

'Window into the brain': A simple blood test to diagnose ALS is both robust and repeatable

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Dr. Rachael Dunlop conducts real-time PCR on microRNA extracted from extracellular vesicles derived from blood samples from ALS patients. Credit: Paul Alan Cox, Brain Chemistry Labs

ALS is a rare paralytic neurological disease that can impact people in the prime of life. Delays in receiving a definitive diagnosis can be devastating for patients who typically survive only 2–5 years post-diagnosis.

Currently, an ALS diagnosis requires multiple clinical examinations by a neurologist to determine disease progression. Unfortunately, misdiagnosis can occur, resulting in a delay of treatment.

A [simple blood test](#) for ALS that could be administered in a doctor's office could accelerate referrals to neurological specialists for confirmation. Based on analysis of small genetic fragments called microRNA, such a test has been developed by scientists at the non-profit, Brain Chemistry Labs, in Jackson Hole. The test accurately identifies patients with ALS, based on analysis of blood samples from seventy ALS patients, and seventy controls.

The microRNA is extracted from [small particles](#) in the bloodstream called extracellular vesicles, which protect the genetic cargo from degradation. A unique protein, L1CAM, allows concentration of particles that are diagnostic of ALS.

The test is robust and repeatable, as described this week in the journal *RNA Biology*.

"This test will assist neurologists in making a definitive and rapid diagnosis of ALS," lead author Dr. Rachael Dunlop said.

Early diagnosis means patients can receive treatment sooner. "Time is of the essence for ALS patients," explains co-author Dr. Sandra Banack.

The test can also be used in [clinical trials](#) to determine the efficacy of new drug treatments for ALS—a disease for which there is currently no

cure.

More information: Rachael Anne Dunlop et al, L1CAM immunocapture generates a unique extracellular vesicle population with a reproducible miRNA fingerprint, *RNA Biology* (2023). [DOI: 10.1080/15476286.2023.2198805](https://doi.org/10.1080/15476286.2023.2198805)

Provided by Brain Chemistry Labs

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