

Support the Pedaling for Parkinson's Research Grant

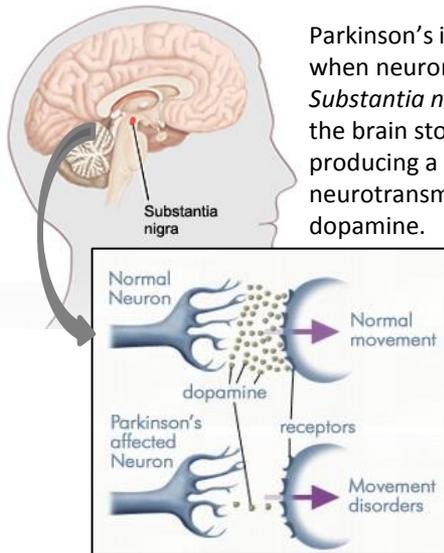
Your donation dollars: Supports research that investigates improving brain areas affected by Parkinson's



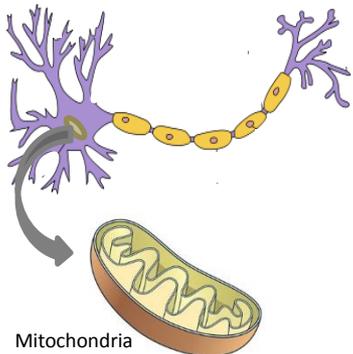
SUPPORT A RESEARCH GRANT THAT TARGETS IMPROVING THE HEALTH OF BRAIN AREAS INVOLVED WITH PARKINSON'S.

Background of Parkinson's

Parkinson's is caused when neurons in the *Substantia nigra* of the brain stop producing a neurotransmitter, dopamine.



Mitochondria, small units of neurons, produce the energy needed to support neuronal activities and health.



Dr. Scott Ryan, one of the recipients of the 2014 **Pedaling for Parkinson's Research Grant**, from the University of Guelph, has identified proteins which may keep dopamine-producing cells in the brain alive.

Why do neurons stop producing dopamine?

Death of dopamine producing neurons has been associated with factors such as:

- Abnormal mitochondrial function in dopamine neurons
- Abnormal protein folding/levels in dopamine neurons

What is the purpose of Dr. Ryan's research?

- Understanding what causes mitochondria abnormalities in disease in and developing new therapies that restore normal function in PD neurons.
- Dr. Ryan will use a human stem cell model to study how mitochondrial stress mechanisms change the function of neurons that are affected by disease.

Why use human stem cells?

- When studying the mechanisms of neurodegenerative disease, the traditional animal systems don't reproduce all aspects of the disease.
- Human stem cells overcome some of these limitations by providing a source of neurons directly from a Parkinson's patient.

How does the research work?

- Using skin cells from a person with Parkinson's, researchers first converted these cells into stem cells.
- Through genetic manipulation, the disease causing genes were "corrected" thus creating two genetically identical systems for comparison, one with the disease and one without.
- From these cells the team can make dopamine producing neurons for study.

What do they hope to learn?

- Better understanding of what causes the abnormalities in mitochondrial function in Parkinson's.
- Insights into ways to overcome the deficits in function to identify new targets for therapy
- Screen potential drug candidates for their ability to re-activate these targets

What does this research mean for people with Parkinson's?

- Dr. Ryan and a drug discovery team hope to identify and create new drug therapies.

Your fundraising dollars help fund the research that is working towards finding a cure and new treatments for Parkinson's. Thank you for making a difference in the lives of people and families affected by Parkinson's.

Pedaling for Parkinson's
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www.pedalingforparkinsons.ca