ALZHEIMER'S GLOBAL SUMMIT LISBON 2017

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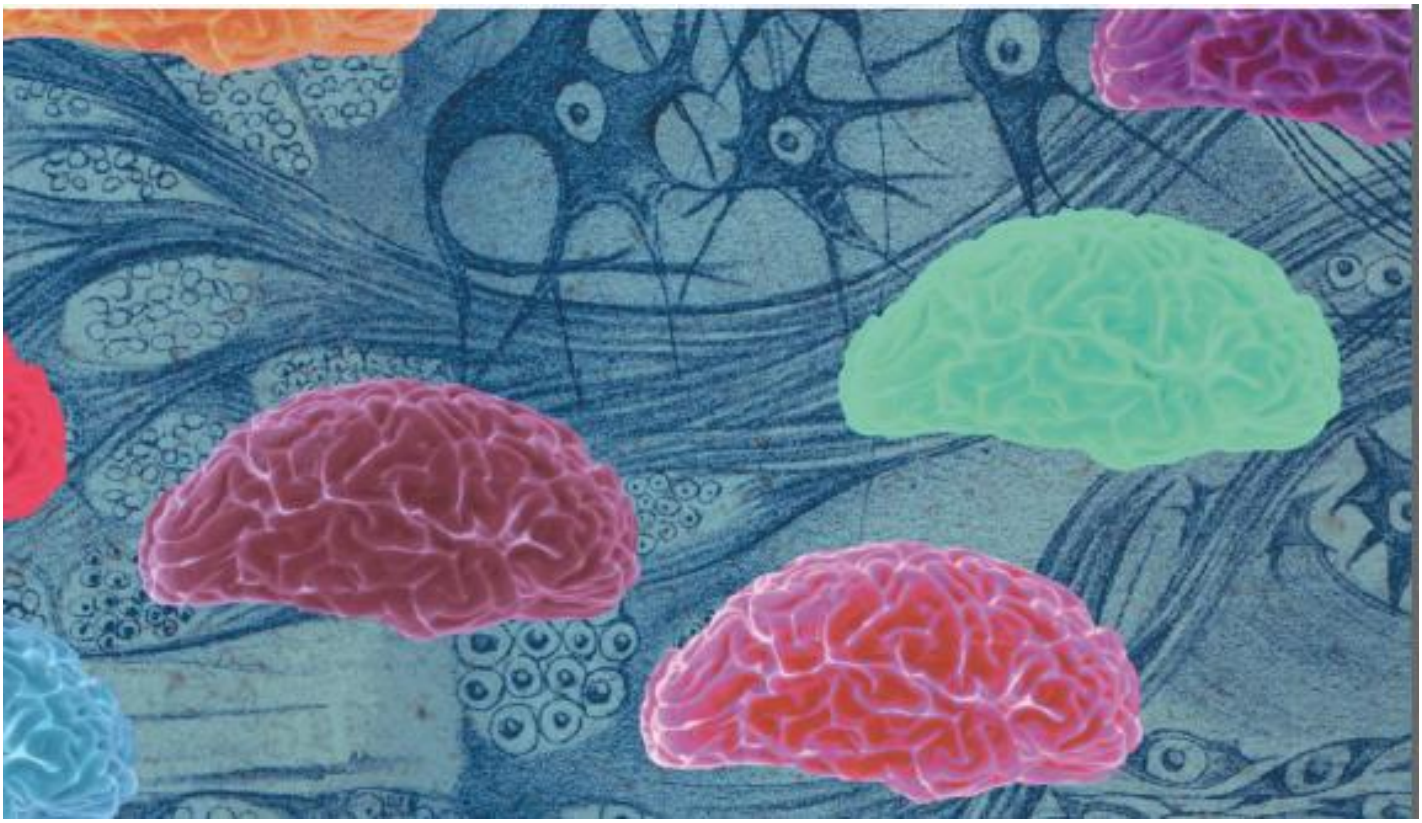
Abstracts Book



Champalimaud Foundation

FUNDACIÓN REINA SOFÍA

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Instituto de Salud Carlos III

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ciberNed Centro Investigación Biomédica en Red Enfermedades Neurodegenerativas

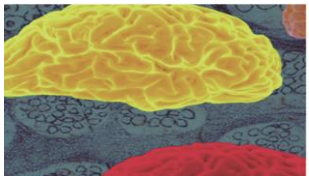
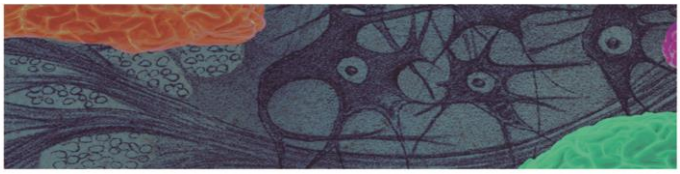
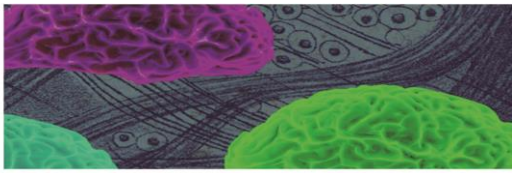
ORGANIZERS:

COVER PICTURE:

"Brain frills" ("Florituras cerebrales")

Artistic rendering that combines the idea of the existence of multiple neurotransmitters (coloured brains) with the action of these neurotransmitters through the brain cells..

(Javier de Felipe)

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POSTER 60

Principal Investigator: Martins, Sandra (IPATIMUP/i3S, Porto)

Title: **Analysis and correlation between the genome and cerebral activity of late-onset Alzheimer's disease patients**

Authors: Martins S, Fernandeza L, Lopesa A, Taborda A, Oliveira V, Martínez M, Poyo M, Hornero R, García M, Poza J, Arenasa M, Gómez C, Pintoa N.

Abstract: Alzheimer's disease (AD) is the most common neurodegenerative disorder leading to dementia in the elderly population. Differential diagnosis of dementia due to AD is, however, difficult to establish mainly in early stages of the disease, which is considered to progress in four general stages: mild cognitive decline; initial stage; moderate decline; and severe decline. At the genetic level, AD seems to be highly complex, with several studies attempting to characterize the mosaic of genetic contributors. The apolipoprotein E (APOE) gene has been the first susceptibility locus for late-onset AD (LOAD, observed in the vast majority of patients). Currently, APOE ε4 allele is still the most important genetic risk factor associated with LOAD, while recent studies point to multiple low penetrance genetic variants. In this project, our aims are (1) to identify novel LOAD candidate genes; (2) to characterize the population regarding coding and regulatory variants within genes at the previously identified LOAD loci; (3) to associate different cerebral activities to each of the four disease stages; and (4) to correlate variants in candidate genes and disease progression (assessed by neuroimaging). We will analyse a total of 200 LOAD patients from North Portugal (n=100) and from the Spanish community of Castile and León (n=100), previously selected according to their stage of the disease (25 patients from each group). In addition, 50 controls from both regions will also be analysed. DNA will be extracted from saliva and buccal swab samples. Cerebral activity will be assessed by electroencephalography (EEG). By correlating EEG patterns and the four stages of the disease, we expect to find a noninvasive approach to assess early stages of cognitive decline, and improving the accuracy of diagnosis. This project will be carried out by a multidisciplinary team of biologists, physicists, mathematicians, nurses and psychologists, aiming at a broader study of the disease.