over the projected 5 years of the AMP-AD Target Discovery and Preclinical Validation Project. (AMP-AD is 1 of 3 initiatives under the AMP umbrella; the others are focused on type 2 diabetes and rheumatoid arthritis/systemic lupus erythematosus.) As part of this project, academic teams, in collaboration with Sage Bionetworks data scientists and industry bioinformatics and drug discovery experts, will work together to apply cutting-edge analytic approaches to integrate molecular and clinical data from more than 2,000 postmortem brain samples. Each academic team is generating high-dimensional data from human brain samples as well as animal and cellular model systems.

The National Institute on Aging (NIA) at NIH supports and coordinates the multidisciplinary groups contributing data to the portal. The AMP Steering Committee for the Alzheimer's Disease Project includes representatives from the NIA, the National Institute of Neurological Disorders and Stroke, FDA, 4 pharmaceutical companies, and 4 nonprofit groups and is managed through the Foundation for the NIH. "The enormous complexity of the human brain and the processes involved in development and progression of Alzheimer's disease have been major barriers to drug development," said NIA Director Richard J. Hodes, MD. "Now that we are gathering the data and developing the tools needed to tackle this complexity, it is key to make them widely accessible to the research community so we can speed up the development of critically needed therapies"

The consortium of academic teams contributing the data is led by researchers at the Icahn School of Medicine at Mount Sinai (New York, NY), Massachusetts Institute of Technology and Harvard University (Boston), University of Florida (Gainesville), and Emory University (Atlanta, GA). Researchers from Rush University (Chicago, IL), Mayo Clinic (Jacksonville, FL), the Institute for Systems Biology (Seattle, WA), the University of California Los Angeles, and a number of other academic centers are also participating.

No publication embargo is imposed on the use of data posted to the AMP-AD Knowledge Portal, which is open to all researchers. This is intended to increases the transparency, reproducibility, and translatability of basic research discoveries, according to Suzana Petanceska, PhD, the NIA program director leading the AMP-AD Target Discovery Project. "The era of big data and open science can be a game changer in our ability to choose therapeutic targets for Alzheimer's that may lead to effective therapies tailored to diverse patients," she said. "Simply stated, we can work more effectively together than separately." More information about AMP-AD projects is available at www. nia.nih.gov/alzheimers/amp-ad. More information about the Big Data Portal, including data currently available and accessible, is available at www.synapse.org.

National Institutes of Health