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Mayo Clinic researchers identify six potential biomarkers for bipolar I disorder

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Mayo Clinic researchers have discovered a series of proteins that could be diagnostic markers to identify bipolar I disorder. If this discovery sample can be validated through replication these markers may help as a diagnostic tool for psychiatrists treating mood disorders. The findings appear in the journal *Translational Psychiatry*.

"The potential of having a biological test to help accurately diagnose bipolar disorder would make a huge difference to medical practice," says Mark Frye, M.D., head of psychiatry and psychology at Mayo Clinic and first author of the study. "It would then help clinicians to choose the most appropriate treatment for hard-to-diagnose individuals."

Up to now psychiatrists have relied on observed symptoms and patient assessments based on interviews. That information is then compared to established diagnostic criteria. In contrast to other medical conditions—such as heart attack or cancer—there is no biological marker in mood disorders in general, bipolar disorder in particular, to help confirm clinical diagnosis. It is critical to differentiate bipolar disorder from other mood disorders as the treatments differ and a medication suited to one condition may be dangerous to patients with another.

This feasibility study examined 272 different proteins in 288 separate patient blood samples. Of the study volunteers, 46 had been diagnosed with bipolar I (history of mania) depression, 49 with bipolar II (history of hypomania) depression, and 52 with unipolar depression. They were

compared with 141 individuals without mood disorders, known as controls. In total, after adjusting for variables, 73 proteins were found to differ among the four groups studied. The results however showed a significant difference for six proteins in individuals with bipolar I depression vs. controls.

The researchers believe this to be "one of the first studies to assess the feasibility of high throughput multiplexed immunoassay technology (272 proteins) trying to distinguish different types of mood disorders." They emphasize the research needs to be replicated using a larger sample and follow up should determine how representative the six proteins are of those that might be unique in association with bipolar I.

Provided by Mayo Clinic