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CANADIAN GENETIC DISEASES NETWORK

CANADIAN SCIENTIST LEADS DISCOVERY OF GENE FOR EARLY ONSET ALZHEIMER'S DISEASE

An international team of scientists led by a member of the Canadian Genetic Diseases Network, Dr. Peter St George-Hyslop of the University of Toronto, has discovered the gene responsible for early-onset Alzheimer's disease, the most severe form of the disease.

A member of the team, Dr. Johanna Rommens, also of the Canadian Genetic Diseases Network and of Toronto's Hospital for Sick Children, collaborated closely with Dr. St George-Hyslop and was instrumental in the discovery.

The findings of the team will be published in the June 29 issue of the journal *Nature*.

Early onset Alzheimer's disease is a rare but extremely aggressive form of Alzheimer's disease that affects individuals aged 30 to 60 years. It progresses faster than the more common late onset forms of the disease which typically affects people after age 65, but it is otherwise identical.

"Alzheimer's disease is a very complex disorder", said Dr. St George-Hyslop. "Some types of the disease have purely genetic roots - early onset being one of them. We know that there are at least three and probably four or five different genes that are involved in the inherited susceptibility to this disease." He added that in most forms of the disease, there is probably a mixture of genetic predisposition and environmental cause.

Three years ago, Dr. St George Hyslop's team found evidence that the gene responsible for Alzheimer's disease was to be found on chromosome 14. After examining various genes in this region without finding the mutations responsible for the disease, the team began a new search. In collaboration with Dr. Johanna Rommens, they employed a specialized cloning technique to isolate genes from chromosome 14 and, after looking at 19 additional genes, they eventually found one bearing the mutations which are specific to people with early onset Alzheimer's disease.

Commenting on the next step in research on the disease Dr. Rommens said, "This gene will provide insight into the cause and progression of Alzheimer's disease. The mutations already provide important clues to how the defective protein product malfunctions."

Speaking from his laboratory at the University of British Columbia, Dr. Michael Hayden, Scientific Director of the Canadian Genetic Diseases Network, expressed his delight that the Network has played a role in supporting Dr. St George-Hyslop's research. He commented "The Network's continuing commitment together with the support of Network core technology facilities and collaborations across Canada will be crucial to the rapid progress of Dr. St George-Hyslop's work towards improved diagnostics and ultimately new therapies for this disease".

The Canadian Genetic Diseases Network is a consortium of 38 of Canada's leading geneticists who are linked with twelve universities across Canada, 10 core facilities, and 8 industrial partners to form an "institute without walls". The network carries a mandate under the federal government's Networks of Centres of Excellence Program to perform leading-edge research and to work with industry partners on detection and treatment of genetically-transmitted disease.

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