

Willowbrook study finds Alzheimer link

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Scientists at the Institute for Basic Research in Willowbrook have proven a link between a normal brain protein and Alzheimer's disease.

Researchers say the finding is an important step toward understanding the cause of Alzheimer's disease, a brain disorder that strikes 2 million Americans.

Dr. Henry Wisniewski, director of the state-funded institute, said the protein is a major part of certain abnormal structures in the brains of Alzheimer's patients. He also said somehow the protein

undergoes changes that cause these abnormal structures to develop.

"Now we want to study the nature and causes of the changes," said Dr. Wisniewski, leader of the study, which appeared in the May 5 issue of the *Journal of Biological Chemistry*.

Alzheimer's disease slowly robs a person of his ability to think, remember and reason, leading to the point where he is unable to care for himself. There is no cure or effective treatment.

Dr. Wisniewski claims his research group is the first to prove that the normal protein "tau" is a

It's good news

major component of the so-called paired helical filaments (PHF) found in the Alzheimer brain. Paired helical filaments form tangles, which are one of two red flags that signal the disease.

Normally, tau is a building block of a long tunnel-like structure called microtubules, which carry proteins, sugars and brain chemicals from one nerve cell to another.

"They are the highways of the nerve cells," Dr. Wisniewski said of microtubules. "And if the high-

ways are disturbed the whole transport system is upset. Tau is a major protein involved in maintaining the system."

In Alzheimer's disease, the protein is somehow changed to act abnormally, leading to malfunction of the nerve cell and thus the deterioration of mental capacity, he said.

Dr. Dennis Selkoe, associate professor of neurology and neuropathology at Harvard Medical School, who has been working in the same area of research, said the finding is important scientifically, but doesn't mean very much for people who are living with the disease.

"It's a minor breakthrough for the lay public, but it will lead to better understanding of what goes wrong in the dying neuron," he said.

He also pointed out there are four or five research groups working on the relationship between tau and paired helical filaments, including himself.

He said he reported the same finding at scientific meetings in November and March and in a paper to be published in June. A researcher in Belgium published an abstract, or preliminary paper,

about the discovery in September, but apparently never published a full paper.

Dr. Wisniewski pointed out that he submitted his paper in November and thus had been working on the same thing at the same time as the other researchers, but that he was the first to publish the finding in a full research paper.

He said previous studies used an antibody technique to find tau, but that technique doesn't prove that tau is indeed the protein. He said he went a step further by using the same technique plus another, in which he dismantled the PHF and proved that tau was the major protein.

"Think in terms of the building blocks of a house," Dr. Wisniewski explained. "If you take it apart, you can analyze the structure. Well, if you take apart PHF, you can analyze the proteins."

The institute is funded by the state Office of Mental Retardation and Developmental Disabil-

ities. The co-authors of the study are Inge Grundke-Iqbal, Khalid Iqbal, Maureen Quinlan, Ynuu-Shyn Tung and Masooma S. Zaidi.