# Developing an early reliable blood-derived biomarker of cognitive deterioration

https://www.neurodegenerationresearch.eu/survey/developing-an-early-reliable-blood-derived-biomarker-of-cognitive-deterioration/

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**Country**

Ireland

**Title of project or programme**

Developing an early reliable blood-derived biomarker of cognitive deterioration

**Source of funding information**

Irish Research Council

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€ 87,000

**Start date of award**

30/09/2013

**Total duration of award in years**

4

**Keywords**
**Research Abstract**
Over the last few decades there has been a dramatic interest in the use of biomarkers for diagnosis, monitoring, and prognosis of medical conditions. The elderly population worldwide is increasingly rapidly, and with it comes a rising epidemic in dementia-related conditions, placing a huge burden on economies and care-givers. In the context of Alzheimer's disease (AD), a major challenge is to develop a robust, cheap blood-based biomarker to detect disease onset; the prediction is that earlier treatment intervention will slow the disease progression. Biomarkers present a new toolkit for modern medicine, and current markers of AD rely on analysis of changes in cerebrospinal fluid (CSF) and image analysis using magnetic resonance imaging

(MRI). These methods are not suitable for widespread screening because of cost and need for specialized equipment/personnel. The ideal is a blood-derived biomarker; it is appropriate for sampling in an elderly population, relatively cheap, and does not require specialised personnel. This project aims to develop a reliable blood-based biomarker and will focus on identifying a marker of inflammation since it is widely believed that this is an early event in the sequence of events leading to neurodegeneration.

A previous study assessed memory performance in a cognitive task which is sensitive to ageing i.e. episodic memory. It was found that when related to educational status and estimated IQ, one subgroup of the tested cohort had a lower performance (low performers) than the other (high performers). Cells prepared from blood samples of the low performers had an increased response to an inflammatory stimulus compared with the high performers group, which is indicative of a more pro-inflammatory profile. This proposed research is a longitudinal study which will expand on these results by examining inflammatory markers in blood samples (cells and plasma) obtained from additional individuals that fall into these categories on 3 occasions over a period of 3 years. This study is strengthened by the fact that extensive cognitive function analysis will be carried out on these individuals by our colleagues (Psychology Dept) in a separately-funded study providing the opportunity to correlate time-related deterioration in cognitive function with an inflammatory marker.

**Further information available at:**

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Investments < €500k

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Ireland

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