SCOTTISH RITE CHARITABLE FOUNDATION
VALLEY LIAISON COMMITTEE

In this issue of the Valley Liaison Message, we would like to share some information about the research funded by the Foundation to be undertaken by Dr. Joel Watts, Ph.D. from the Tanz Centre for Research in Neurodegenerative Diseases at the University of Toronto. His research is entitled, "The Role of the Cellular Prion Protein in Alpha-Synucleic Propagation".

While the title is confusing, the underlying principles are relatively straightforward. Alzheimer's, Huntington's, Parkinson's, ALS and Frontal Temporal Dementia as experienced by those who have had concussions are all neurodegenerative diseases, that is, diseases of the brain and they are all progressive. In other words they continue to get worse and there is no current cure for any of them. A common trait in all of them is that there is a misfolding or clumps of protein within the cells that disrupt the functioning of those cells. Dr. Watts is specifically focusing on Parkinson's Disease (PD) and the interaction with a specific protein known as prion. Parkinson's is the second most common neurodegenerative disorder behind Alzheimer's. It occurs at a rate of one new case in 5,000 people per year and after age 70 it is found in approximately one in 100 people.

Within the brain, there is a region called the substantia nigra. It has been found that in PD there is a loss of cells in this region. These cells produce dopamine, a component important for cells to communicate with one another. A loss of dopamine means poorer communication which causes the cells to go "haywire" leading to movement disorders such as the trembling seen in PD. Levodopa or L-dopa is a drug commonly used with PD patients but it is a substitute for dopamine and it only addresses the symptoms, not the cause.

Within the cells, proteins clump together and these clumps block normal transmission of signals. These tend to start in the brain stem but then they spread to other parts as the disease evolves and, as it does so, symptoms get worse. In order to understand the progression of the disease, it is important to understand how these protein clumps move from cell to cell. It is thought that the prion protein may, in fact, "open the door" to allow the clumps to spread.

It has been learned that mice, as they get older, often develop PD-like symptoms and, on examination, have been found to have prion protein in brain cells. Mice have been bred to have no prion protein and these will subsequently be bred with mice that have the PD cells. The theory is that mice with no prion will have later, or no, onset of PD because the symptoms will not be able to spread within the cells. Preventing the cell-to-cell spread of these aggregates may halt the progression of PD. This would imply that lowering the levels of prion protein may be a therapeutic strategy for the treatment of PD. The potential results of this research for those who may become stricken with PD are exhilarating.

This is but another example of how your donations to the Scottish Rite Charitable Foundation are, in turn, working towards "Solving the Puzzles of the Mind". To learn more about this intriguing research visit the Foundation website at www.srcf.ca and click on Videos to hear and see Dr. Watts give an easily-understood explanation of this research. And remember to use the blue envelope to make your donation to the Scottish Rite Charitable Foundation!

Ron Findlater 33°
Valley Liaison Committee Chairman