

# Study finds a chemical signature for 'fast' form of Parkinson's

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(Medical Xpress)—The physical decline experienced by Parkinson's disease patients eventually leads to disability and a lower quality of life. Depending on the individual, the disorder can progress rapidly or slowly.

Scientists at UCLA and colleagues have now, for the first time, identified a biochemical signal in the blood associated with the faster-progressing form of Parkinson's. Such a biomarker could help doctors predict early on, just after the onset of motor symptoms, how rapidly the disease will progress. The researchers said they hope blood-based biomarkers like this one will aid in earlier detection and lead to more effective [disease management](#).

The research findings appear in the online edition of the journal *PLOS ONE*.

Parkinson's disease is the second most common neurodegenerative disorder, afflicting more than 1 percent of all people over 60. Besides Parkinson's effects on walking, speaking and other motor functions, the disease also results in cognitive decline and depression. Further, it places a tremendous burden on caregivers and costs the U.S. an estimated \$23 billion annually.

"The course of Parkinson's can be highly variable," said Dr. Beate Ritz, professor and chair of the department of epidemiology at UCLA's Fielding School of Public Health and one of the senior authors of the paper. "Some patients can become wheelchair-bound, demented or

severely depressed within just a few years after diagnosis, while others are spared for longer periods."

For the study, the researchers initially drew [blood samples](#) from 250 Parkinson's patients in the early stages of the disease who were living in the Central Valley region of California. These patients were then followed for five to 10 years. Forty of them were identified as having slow-progressing Parkinson's, and 40 had the fast-progressing form of the disease. Blood samples from patients in both groups were compared to samples from a group of 20 healthy individuals from the same area in California.

The researchers used high-resolution mass spectrometry to identify metabolic or chemical fingerprints in the blood. They discovered a potential biomarker for the fast-progressing type of Parkinson's disease. That biomarker, called N8-acetyl spermidine, was significantly elevated in the rapid progressors, compared with both the slow progressors and the healthy control subjects.

"This is an important step forward in understanding how Parkinson's evolves," said Ritz, who holds a joint appointment as a professor in the UCLA Department of Neurology. "Such biomarkers reflecting the pathogenesis of Parkinson's are greatly needed due to the fact that the degeneration of the neurons in the brain that produce dopamine—a hallmark of Parkinson's disease—is an irreversible process. In addition, that process begins up to 20 to 30 years before imaging can identify any brain changes.

"Our hope is that such biomarkers may aid in earlier detection and more effective disease management, and that they will lead to new prevention strategies and improved clinical trials for new treatments based on a better understanding of how the disease progresses."

**More information:** [www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0077629](http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0077629)

Provided by University of California, Los Angeles

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