Alzheimer's: French scientists focus on key target

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French scientists said on Tuesday that lack of a key brain protein was linked to Alzheimer's, a finding that threw up a tempting target for drugs to fight the disease.

"What we've found is a weapon for controlling and modifying tau," said Etienne-Emile Baulieu of France's National Institute of Health and Medical Research (Inserm), referring to a culprit involved in Alzheimer's.

Building on earlier work, researchers delved into a Paris "brain bank," of organs donated for medical science, to compare levels of a protein called FKBP52 among brains of people who had died of dementia and those who had died of other causes.

Tiny slivers of brain were extracted and their chemicals analysed.

In the frontal cortex, "levels of FKBP52 were 75 percent lower among people who had died of Alzheimer's and other tau diseases, a dramatic fall," Baulieu told a press conference.

Baulieu said FKBP52 was the best target that had surfaced so far in the fight against Alzheimer's, a disease that is as cruel as it is baffling.

A rogue protein that later became named tau was first spotted in 1912 by Alois Alzheimer, the German neuropathologist who gave his name to this relentless degenerative disease of the brain.

When normal tau undergoes a process called hyperphosphorylation, it starts to assemble in microscopic tangles inside brain cells, killing them.

But another telltale sign of Alzheimer's is the accumulation of so-called amyloid plaques outside neurons, and their connection with tau, if any, remains unclear.

Discovered in 1992, FKBP52 is a protein that is found abundantly in the brain, where it has a workhorse role in folding and unfolding other proteins.

But it has also been revealed to bind to tau, which gives rise to the theory that lack of the protein helps tau to clump together.

Baulieu sounded a word of caution, saying the molecular cascade of events that cause tau tangles was still not fully clear.

But levels of FKBP52 could be used as a marker of susceptibility to Alzheimer's, and boosting them could provide a means of stalling progression of the disease.

"I think that in three or four years, we will have results that are sufficiently broad and robust to be able to use candidate drugs that we will have found, or that pharmaceutical companies can use and modify," he said.

"It may go a lot faster than people say."

In 2010, Alzheimer's Disease International, the umbrella body of national associations for the disease, estimated that the number of Alzheimer's sufferers will mushroom from 35.6 million people worldwide to 65.7 million by 2030 and 115.4 million by 2050.

The research appears in the *Journal of Alzheimer's Disease.*