

Scientists discover gene responsible for brain's aging

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Will scientists one day be able to slow the aging of the brain and prevent diseases such as Alzheimer's and Parkinson's? Absolutely - once the genetic coding associated with neuronal degeneration has been unraveled.

According to a new study published in *The Journal of Neuroscience*, a research team from the Université de Montréal, Maisonneuve-Rosemont Hospital and Lawrence Berkeley National Laboratory has taken a giant step in this direction by identifying a gene that controls the normal and pathological aging of neurons in the central nervous system: Bmi1.

The primary risk factor for diseases such as macular degeneration, Parkinson's and Alzheimer's is age. Although many researchers have sought to better understand the genetics and pathophysiology of these diseases, few studies have focused on the basic molecular mechanisms that control neuronal aging.

Dr. Gilbert Bernier, of the Université de Montréal and Maisonneuve-Rosemont Hospital, led a team that identified a mutation in mice that dramatically accelerates the process of aging in the brain and the eye. The new study reveals that neurons in the retina and cerebral cortex require a gene called Bmi1 to prevent activation of the p53 pathway and the accumulation of free radicals.

"Overall, we have now established that the Bmi1 gene is a direct regulator of cell aging in brain and retinal neurons of mammals through

its action on the defense mechanisms against free radicals," says Dr. Bernier.

Paper: The article entitled "The Polycomb Group Gene Bmi1 Regulates Antioxidant Defenses in Neurons by Repressing p53 Pro-Oxidant Activity," published in The Journal of Neuroscience, is the work of Dr. Gilbert Bernier in collaboration with Wassim Chatoo, Mohammed Abdouh, Jocelyn David, Marie-Pier Champagne, José Ferreira from the Université de Montréal and Maisonneuve-Rosemont Hospital with Francis Rodier from the Lawrence Berkeley National Laboratory, San Francisco, U.S.

Source: University of Montreal

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