

Researchers discover possible way to predict Alzheimer's

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(PhysOrg.com) -- Two new studies, involving a newly identified gene, show that Alzheimer's disease could be diagnosed as much as 20 years before symptoms develop.

The studies by Dr. Mark Sager, professor of medicine at the University of Wisconsin School of Medicine and Public Health and director of the Wisconsin Alzheimer's Institute, and Sterling Johnson, UW School of Medicine and Public Health associate professor of medicine and researcher at the Geriatric Research Education and Clinical Center at the Madison VA Hospital, were presented today at the International Conference on Alzheimer's Disease in Honolulu.

Sager's study included 726 healthy, middle-aged people with a family history of Alzheimer's disease. All carried both the newly identified gene (TOMM40) and APOE, a well-established risk gene for Alzheimer's. Researchers discovered that the 229 people with the high-risk version of TOMM40 did significantly worse on tests of learning and memory than study participants with the low-risk version.

"The deficits shown by the high-risk group are similar to the kinds of changes in memory and learning that are seen in very early Alzheimer's," says Sager, also a practicing geriatrician. "In this study population, TOMM40 genotyping allowed us to find evidence of very early Alzheimer's disease at least 20 years before any outward symptoms would be noticed."

Johnson found that healthy, middle-aged adults who have the high-risk version of TOMM40 had a significantly lower volume of [gray matter](#) in two [brain regions](#) affected in early Alzheimer's disease. Johnson says the finding in the brain's posterior cingulate could represent a "neuro signature" for Alzheimer's disease.

"This is the first study to associate TOMM40 to brain imaging in people at risk for Alzheimer's," says Johnson. "The research suggests that the group with the high-risk version of TOMM40 may be having early signs of cognitive and [brain changes](#) related to Alzheimer's."

In research published last year, Duke University Medical Center researchers identified the gene and found that it not only can predict risk of developing Alzheimer's disease, but also the approximate age when an individual will develop the disease.

"If validated through additional research, the combination of a genetic test and an MRI could provide an otherwise healthy middle-aged person with an assessment of their likely risk of developing Alzheimer's disease," says Allen Roses, M.D., director of the Deane Drug Discovery Institute at Duke. "These findings, paired with new data about the frequencies of the TOMM40 gene in different ethnic groups, provide the basis for conducting a prevention trial that can be done in a fraction of the time and requiring fewer participants than previous efforts."

Study participants came from the Wisconsin Registry for the Alzheimer's Prevention, the largest pool of middle-aged, asymptomatic adults with a family history of Alzheimer's disease.

Provided by University of Wisconsin-Madison

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