



Trehalose - Link to the Alzheimer's Mystery

New Research Confirms why our T/C+ Pilot Studies are so Successful

Glycoscience Lesson #41

by JC Spencer

A research team at the University of Bonn, Germany has discovered that the sugar Trehalose goes beyond just reducing the secretion of the neurotoxic amyloid β -peptide within the brain. Previous research indicates that amyloid β peptide is the crucial step in the development of Alzheimer's.

The University of Bonn research paper published March 8, 2016 explains how Alzheimer's progression is slowed. Trehalose is found to alter the metabolism of the Alzheimer related amyloid precursor protein. Cell treatment with Trehalose decreased the degradation of full-length amyloid precursor protein and its cell terminal fragments. Biochemical and cell biological experiments revealed that Trehalose also alters the subcellular distribution.

The Journal of Alzheimer's Disease in early 2013 published a paper of the research performed by the Miami Miller School of Medicine and presented through the University of Miami. The university study was inspired by two very encouraging Alzheimer's Pilot Surveys conducted by The Endowment for Medical Research in Houston and published in Proceedings of the Fisher Institute for Medical Research in March 2006 and March 2007.

In 2008, I wrote these words in the textbook on Glycoscience and brain function, *Expand Your Mind - Improve Your Brain*, "The economical impact this discovery can have on the nation is astounding. There are currently some six million Alzheimer's patients in the United States with an expected fifteen million within the next few years. The current cost of caring for these victims is estimated at \$75,000 per person year per year. That is an annual economic burden of four hundred and fifty billion dollars.

"Delaying the onset of Alzheimer's for 15 million patients just one year could result in a national savings of \$1.125 trillion minus normal living costs, still leaving a savings of approximately \$1 trillion."

Now, the actual Abstract from University of Bonn:

Trehalose alters subcellular trafficking and the metabolism of the Alzheimer-associated amyloid precursor protein.

J Biol Chem 2016 Mar 8. Epub 2016 Mar 8.
Nguyen T Tien, Ilker Karaca, Irfan Y Tamboli, Jochen Walter

The disaccharide trehalose is commonly considered to stimulate autophagy. Cell treatment with trehalose could decrease cytosolic aggregates of potentially pathogenic proteins, including mutant huntingtin, alpha-synuclein and phosphorylated tau that are associated with neurodegenerative diseases. Here, we demonstrate that trehalose also alters the metabolism of the Alzheimer related amyloid precursor protein (APP). Cell treatment with trehalose decreased the degradation of full-length APP and its C-terminal fragments (CTFs). Trehalose also reduced the secretion of the amyloid β -peptide. Biochemical and cell biological experiments revealed that trehalose alters the subcellular distribution and decreases the degradation of APP-CTFs in endolysosomal compartments. Trehalose also led to strong accumulation of the autophagic marker proteins LC3-II and p62, and decreased the proteolytic activation of the lysosomal hydrolase cathepsin D. The combined data indicate that trehalose decreases the lysosomal metabolism of APP by altering its endocytic vesicular transport.

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(End of Abstract)

We welcome participation in our Alzheimer's Pilot Surveys with the Trehalose formulated T/C+. Anyone interested in participating in our Match Funding Program may apply at <http://PilotStudies.net> or call our offices at 281-587-2020

Source and References:

University of Bonn <http://ncbi.nlm.nih.gov/pubmed/22976077>
University of Miami <http://endowmentmed.org/pdf/SmartLesson89.pdf>

Expand Your Mind - Improve Your Brain
<http://endowmentmed.org/content/view/826/106/>
Change Your Sugar, Change Your Life <http://DiabeticHope.com>
Glycoscience Lesson #41 <http://GlycoscienceNEWS.com/pdf/Lesson41.pdf>
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