Multiple Sclerosis and A Royal Sugar

Smart Sugars Lesson #30

by JC Spencer

Glycomics is about altering gene expression with specific sugars to achieve beneficial functions.

Toxins alter gene expression and cause the misfolding of proteins that in turn cause many health challenges. Researchers have discovered that certain sugars may correct the altered gene expressions.

The University of California Irvine has connected the dots between Multiple Sclerosis and the Royal Sugar N-acetylglucosamine.

The study leader Dr. Michael Demetriou is a UCI neurologist and the associate director of the University of California Irvine Multiple Sclerosis Research Center said, “It is likely that we have uncovered only the tip of the iceberg.” He expressed hope that physicians will someday be able to reverse the genetic-induced defects with vitamin D3 or the sugar N-acetylglucosamine.

Demetriou says that one of the primary reasons that this area of MS research has remained unexplored is that protein glycosylation is still an under-studied field.

Here at The Endowment for Medical Research, we have been telling our readers for the last few years that MS and other neurodegenerative diseases are caused by the misfolding of the proteins.

Demetriou added, "Very few medical researchers understand protein glycosylation despite the fact that virtually all cell surface and secreted proteins are modified by the addition of sugars and that this imparts critical non-genome encoded information to the protein that alters cell function."

Dr. Demetriou and his team have analyzed samples from roughly 13,000 people and identified how environmental factors cause a spontaneous MS-like disease. The work conducted at UCI has produced data that Dr. Demetriou believes may point the way forward for personalized therapies for MS.

"Our data indicates that specific combinations of genetic and environmental risk factors lead to defects in protein glycosylation, thereby promoting multiple sclerosis," Demetriou says. "Thus, we can predict, based on genotyping, which patients are most likely to benefit from this type of therapy, which we also show inhibits MS-like disease in mice by altering protein glycosylation."

"It is likely that we have uncovered only the tip of the iceberg and that there are many yet to be discovered genetic factors that also alter protein glycosylation to promote MS and other autoimmune diseases," he says. "We are currently vigorously investigating this possibility and are planning to move forward with a clinical trial of N-acetylglucosamine alone and in combination with vitamin D3."

We have a 14 hour Glycomics DVD Training Series in glycosylation and the benefits of the different sugars in effecting gene expression.

Source:
www.eurekalert.org/pub_releases/2011-05/uoc--urf052711.php