

Experimental diabetes drug could help fight Alzheimer's disease

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(Medical Xpress)—A drug designed for diabetes sufferers could have the potential to treat neurodegenerative diseases like Alzheimer's, a study by scientists at the University of Ulster has revealed.

Type II diabetes is a known risk factor for Alzheimer's and it is thought that impaired insulin signalling in the brain could damage nerve cells and contribute to the disease.

Scientists believe that drugs designed to tackle [Type II diabetes](#) could also have benefits for keeping our [brain cells](#) healthy.

To investigate this, Prof Christian Hölscher and his team at the Biomedical Sciences Research Institute on the Coleraine campus used an [experimental drug](#) called (Val8)GLP-1.

This drug simulates the activity of a protein called GLP-1, which can help the body control its response to blood sugar. The scientists treated healthy mice with the drug and studied its effects in the brain.

Although it is often difficult for drugs to cross from the blood into the brain, the team found that (Val8)GLP-1 entered the brain and appeared to have no side-effects at the doses tested.

The drug promoted new brain cells to grow in the [hippocampus](#), an area of the brain known to be involved in memory. This finding suggests that as well as its role in insulin signalling, GLP-1 may also be important for

the production of new nerve cells in the [mouse brain](#).

The team found that blocking the effect of GLP-1 in the brain made mice perform more poorly on learning and [memory task](#), while boosting it with the drug seemed to have no effect on behaviour.

The new findings, published this week in the journal [Brain Research](#), are part of ongoing research funded by Alzheimer's Research UK, the leading dementia research charity.

Prof Hölscher, said: "Here at the Biomedical Sciences Research Institute, we are really interested in the potential of [diabetes drugs](#) for protecting brain cells from damage and even promoting new brain cells to grow. This could have huge implications for diseases like Alzheimer's or Parkinson's, where brain cells are lost.

"It is very encouraging that the experimental drug we tested, (Val8)GLP-1, entered the brain and our work suggests that GLP-1 could be a really important target for boosting memory. While we didn't see benefits on [learning and memory](#) in these healthy mice, we are keen to test the drugs in mice with signs of Alzheimer's disease, where we could see real improvements."

Dr Simon Ridley, Head of Research at Alzheimer's Research UK, said: "We are pleased to have supported this early stage research, suggesting that this experimental diabetes drug could also promote the growth of new brain cells. While we know losing brain cells is a key feature of Alzheimer's, there is a long way to go before we would know whether this drug could benefit people with the disease.

"This research will help us understand the factors that keep [nerve cells](#) healthy, knowledge that could hold vital clues to tackling Alzheimer's. With over half a million people in the UK living with the disease,

learning more about how to keep our brain cells healthy is of vital importance. Funding for dementia research lags far behind that of other common diseases, but is essential if we are to realise the true potential of research like this."

The Biomedical Science Research Institute (BMSRI) in Coleraine, is one of 15 University Research Institutes at Ulster and ranked second in the UK in the last national Research Assessment Exercise in 2008.

The BMSRI has been conducting pioneering research to investigate the underlying causes, diagnosis, treatment and prevention of human degenerative diseases."

Provided by University of Ulster

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