Accelerated Cure Project for MS

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Accelerating research towards a cure for multiple sclerosis

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Repository Spotlight – Genetic Relationships in MS

There is evidence that there is genetic risk for MS that may be inherited, and that many genes contribute to MS susceptibility. In addition, researchers believe one or more factors in the environment trigger those genetically at risk to develop MS. Identifying and understanding the genetic and environmental factors in MS may provide key information regarding the cause of the disease and ways to prevent it. Specific genes may also represent new therapeutic targets for the development of more effective MS treatments.

Researchers from 15 countries are working together to shed light on the genetics of MS, as part of the International MS Genetics Consortium (IMSGC). ACP Repository samples from subjects with MS have been made available to investigators in the IMSGC as part of this effort. While the genetic factors in MS are not as clear as they are in other diseases, significant progress has been made in identifying them. In 2007, researchers with the IMSGC discovered two genes that predispose people to developing MS. In 2016, a genome-wide analysis of over 110,000 people revealed 200 genetic variations related to MS. Work is underway to interpret these genetic variations, as well as identify the specific immune cells and proteins that may be involved. This information may lead to the development of tools to predict an individual's risk for developing MS, as well as better diagnostic tools (for example, a blood test that would use genetic information to diagnose MS early in the disease course). Studies are also underway to better understand the interaction of genes with lifestyle and environmental factors (such as smoking or lack of sun exposure) and how this interplay affects MS risk. This knowledge may enable those with MS-affected relatives to take preventive measures against developing the disease. In addition,

investigators focusing on ethnic groups with varying levels of susceptibility to MS may help to understand the clinical differences between ethnic groups, and help pinpoint genes that may be specific to a given population. The powerful collaborative effort within the IMSGC is just one of the many ways ACP Repository samples have been used to advance and accelerate research into MS.