Aberrant phospholipid and sphingolipid metabolism is a primary and targetable pathology in Alzheimer Disease

https://neurodegenerationresearch.eu/survey/aberrant-phospholipid-and-sphingolipid-metabolism-is-a-primary-and-targetable-pathology-in-alzheimer-disease/

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Aberrant phospholipid and sphingolipid metabolism is a primary and targetable pathology in Alzheimer Disease

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CIHR

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01/04/2014

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5.0

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords
Research Abstract

747,000 Canadians are living with Alzheimer Disease. One new patient is diagnosed every seven minutes. The emotional toll is incalculable. Prognosis is bleak. Insidious cognitive decline

eliminates identity and renders victims dependent upon custodial care. The financial cost is staggering. $33 billion/yr is spent caring for afflicted Canadians or in lost earnings. There is no means of preventing or slowing down the disease. Current medications afford a modest boost in brain cell function, temporarily masking decline in brain function, but do not alter prognosis. There is a pressing need for strategies that target the brain cell changes that occur early in Alzheimer Disease prior to memory loss. If we can maintain brain cell function, we can help patients retain their identity and their dignity. In this proposal, we examine how changes in the lipid (fat) composition of brain cells precedes memory loss and renders brain cells vulnerable to Alzheimer Disease. Lipids are fat soluble molecules. There are thousands of different lipids in each brain cell. It is known that families of lipids are altered over the course of Alzheimer Disease but they have, for the most part, been ignored given the technical challenges associated with identifying lipid subtypes. As such, we have been unable to separate “good” from “bad” changes in lipids in diseased brain. In this proposal, we have developed a new methodologies to compare the individual types of lipids present in diseased and healthy brain. Using these methodologies, we have identified a series of potentially damaging lipid species. We propose to establish whether accumulation of these lipid subtypes affects brain cell viability and function and how these changes can be predicted by examining networks of fats changing in blood. Using this information, we will determine whether preventing the accumulation of specific lipids in Alzheimer Disease can be used to reduce brain damage and slow down memory loss.

Lay Summary
Further information available at:

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Investments > €500k

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Alzheimer's disease & other dementias

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