JPND research
EU Joint Programme – Neurodegenerative Disease Research

# PROP-AD

## Propagation behaviour of peripheral amyloid-β towards brain structures: effects of the blood-brain barrier

Alzheimer's disease is a disease in which specific peptides, so-called beta-amyloids, accumulate in the brain, leading to the destruction of neurons and the resulting clinical functional effects, e.g. memory and orientation problems.

Discussions are ongoing as to whether or not Alzheimer's disease may be transmissible between individuals and could therefore have implications with regard to heath security issues that are similar to those of prion diseases. These considerations were raised from findings in mouse experiments in which peripheral injections of amyliodogenic material from mice led to the presence of immunopositive material in the brains of injected animals. Researchers regarded these findings as proof of transmissibility, as seen in Creutzfeldt-Jakob disease. However, there are a number of concerns, both from the scientific community and the public, about whether such conclusions really can be drawn from these experiments.

The project aims to use amyloid as it is found in patients and transgenic, so-called Alzheimer's mice, and label it with mass-isotope labelling which does not disturb chemical and conformational characteristics. We plan to use new mass-spectrometry methods to determine the route of the delivery of peripherally administered Alzheimer's amyloid to the brain. We also want to see whether specific changes at the blood-brain barrier with regard to receptors and transport molecules could modify the entrance into the brain, if detectable at all.

Our objective is to resolve some of the issues that unlink Alzheimer's disease from transmissible, infectious prion diseases.

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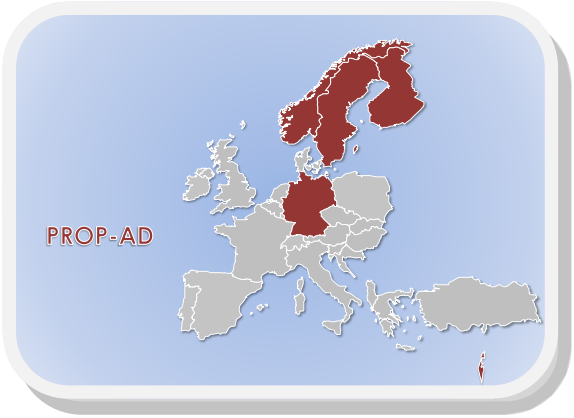
**Duration:** 3 years

**Coordinator:** Jens Pahnke

T: + 49 230 71466

E: jens.pahnke@medisin.uio.no

www.pahnkelab.eu




**Project Partners:**

COORDINATOR I JENS PAHNKE

**Jens Pahnke**, University of Oslo, Norway

**Claus Pietrzik**, Johannes Gutenberg University, Mainz, Germany

**Dan Frenkel**, Tel Aviv University, Israel

**Maciej Lalowski**, University of Helsinki, Finland

**Henrik Biverstål**, Karolinska Institutet, Huddinge, Sweden