Tackling Alzheimer's

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(Medical Xpress) -- Specific genes known to be one of the causes of a rare type of Alzheimer's, which runs in families, are unlikely to contribute to the more common form of the disease, University scientists have uncovered.

A team of scientists from the University's MRC Centre for Neuropsychiatric Genetics and Genomics and Neuroscience and Mental Health Research Institute examined three genes APP, PSEN1 and PSEN2 known to cause uncommon early onset forms of Alzheimer's.

The team sought to establish whether common genetic variation within these genes confer risk to the more frequent form of Alzheimer's, which occurs later in life in people aged over 65.

Dr Amy Gerrish, School of Medicine, who led the research, said: "We tested single-nucleotide polymorphisms (SNPs) at APP, PSEN1, PSEN2 as well as MAPT, a gene linked to Alzheimer's pathology for association with common Alzheimer's in a large case-control sample consisting of 3,940 cases and 13,373 controls.

"The study provides evidence that common variation within APP, PSEN1 and PSEN2 genes, which cause early-onset Alzheimer's, as well as MAPT is unlikely to make a strong contribution to common Alzheimer's disease."

The findings, published in the *Journal of Alzheimer's Disease*, add to the growing body of evidence which is helping to piece together the genetic,

environmental and social factors which contribute to a person's risk of developing Alzheimer's.

Previous Cardiff research has identified an additional eight new genes – bringing the total number of genes that increase the risk of developing Alzheimer's to ten.

The discovery of these new genes has enabled the team to identify differences in the responses of people with Alzheimer's disease.

Specifically, they are able to implicate a number of risk factors including: a sufferer's immune system, the ways the brain processes cholesterol and lipids and for the first time, a process called endocytosis – which, in normal healthy brains removes toxic amyloid-beta protein from the brain.

Dr Gerrish added: "What our research suggests is that the cause of common Alzheimer's disease is more complex than early onset Alzheimer's, involving multiple risk genes, environmental and lifestyle factors.

"This study, plus our previous studies, means we are beginning to piece together the jigsaw and gain new understanding. We still have a long way to go – but the jigsaw is beginning to come together."

More information: www.j-alz.com/

Provided by Cardiff University