New marker for Alzheimer's discovered

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Gothenburg researchers have discovered a previously unknown substance in spinal fluid that can be used to diagnose Alzheimer's disease. The findings, described in a thesis from the Sahlgrenska Academy at the University of Gothenburg, Sweden, will also be useful in research on new medications.

The substance is a beta-amyloid protein called Abeta16. The thesis shows in two independent studies that Alzheimer's patients have higher levels of the protein in their spinal fluid than do healthy individuals.

'The discovery of the new protein could be used to diagnose patients with Alzheimer's and also help determine which medications are most effective for the disease', says biochemist Erik Portelius, the author of the thesis.

Alzheimer's disease includes the formation of plaque on the brain. Neurons and other cell types form around 20 different beta-amyloid proteins, and these are excreted into the spinal fluid around the brain.

'These types of beta-amyloid proteins can be analysed with great precision, and our research team has also shown that the analyses can be used to distinguish between Alzheimer's patients and healthy individuals with a high degree of accuracy', says Portelius.

The beta-amyloid protein Abeta42 is particularly prevalent in the plaque. Abeta42 is created when a larger protein is cut into pieces by certain enzymes. The new Alzheimer's drugs that are currently being tested aim

to reduce the production of Abeta42 by blocking these enzymes. Portelius found that these drugs increase the level of the newly discovered Abeta16.

'Abeta42 and Abeta16 are formed from the same precursor molecule, but the enzymatic process is different and Abeta16 is not harmful. The finding that Abeta16 is a very sensitive biomarker for the effect of these drugs may become very useful in future treatment studies', says Portelius.

Source: University of Gothenburg (news : web)