

# Epigenomic Studies in Dementia

## Professor Katie Lunnon

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**Date:** 13 January 2025 (Monday)



**Time:** 10:00 am - 11:00 am



**Venue:** HKIAS Lecture Theatre,

LG/F, Academic Exchange Building, City University of Hong Kong

### Registration

<https://cityuhk.questionpro.com/t/AaxdQZ5AfY>



**Abstract :** Alzheimer's disease (AD) is a multi-factorial and complex disease, with the risk of developing disease still largely unknown despite numerous genetic and epidemiological studies over recent years. Several genetic and modifiable lifestyle risk factors are known to contribute to disease aetiology, and epigenetic mechanisms are suggested to also contribute by mediating their interaction. It is now ten years since we published the first cross-tissue epigenome-wide association study (EWAS) of DNA methylation in AD post-mortem brain samples, with subsequent studies nominating consistent alterations in genes such as ANK1, HOXA3 and RHBDF2. We have leveraged these studies to perform large-scale epigenomic meta-analyses in >1,500 brain samples, reporting 220 robust and reproducible differentially methylated loci that are altered in AD cortex. We have since undertaken EWAS in different AD endophenotypes, Huntington's disease (HD), Dementia with Lewy bodies (DLB) and Parkinson's disease dementia (PDD). We have recently undertaken DNA methylomic studies in AD blood in a quest to identify disease-associated alterations in an easily accessible tissue, which could be potentially explored from a biomarker perspective. Finally, our most recent work has explored the contribution of non-coding RNAs in regulating gene expression in AD cortex, where we have meta-analyzed microRNA expression in ~1,000 post-mortem cortical brain samples, establishing cell-type specific disease-associated signatures.

**Biography :** Katie Lunnon is a Professor in Dementia Genomics at the University of Exeter, leading a team focused on genomic regulation in dementia and neurodegenerative disease. She holds a BSc Hons in Biochemistry and a PhD in Neuroscience from the University of Southampton. Her research, funded by the UK Medical Research Council (MRC) and the US National Institutes of Health (NIH), involves genome-scale analyses to identify new disease mechanisms and novel biomarkers in Alzheimer's and other neurodegenerative diseases. Prof. Lunnon currently has 93 publications, with an H-index of 49, and >11,500 citations. She has received several awards, including the 2019 Cavanagh Prize from the British Neuropathological Society, the 2017 Alzheimer's Research UK Young Investigator of the Year, and the 2015 "Dementia Research Leaders" award from the UK Alzheimer's Society.

