

TITLE OF THE PROJECT: EYEBRAIN – Early ocular biomarkers of brain aging

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SUMMARY**Background**

Ophthalmological imaging has undergone a true revolution in recent years, allowing unprecedented insights into microvascular and neurological aging of the retina. Recent studies, mainly performed in the clinical setting on small numbers of elderly subjects, suggest that such parameters may represent early biomarkers of Alzheimer's disease (AD) and vascular dementia.

Objectives

The objective of the present project is to perform a joint study of eye and brain aging, in the framework of a population-based study of 2000 residents of the Bordeaux area, aged 55 to 75 years, in order to better understand the pathological processes involved in the asymptomatic and subclinical phases of AD and vascular dementia.

Methods

Participants will be recruited from the CONSTANCES cohort and will undergo a highly innovative eye examination, allowing for an in-depth characterization of retinal vascular and neurological status. These biomarkers will be associated with cognitive performances (measured in the framework of the CONSTANCES cohort). In addition, brain imaging biomarkers will be measured on a subsample (500 multimodal brain MRI for structural, functional and vascular biomarkers, 300 amyloid PET scans), in order to better understand the associations of eye and brain biomarkers in the subclinical phases of AD and vascular dementia.

Perspectives

This cohort will represent the next generation of the population-based cohorts we have been conducting over the 30 past years and have allowed characterizing the natural history and evidencing major risk factors for dementia and brain aging, with the two major advantages of most recent imaging, both of the eye and the brain, and younger population allowing investigating early processes.