



RESEARCH NEWS

Discovery of a pivotal gene in the regulation of brain aging: unlocks clues to age-related macular degeneration

January 14, 2009 – Dr. Gilbert Bernier and his research team at the Maisonneuve-Rosemont Hospital have taken a giant step in the fight against diseases related to brain aging. They identified a gene that controls the normal and pathological aging of neurons in the central nervous system. This knowledge could one day help scientists slow the aging of the brain and prevent diseases, such as macular degeneration (AMD), Alzheimer's, and Parkinson's. The finding was funded in part by the Foundation Fighting Blindness; and has been published in the prestigious *Journal of Neuroscience* on January 14, 2009.

Dr. Gilbert Bernier and his team have 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, which are known to play a role in AMD.

"Since aging is a major risk factor in AMD, understanding the aging process of the eye is important to understand the disease," explains Dr. Bernier. "Overall, we have now established that Bmi1 controls cellular aging through its role in regulating free radical concentrations."

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.

The article titled "The Polycomb Group Gene Bmi1 Regulates Antioxidant Defenses in Neurons by Repressing p53 Pro-Oxidant Activity" is the work of Dr. Gilbert Bernier in collaboration with Wassim Chatoo, Mohammed Abdouh, Jocelyn David, Marie-Pier Champagne, José Ferreira from the Research Centre of the Maisonneuve-Rosemont Hospital and Francis Rodier from the Berkeley National Laboratory in San Francisco.

The Foundation Fighting Blindness (FFB) is Canada's largest private contributor of vision research, thanks to its generous donors and long-time annual fundraisers, Comic Vision & Ride for Sight. Since its inception in 1974 the FFB has funded dozens of research discoveries to identify the causes of genetic forms of blindness at universities and hospitals across Canada. Today, these discoveries have helped bring scientists to this very exciting time in vision research, translating knowledge into treatments to restore the gift of sight. For more information please visit: www.ffb.ca, or email: info@ffb.ca, or call 1-800-461-3331. Only your ongoing support will ensure that funding for promising multi-year research projects will continue. To support vision research today, [click here](#).