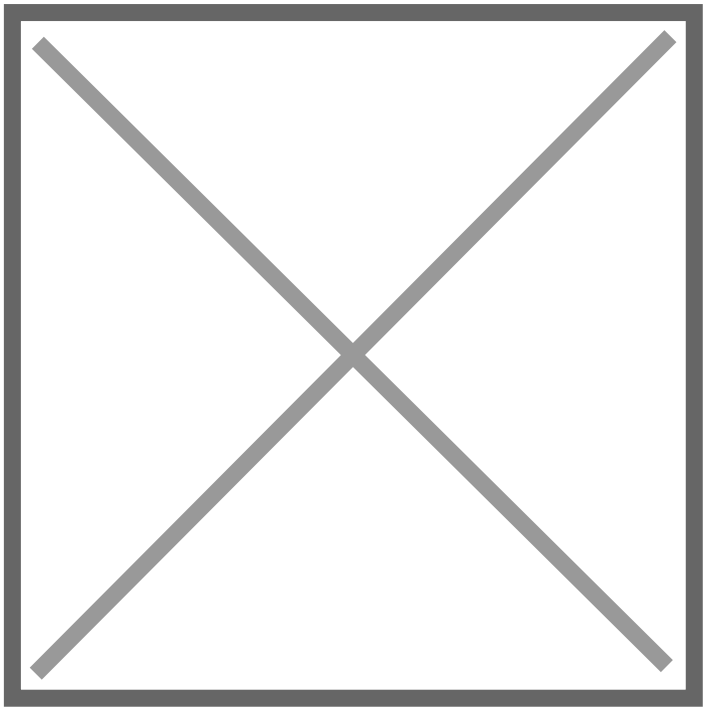
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Scientists developing new treatments for Alzheimer's

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British scientists have created a new chemical compound that could be developed into a drug treatment for Alzheimer's disease.

UK researchers at the University of Liverpool have used a family of long chain sugars called Heparan Sulphates (HS), found on nearly every cell of the body, to produce a new compound that can prevent the formation of clumps of small proteins that form in the brain.

The clumps disrupting the normal function of cells leading to progressive memory loss which is characteristic of Alzheimer's disease, are formed from a small protein fragment called Amyloid-beta (A-beta) peptide released from its "parent" protein Ã¢â?¬â?? amyloid precursor protein (APP), and the process requires the action of an enzyme called beta-secretase (BACE), critical in clipping up the APP to form the smaller A-beta fragments.

The researchers have discovered that the HS sugars may play a key role in limiting the development of Alzheimer's disease. The sugars stick to the BACE enzyme and reduce its ability to "clip" the A-beta peptide, thus controlling the amount of A-beta peptide available to form damaging clumps in brain tissue.

"We have developed a new class of compounds called 'engineered heparins' that could possibly be developed into drugs to stop A-beta peptides in the brain from forming and for the first time treat the underlying cause of Alzheimer's," leading researcher Prof. Jerry Turnbull was quoted as saying.

The compound, based on the blood thinning drug, heparin, has modified chemical structures designed to optimize their desired activities and reduce potential side effects, and the compounds work by blocking the beta-secretase enzyme, responsible for snipping proteins into smaller fragments, he said, adding that despite its central importance to the disease, there are currently no drug treatments which target this enzyme because it has proved difficult to find inhibitors using traditional drug discovery approaches.

The new compounds, based on the body's natural substances, may provide a novel route to effective treatments for Alzheimer's, the researchers said.