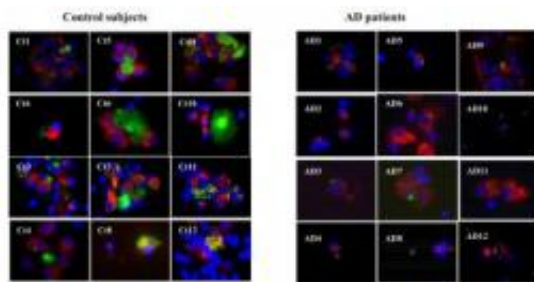


# How immune cells may help predict Alzheimer's risk?

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Blood cells from 12 control subjects (left) and blood cells from 12 Alzheimer's disease patients (right) were tested with amyloid-beta with a green fluorescent marker. Note that all 12 samples from control group show monocytes (red) loaded with amyloid-beta (green), whereas samples from Alzheimer's patients had monocytes (red) that did not take up any green or took up only a minute amount. Credit: UCLA

What if you could test your risk for Alzheimer's disease much like your cholesterol levels -- through a simple blood test?

UCLA scientists have discovered a way to measure the amount of amyloid beta that is being absorbed by immune cells in the blood. Amyloid beta forms the plaques considered the hallmark of Alzheimer's disease, and if the immune system isn't adequately clearing amyloid beta, it may indicate Alzheimer's risk, according to the researchers.

MP Biomedicals LLC, a global life sciences and diagnostics company

dedicated to Alzheimer's disease research, has received an exclusive, worldwide license to commercialize the UCLA technology and create a diagnostic blood test for public use to screen for Alzheimer's risk.

"Early diagnosis is the cornerstone of preventive approaches to Alzheimer's disease," said Dr. Milan Fiala, lead author of the UCLA study and a researcher at the David Geffen School of Medicine at UCLA and the Veterans Affairs Greater Los Angeles Healthcare System. "We are pleased that the process we've identified using immune cells to help predict Alzheimer's risk will be further developed by MP Biomedicals."

"We are excited by the opportunity to forward the UCLA science in creating a cost-effective [blood test](#) to screen for Alzheimer's risk that could be used in any hospital or lab," said Milan Panic, CEO of MP Biomedicals.

Dr. Miodrag Micic, vice president of research and development for MP Biomedicals, noted that other blood tests for Alzheimer's diagnosis measure factors such as inflammation and infection, which are also present in other diseases like atherosclerosis and may complicate the interpretation of results.

The recently published study on the process identified by UCLA, which uses the "innate" immune system present at birth, appeared in the May issue of the [Journal of Neuroimmunology](#).

In the study, researchers took blood samples and isolated monocytes, which from birth act as the immune system's janitors, traveling through the brain and body and gobbling up waste products — including amyloid beta. The monocytes were incubated overnight with amyloid beta, which was labeled with a fluorescent marker. Using a common laboratory method known as flow cytometry, researchers then measured the amount

of amyloid beta ingested by the [immune cells](#) by assessing how much fluorescence was being emitted from each monocyte cell.

The 18 Alzheimer's disease patients in the study showed the least uptake of amyloid beta; the healthy control group, which consisted of 14 university professors, demonstrated the highest uptake. The method was able to distinguish with adequate sensitivity and specificity the Alzheimer's disease patients.

The results were found to be positive in 94 percent of the Alzheimer's patients and negative in 100 percent of the university professor control group. In addition, the results were found to be positive in 60 percent of study participants who suffered from mild cognitive impairment, a condition that increases the risk of developing Alzheimer's.

"Patients and control subjects were also tracked over time to see if their immune response changed," Fiala said. For example, an Alzheimer's disease patient over time showed declining results, while a university professor continued to demonstrate a high uptake of amyloid beta.

Micic noted that the new method could be a flag for further testing and interventions.

"Similar to screening patients for heart disease risk by a cholesterol test, a positive result for Alzheimer's risk in some patients may suggest further interventions and advanced diagnostics, such as a brain PET scan and neurocognitive testing."

Source: University of California - Los Angeles

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