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Soya Beans Could Hold Clue to Treating Fatal Childhood Disease

Scientists from The University of Manchester say a naturally occurring chemical found in soy could prove to be an effective new treatment for a fatal genetic disease that affects children.

Dr. Brian Bigger, from the University's MPS Stem Cell Research Laboratory, found that genistein -- derived from soya beans and licensed in the US as an osteoporosis drug -- had a dramatic effect on mice suffering from the human childhood disease Sanfilippo.

"Sanfilippo is an untreatable mucopolysaccharide disease affecting one in 89,000 children in the United Kingdom," said Dr Bigger, who is based in the School of Biomedicine.

"Children with Sanfilippo disease experience progressive deterioration of mental function, similar to dementia, in early childhood, with other symptoms including severe behavioural problems, hyperactivity and ultimately death in early teens."

In the study, appearing in the Public Library of Science journal PLoS ONE, mice with Sanfilippo disease were fed with high doses of genistein over a nine-month period. Treated mice showed a significant delay in their mental decline, including a third reduction in the amount of excess sugars found in the brain as a result of the disease, and a sixth reduction in inflammation in the brain.

Importantly, the research, carried out with colleagues at St Mary's Hospital in Manchester, also showed that the hyperactivity and other abnormal behaviour normally seen in Sanfilippo mice were fully corrected by genistein treatment.

Professor Wraith, a co-author on the study and Consultant Paediatrician from Genetic Medicine in St Mary's Hospital, said "Sanfilippo is a disease where the genetic lack of an enzyme leads to a fault in the breakdown of complex sugars in the cell.

"This leads to storage of these undegraded complex sugars in cells, disturbances in brain function and ultimately to this profound mental deterioration that we see in the children with this condition. Manchester is a specialist centre for this type of genetic disease and as such we look after more than 100 patients from all over the UK and beyond."

The Manchester team, supported by the UK society for mucopolysaccharide diseases and the Manchester Biomedical Research Centre, hope to announce a placebo controlled clinical trial for patients with Sanfilippo disease in the near future.