European DNA bank to decipher the Alzheimer disease missing heritability

https://www.neurodegenerationresearch.eu/survey/european-dna-bank-to-decipher-the-alzheimer-disease-missing-heritability/

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Country

Netherlands

Title of project or programme

European DNA bank to decipher the Alzheimer disease missing heritability

Source of funding information

ZonMw

Total sum awarded (Euro)

€ 619,767

Start date of award

01/01/2016

Total duration of award in years

3.0

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords
Research Abstract

Understanding the genetics of Alzheimer’s disease (AD) is one of the best ways of improving our knowledge of the underlying pathophysiological processes. Indeed, genetic factors account for up to 80%
of the attributable risk in common AD forms. It is likely that most of the pathophysiological pathways in AD

are driven by or include genetic determinants. The advent of genomic approaches (such as genome-wide
association studies, GWASs) has led to the characterization of 26 genetic determinants. However, less
than 50% of the AD genetic attributable risk has been characterised; substantial additional efforts are
thus still required to define the genetic landscape in AD. It will be particularly important to maximize study
population sizes; studies of other multifactorial diseases have shown that the number of identified
variants increases with the sample size.
Our objective is thus to significantly increase the generation of GWAS-based population data via the
creation of a European Alzheimer's Disease DNA BioBank (EADB). We shall be able to collate 31,911
AD cases (of which 24,049 have yet to be genotyped) and 40,802 controls (of which 15,638 have yet to
be genotyped) from 11 countries. GWASs and complementary statistical studies (based on genotype and
imputation data) will be performed, in order to capture the missing heritability and identify potential
disease pathways. This initiative will increase the number of AD samples available for genetic studies in
Europe by more than 4-fold and worldwide by almost 2-fold. In parallel, the EADB will collect DNA
samples from Europe's largest longitudinal cohort of MCI cases, with a view to identifying genetic
markers that modulate the rate of disease progression and cognitive decline. At present, we have
compiled approximately 9,109 MCI cases (of which 6,952 have yet to be genotyped) and have data on
AD conversion, neuropsychological parameters, cerebrospinal fluid biomarkers and neuroimaging for
most of these samples. We shall investigate the influence of genetic risk factors for AD in a genomewide-
or hypothesis-based manner. From a translational perspective, the identification of genetic factors
in pathways that modulate the AD risk and increase the rate of disease progression/cognitive decline in
MCI will be pivotal for the development and testing of therapeutic approaches.

Lay Summary
Further information available at:

Types:
Investments > €500k

Member States:
Netherlands

Diseases:
Alzheimer's disease & other dementias

Years:
2016

Database Categories:
N/A

Database Tags:
N/A