MIMOVAX

The MimoVax Project:
Alzheimer´s disease-treatment targeting truncated Aß 40/42 by active immunisation

MimoVax is a FP6 funded specific targeted research project (STREP), coordinated by AFFiRiS GmbH, for development and optimisation of a first treatment to stop the progression of Alzheimer's disease (AD). The crucial technology for MimoVax is provided by AFFiRiS GmbH. On the basis of the proprietary AFFITOPE/Mimotope technology AFFiRiS successfully develops innovative vaccines against AD and other major diseases.

AD is the most common form of dementia in humans. According to the Alzheimer Association there are currently up to 20 million patients world-wide with estimated social costs for every patient reaching 40,000 € per year. At present there is no effective treatment available to stop the progressive neuro-degeneration and associated cognitive decline in patients thus creating an enormous social problem for European societies as well as for the rest of the world.

AD is characterized by the abnormal accumulation of amyloid plaques in the brain. These plaques mainly consist of the Amyloid-ß (Aß) peptides Aβ40/42. In humans the majority of amyloid plaque material is formed by Aβ40/42 derivatives which are frequently modified. Aβ peptides are considered to be directly involved in the pathogenesis and progression of AD.

The MimoVax project aims at developing a novel vaccine against these modified forms of Aß and such fight the cause of this disease directly. Successful preclinical evaluation of a Mimotope-based AD vaccine is expected to demonstrate lowering of the pathologic hallmarks as well as cognitive deficits typical of AD in animal models. Subsequently, a clinical trial will be initiated to demonstrate safety of the identified vaccines in patients.

The development of such innovative AD vaccines targeting Aβ could therefore be a safe treatment regimen to efficiently fight AD in patients. The novel peptide vaccine developed in the MimoVax STREP aims at the subsequent use in treatment of Alzheimer´s disease in human patients. Vaccination will provide a cost effective and powerful way to reduce the economical and psychological burden exerted by this disease. It would significantly reduce the high costs associated with this disease, which will soon exceed US $ 4 billion annually.

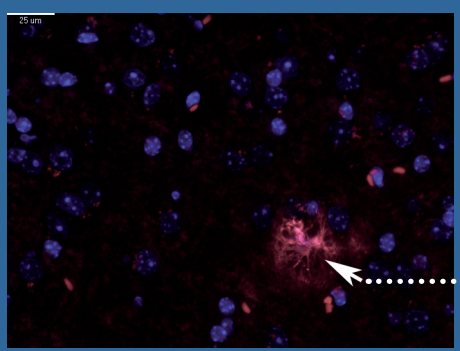

Fig.1: Amyloid plaque staining in the brain of an AD mouse

One of the hallmarks of Alzheimer's disease is the accumulation of amyloid plaques in the brain. These amyloid plaques can be visualised on sections of these brains by staining with amyloid specific antibodies. This staining reaction results in a red amyloid plaque (indicated by a white arrow) surrounded by blue nuclei of surrounding cells like neurons or astrocytes. A Mimotope-based AD vaccine as described in the article would induce such specific antibody responses reacting with the pathological Aβ molecules and could therefore be a safe treatment regimen to efficiently fight AD in patients.

PROJECT INFORMATION

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Alzheimer´s disease-treatment targeting truncated Aß 40/42 by active immunisation
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