

# E-DADS

## Early Detection of Alzheimer's Disease Subtypes.

Alzheimer's disease (AD) is a global health burden. There are currently no treatments that prevent AD or modify the course of the disease. Recent work has identified several subtypes of Alzheimer's disease that become apparent once clinical symptoms appear. These subtypes can guide improved treatment and care decisions. Here we aim to predict which subtype of Alzheimer's disease an individual will develop late in life from earlier life risk factors. This is important for developing and trialling new treatments because Alzheimer's disease pathology starts decades before clinical symptoms appear.

We will develop and apply novel statistical methods to achieve this, including combining results from multiple existing medical datasets, which are publicly available or are maintained by our partners. Data sets include anonymised demographics, genetics, clinical assessments of function and cognition, features from biological samples (measures from the fluid surrounding the brain), and features extracted from medical images including magnetic resonance imaging (MRI) and positron emission tomography (PET) data.

The statistical models we employ were designed to detect subgroups of patients that follow different disease trajectories and link those to existing co-morbidities, genetics or life-style choices. We will explore various technical refinements to existing methods (many developed by us and project partners) to improve their predictive performance.

Using this methodology, we will investigate the following main questions:

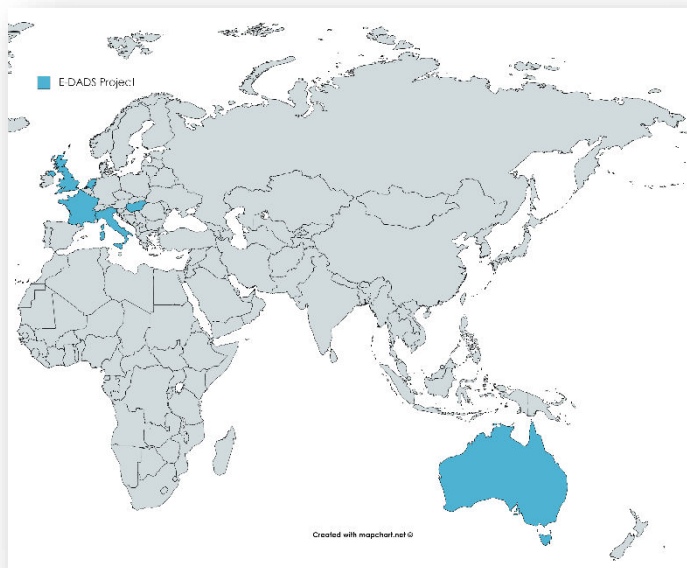
1. Is an individual's genetic and environmental profile predictive of Alzheimer's disease subtype at an early stage (mid-life) and does it increase confidence in subtype assignment?
2. Are subtype disease models useful in clinical practice? Including for optimising treatment and prevention strategies.

Website: <https://e-dads.github.io> Twitter: [@EDADS\\_jpnd](https://twitter.com/EDADS_jpnd)

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**Coordinator :** Prof. Daniel C. Alexander  
 ✉ : d.alexander@ucl.ac.uk



## Consortium Members



Prof. Daniel Alexander UCL – University College London, UK



Dr. Andre Altmann UCL – University College London, UK

	Dr. Neil P. Oxtoby	UCL – University College London, UK
	Prof. Wiesje M. van der Flier	VUmc – Stichting VU University Medical Center, Netherlands
	Prof. Frederik Barkhof	VUmc – Stichting VU University Medical Center, Netherlands
	Dr. Betty Tijms	VUmc – Stichting VU University Medical Center, Netherlands
	Dr. Alberto Redolfi	FBF – IRCCS Fatebenefratelli Brescia, Italy
	Libera Cavaliere	FBF – IRCCS Fatebenefratelli Brescia, Italy
	Dr. Stanley Durrleman	ICM – INRIA, Institut du Cerveau et de la Moelle épinière (Brain and Spine Institute), France
	Dr. Olivier Colliot	ICM – INRIA, Institut du Cerveau et de la Moelle épinière (Brain and Spine Institute), France
	Dr. Samantha Burnham	CSIRO – Commonwealth Scientific and Industrial Research Organisation, Australia
	A/Prof. Victor Villemagne	CSIRO – Commonwealth Scientific and Industrial Research Organisation, U. Melbourne, Australia
	Dr. Simon Laws	CSIRO – Commonwealth Scientific and Industrial Research Organisation, Edith Cowan University, Australia
	Dr. Stephanie Rainey-Smith	CSIRO – Commonwealth Scientific and Industrial Research Organisation, Edith Cowan University, Australia
	Prof. Zoltán Vidnyánszky	MTU – Hungarian Academy of Sciences, Hungary