Research Areas

Basic Research

At a Glance

- Status: Active Consortium
- Year Launched: 2013
- Initiating Organization: European Commission Seventh Framework Programme (FP7)
- Initiator Type: Government
- Location: Europe

Abstract

AgedBrainSYSBIO focuses on identifying the foundational pathways responsible for the aging of the brain, with a focus on late-onset Alzheimer's disease (LOAD). By combining integrative systems biology and comparative genomics, the consortium aims to identify the interactions through which the aging phenotype develops in normal and in disease conditions and to model novel pathways and their evolutionary properties to design experiments that identify druggable targets.

Mission

AgedBrainSYSBIO's mission is to address the basis of brain aging by studying the pathways involved in this process and by identifying the interactions through which the aging phenotype develops in normal and in disease conditions. The consortium aims to identify and validate new molecular targets and biomarkers associated with LOAD. Because early steps of neurodegenerative disorders are expected to impact synapse function, the project will focus in particular on pre- or post- synaptic protein networks.
The project consists of 13 research teams from academia and industry. The scientists will share their findings about LOAD genome-wide association studies (GWAS) gene discovery, comparative functional genomics in mouse and drosophila models, in mouse transgenic approaches, human induced pluripotent stem cells and their differentiation in vitro, and modeling pathways with an emphasis on comparative and evolutionary aspects.

The concept is to identify subsets of pathways with two unique druggable hallmarks: (a) the validation of interactions occurring locally in subregions of neurons and (b) a human and/or primate accelerated evolutionary signature.

The project will achieve its objectives through seven approaches:

### Consortium History

March 19, 2013: AgedBrainSYSBIO was officially launched in Paris, France.

### Structure & Governance

AgedBrainSYSBIO is coordinated by the French National Institute for health and medical research and brings together scientists with expertise in systems biology of the synapse and four small- to medium-size enterprises (SMEs) with a leading role in the project. In addition, an independent Advisory Board provides guidance on scientific, ethical, and regulatory aspects related to the project’s research activities.

AgedBrainSYSBIO is supported by two independent external advisors. The scientific advisor has a consultative function and advises the project in terms of work program, scientific quality, and strategy. Because of the nature of the project, an independent ethics advisor monitors all ethical and regulatory concerns raised in the project.

### Financing
With a total cost of €8.2 million, the European Commission funds €6.0 million under the Health Cooperation Programme of the Seventh Framework Programme (FP7); Grant Agreement No 305299.

**Intellectual Property**

Inserm Transfert, a private subsidiary of Inserm, is involved in the activities of intellectual property management. Because the project is funded by the European Commission's Seventh Framework Programme, AgedBrainSYSBIO participants adhere to the guidelines published [here](http://www.agedbrainsysbio.eu/).

**Data Sharing**

The scientists will share findings on LOAD GWAS gene discovery, comparative functional genomics in mouse and drosophila models, in mouse transgenic approaches, human induced pluripotent stem cells and their differentiation in vitro, and modeling pathways with an emphasis on comparative and evolutionary aspects. Importantly, the four European SMEs involved will bring their complementary expertise and will ensure translation of project results to clinical application. In addition, an independent Advisory Board provides guidance on scientific, ethical, and regulatory aspects related to the project’s research activities.

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