Bipolar Disorder Research Funding Organization Awards $18M in Grants to NYGC, Others

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This article has been updated from a previous version to include grants awarded by BD² to other research teams besides the NYGC.

NEW YORK – Breakthrough Discoveries for Thriving with Bipolar Disorder, or BD², said on Tuesday that it has awarded $18 million in new grants to four academic research teams to elucidate the biological underpinnings of bipolar disorder.

Washington, DC-based BD², a collaboration between three family philanthropies and the Milken Institute, said that it awarded grants of up to $4.5 million over three years to separate teams led by investigators at the New York Genome Center (NYGC), the Wyss Institute at Harvard University, Stanford University, and Yale University. The awards are being made through the BD² "Discovery Research" program.

In its project, the NYGC team aims to uncover the genetic causes of bipolar disorder using multiple stem cell approaches to unravel the shared biology of common and rare variants in people with African ancestry.

Principal investigator on the project is NYGC researcher Thomas Lehner, whose team will use the Genomic Psychiatry Cohort (GPC), a large and diverse population that includes people with mental disorders and neurotypical controls. The researchers will use blood sample-derived neuronal stem cells from GPC participants of African descent to compare the biological effects of common genetic variants between people with high and low genetic risk.

The grant is part of a larger effort at NYGC to understand the genetic origins of psychiatric illnesses more broadly. Last year, the NYGC launched a project to build a clinico-genomic database of severe mental illness to facilitate precision medicine research and partnered with the Broad Institute and the University of California, Los Angeles to create the BD² Genetics Platform, for which BD² awarded $15 million.

"With the generous support of BD², we will deploy patient-derived cellular models combined with functional genomics and genome engineering to shed light on the biological processes underlying bipolar disorder," Lehner said in a statement. "By leveraging the Genomic Psychiatry Cohort, our study will also begin to address the pressing need for genetic and cellular data from diverse populations."

The Wyss Institute team, led by PI Jenny Tam, will use a platform called CircaVent, which combines in silico drug prediction with data from in vitro and omics technologies to identify promising treatments and treatment targets for bipolar disorder.
Meanwhile, the Stanford team led by PI Julie Kauer plans to engineer mice with bipolar disorder risk gene mutations and investigate how these genes function within sleep and wake cycles. The investigators will more specifically use CRISPR gene editing technology to disrupt bipolar disorder-linked genes from cells in two specific brain regions already linked to mania-like phenotypes, sleep regulation, and impulsive behavior.

Finally, the Yale group headed by PI Hilary Blumberg plans to investigate brain mitochondrial metabolism and function in vivo using neuroimaging, and to further explore molecular mechanisms, including mitochondrial mechanisms, of bipolar disorder using stem-cell approaches. The team also hopes to discover new neuronal mitochondrial metabolic mechanisms via a genomics and metabolomics platform that explores relevant mitochondrial-related genes.

In addition, BD² announced the opening of a second round of Discovery Research funding opportunities. Awardees will similarly be eligible for grants of up to $4.5 million over three years.