EADB
a European Alzheimer Disease DNA Biobank

Jean-Charles Lambert on Behalf of the EADB consortium
Inserm UMR1167, Institut Pasteur de Lille, Université de Lille, Labex DISTALZ, Lille

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. 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 is thus particularly important to maximize study population sizes.

Our objective was to significantly increase the generation of GWAS-based population data via the creation of a European Alzheimer's Disease DNA BioBank (EADB). We have genotyped 63,049 new samples from 15 European countries and after QCs, we have available 19,478 AD cases, 6,690 MCI cases, 3,905 cases with other dementia and 24,039 controls.

In addition we have collated all the GWAS raw data already available in Europe to build-up the largest GWAS analyses based on clinically-diagnosed AD cases worldwide (36,532 AD cases and 67,711 controls). Imputation using the TopMed panel is in progress which will allow analysis of more than 60 million variants (frequent and rare). This GWAS database will also allow numerous genetic studies on endophenotypes of interest in dementia. For example, EADB will allow us to carry out the world's largest GWAS of A□, Tau and p-Tau concentrations in cerebrospinal fluid

This initiative which has increased the number of AD samples available for genetic studies in Europe by more than 4-fold and worldwide by almost 2-fold, will likely strongly improve our knowledge of the AD genetic component.