Staff Writer
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Hussman Institute to Co-Lead $31.7 Million NIA Grant to Create Harmonized Dataset for Alzheimer's, Dementia Research

The John P. Hussman Institute for Human Genomics (HIHG) at the University of Miami Miller School of Medicine, will serve as principal investigators for a major five-year initiative with Vanderbilt University Medical Center and the University of Southern California, to pool and standardize research data gathered from individuals in multiple studies of Alzheimer's disease and related dementias (ADRD).

The new endeavor is funded by a $31.7 million grant awarded to the lead research site at Vanderbilt University, by the National Institute on Aging (NIA), part of the National Institutes of Health (NIH). HIHG principal investigator, Michael Cuccaro, Ph.D., associate director of the HIHG's Center for Genomic Education & Outreach, will lead UM's portion of the project.

The initiative will utilize existing data from more than 30 research cohorts to create a dataset that consists of harmonized clinical variables for use by the ADRD research community. Clinical variables being harmonized traverse

measures that are crucial for understanding ADRD including cognition, neuroimaging, autopsy neuropathology, vascular risk factors, and cerebrospinal fluid derived biomarkers. The goal is to bring together the disparate clinical information collected across various ADRD study cohorts for the purpose of creating a large dataset that is more clinically uniform and informative.

Alzheimer's is a complex disease with a pronounced genetic component, its estimated heritability coming in at 60% to 80%. This racially diverse, standardized dataset will support machine learning and drive discovery into the genetic basis of ADRD resiliency for the wide range of people that it effects. The HIHG is at the forefront of efforts to integrate diverse cohorts into this project.

Michael Cuccaro, Ph.D.

"An important component of this grant is the inclusion of cohorts from diverse groups which will ensure that genetic studies using the harmonized clinical information will be

applicable to all groups," said Dr. Cuccaro.

Dr. Cuccaro, who is joined in this effort by fellow UM investigators, Gary W. Beecham, Ph.D., director of the Hussman Institute's Division of Research Informatics in the Center for Genetic Epidemiology and Statistical Genetics and Jeffery M. Vance, M.D., Ph.D., professor of human genetics in the Dr. John T. Macdonald Foundation Department of Human Genetics and the Department of Neurology, added that this work will build on ongoing NIA funded studies at the HIHG that seek to understand the risk for ADRD among diverse populations. Additionally, the HIHG group will oversee efforts to harmonize neuropathological data as part of the established Alzheimer's Disease Sequencing Project.

The integration of harmonized clinical information and genomic information has a clear goal: stimulation of new drug development. According to the Alzheimer's Association, this year in the U.S., direct medical and long-term care costs for ADRD will reach $355 billion, with cases expected to double by 2050.

Per NIH data sharing policies, the database of harmonized data will be available globally to qualified researchers primarily via established, secure computing resources supported by the National Institute on Aging.

The consortium includes 13 sites located across the country. Vanderbilt collaborators will coordinate and harmonize data of cognitive performance, biomarker, and neuroimaging data and USC will house brain images.

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