Medical Xpress

Southampton scientists reveal crucial dementia vaccine findings

July 15 2010

(PhysOrg.com) -- Scientists from the University of Southampton presented findings this week at the world's biggest dementia research conference on a vaccine trial for dementia. The study, funded by the Alzheimer's Research Trust, has revealed important new evidence about the hallmark protein build-up that takes place during Alzheimer's.

The 2002, phase 2, AN1792 (Elan) vaccine trial had to be halted as some participants developed serious side effects. The researchers have followed patients who were on the trial to find out exactly what effect the vaccine had on the brain.

The team found that the vaccine, while targeted at clearing the hallmark build-up of the amyloid protein from the brain, was also effective at dispersing the second key protein, tau, from nerve cell branches. It demonstrates for the first time that the two proteins involved with Alzheimer's disease are closely linked.

The team also revealed that the vaccine wasn't effective at clearing the tau protein 'tangles' from the nerve cell body, only from the cell branches. It suggests this could be an important reason why the vaccine failed to help improve patients' dementia and reveals it as a crucial treatment target.

Dr Delphine Boche, from the University of Southampton, says: "The findings show that treatment aimed at amyloid may also modify tau changes in Alzheimer's.

“The lack of change in tau in the bodies of nerve cells might explain why the people in the original AN1792 trial didn’t experience an improvement in cognitive functioning even though we saw amyloid clearance.

“This study demonstrates a link between these two Alzheimer’s-related proteins, which has been suspected but not clearly demonstrated in the human brain. The findings give us more basic information about the interaction between beta amyloid and tau in Alzheimer’s and may clarify how the disease progresses in the brain.”

Teresa O’Dwyer's husband, Peter, was diagnosed with Alzheimer's Disease three years ago. She comments: “Nowadays, I feel more like his mum than his wife as he needs help with most day-to-day things. He has no conception of the value of money anymore, can no longer write or use a knife and fork - bit by bit his abilities are being taken away and it’s very sad knowing there’s little that can be done about it.

“Research like this gives me hope, it’s the only way forward if we’re going to beat this dreadful disease.”

Rebecca Wood, Chief Executive of the Alzheimer’s Research Trust, the UK’s leading dementia research charity, says:

“These are important findings and reveal the tau protein to be a key target in our fight against Alzheimer’s disease. It’s crucial that we identify as many treatment targets as possible for this incredibly complex disease to increase the chances of swift progress.

“Over 15,500 people in Hampshire are living with the daily reality of Alzheimer’s disease and other forms of dementia, one of the highest county figures in the UK.

Research is the only answer to dementia, yet UK scientists remain the poor relations in comparison to other serious diseases. With the right level of support, our scientists can help avert the massive increase in numbers living with dementia forecast for the next generation."

Provided by University of Southampton