Researchers Duplicate Alzheimer's-like Amyloid Plaques

Findings could help identify drugs to treat Alzheimer's disease

January 21, 1994 -- Research on Alzheimer's disease has long been hampered by the lack of an animal model for insight into the disease. Alzheimer's Disease Research (ADR) has funded a number of projects aimed at the development of animal models. A report on the success of one ADR project appears in the January 21 issue of the scientific journal Neuron.

In an international collaboration, Alzheimer's Disease Research grant recipient Dr. Alan Snow of the University of Washington and his colleagues report on a potential animal model for studying certain aspects of the disease. Dr. Snow collaborated in this study with groups led by Dr. David Morgan of UCLA, Dr. Paul Fraser of the University of Toronto (Canada), and Dr. Koji Kimata at the Institute for Molecular Science of Medicine (Aichi, Japan).

Amyloid plaques are one of the characteristic lesions seen in the brains of Alzheimer's disease patients. Plaques are made up of a number of substances, and the main component of the plaque is a fibrous protein called beta-amyloid. Previously, researchers had attempted to produce plaques in animals by introducing beta-amyloid directly into the brain. However, these attempts did not result in the formation of plaques, and the beta-amyloid deposits often did not persist over time.

In a project funded in part by Alzheimer's Disease Research, Dr. Snow and his colleagues tried a slightly different strategy. Rather than introducing a one-time injection of beta-amyloid into the brain, they infused the beta-amyloid into the brain slowly over a period of one to two weeks. In some animals, they added to the beta-amyloid a substance called heparan sulfate proteoglycan (HSPG), which is also found in Alzheimer's plaques. The researchers found that the mixture of beta-amyloid and HSPG produced amyloid deposits in all of the animals who received it, and that some of the animals went on to develop distinctive Alzheimer-like plaques.

According to Dr. Snow, "We are just at the beginning of working with 'this' new animal model that will allow us to investigate some of the questions we have about Alzheimer's disease, particularly amyloid formation and its persistence in the brain,".

"As pharmaceutical companies develop drugs and therapeutics that target amyloid persistence in the brains of Alzheimer's patients, this new animal model may allow new drugs to be tested rapidly in animals for the first time." Snow said.

As with all research breakthroughs, these findings must be confirmed by other researchers and more fully developed before their full significance is known. Should this prove to be a good animal model for plaque formation, it could be used to investigate substances that prevent plaque formation, thus identifying potential drug candidates for treatment of Alzheimer's disease.

Policy Statement on the Use of Animals in Research

- Back to Alzheimer's News Updates Menu
- Back to Alzheimer's Disease Public Education