Late-onset Alzheimer's slowed by DHA omega-3

1/25/2008- **Supplements of the omega-3 docosahexaenoic acid (DHA) can reduce levels an enzyme linked to Alzheimer's disease, suggests a new study from the University of California, Los Angeles (UCLA).**

Using both mice and cultured human cells the UCLA researchers report that DHA could increase the production of LR11, a protein key to the clearance of enzymes in the brain that make the beta amyloid plaques that are thought to cause Alzheimer's disease.

"In this study, we report that DHA significantly increases LR11 in multiple systems, including primary rat neurons, aged non-Tg mice and an aged DHA-depleted APPsw AD mouse model. DHA also increased LR11 in a human neuronal line," wrote researchers.

The research adds to a growing body of science linking intake of the omega-3 fatty acids, mainly DHA, to improved cognitive function and slower cognitive decline.

Indeed, previous studies have reported that omega-3 fatty acids may slow mental decline in people with very mild Alzheimer's disease (*Archives of Neurology*, Vol. 63, pp. 1402-1408 and pp. 1545-1550).

Alzheimer's disease is the most common form of dementia and currently affects over 13 million people worldwide. The direct and indirect cost of Alzheimer care is over $100 bn (€ 81 bn) in the US alone. The direct cost of Alzheimer care in the UK was estimated at £15 bn (€ 22 bn).

The new study suggests that DHA may be most useful for early intervention and prevention of late-onset Alzheimer's disease (LOAD), the most common form of the disease that occurs later in life and has no obvious family inheritance pattern.

Researchers report that DHA induced increases in LR11 in all the systems studied, as well as from an *in vivo* model of type-2 diabetes, another AD risk factor.

"Because reduced LR11 is known to increase beta-amyloid production and may be a significant genetic cause of LOAD, our results indicate that DHA increases in [LR11] levels may play an important role in preventing LOAD," concluded the authors.

The data was welcomed by Dr. Edward Nelson, vice president of medical research for Martek, who provided the vegetarian DHA used in the study.

"This study adds to the evidence supporting the important brain health benefits provided by an enhanced DHA status, and there are a number of ongoing studies investigating the role of DHA in reducing the risk for neurological diseases like Alzheimer's," said Nelson.

Study in this area is ongoing with a National Institutes of Health- funded multi-million dollar clinical study on DHA in the progression of Alzheimer's disease. Results from this NIH clinical study will be available in 2010.

The new results build on an earlier pre-clinical study using genetically modified mice, reported to be the first study to show that DHA may slow the accumulation of a protein, tau, that leads to the development of neurofibrillary tangles, one of two signature brain injuries of Alzheimer's disease (*Journal of Neuroscience*, Vol. 27, No. 16).