



# PhD Studentship

## Alzheimer's Society LBD DTP, Mitochondrial RNA metabolism in Lewy body dementia Subtitle

### Area

Life Science/Medicine

### Location

UK Other

### Closing Date

Friday the 31<sup>st</sup> January 2025

Lewy body dementia (LBD) is the second most common cause of neurodegenerative dementia yet it is under-researched and underfunded. This PhD opportunity is part of a newly funded Alzheimer's Society Doctoral Training Programme for LBD research (<https://www.alzheimers.org.uk/research/researchers/our-funding-schemes/doctoral-training-centre>). The DTP aim is to develop a thriving UK LBD research community, united and actively connected, whose core mission is to improve the lives of people living with LBD. We are seeking to recruit one highly motivated doctoral student for the following project to start in October 2025.

Post-transcriptional modification of RNA species is beginning to be recognised as a mechanism contributing to brain disease. Mitochondria (mt) are critical cellular organelles whose dysfunction has long been implicated in LBD and other neurodegenerative disorders, although precisely how mitochondrial dysfunction is driven, and its association with hallmark pathologies, is not clear. The proposed PhD project will interrogate the hypothesis that the signatures of RNA post-transcriptional processing in mitochondrial differ in LBD compared to control cases and leads to mitochondrial dysfunction. Using post-mortem brain tissue we will perform RNA sequencing techniques to examine transcriptional profiles and by advanced microscopy to assess the abundance and spatial location of mtRNAs, proteins and correlation with disease pathology burden. Functional analysis will be conducted using human alpha-synuclein knockout iPSCs. The



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findings of this study will bring novel insights into RNA regulatory processes that may drive cellular dysfunction and Lewy body aggregates.

This is a new supervisory collaboration between academics, Dr Helen Miranda Knight, Dr Daniel Erskine and Professor Dag Aarsland. The student will be based in Nottingham but will undertake research at Newcastle University. There will also be visits to King's College London to learn about the LBD research there, the clinical set up, and methods used to understand this disease.

This exciting and unique opportunity would suit an individual with good laboratory wet lab skills and is wanting to gain further experience in next generation sequencing, CRISPR and computational data analysis, and well as LBD neuropathology. This opportunity will also enable the individual to develop academic knowledge with world leading LBD researchers.

A keen interest dementia and wanting to part of the next generation of LBD researchers are key attributes sought.

### Application criteria

- A minimum of an upper second-class honours' degree from a 4-year undergraduate course (or equivalent), in a STEM based subject.
- A 3-year undergraduate course in one of the above disciplines plus a master's degree and/or some experience in industry
- Wet lab experience (1 year plus expected)
- Some bioinformatics/R coding experience or willing to learn such skills

Successful applicants will have home UK fees paid and receive a stipend of £20,500.00.

### To apply, please send:

- Cover letter
- Academic transcripts
- 2 page research statement with details of research, relevant experience and motivation
- Academic CV which should include:
  - Degree title and discipline of study
  - Details of your research project, internship, and relevant work experience



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- Training courses attended, technical and professional skills
- Any other relevant experience
- Names of referees

To Wendy Solis at, [mbzws@exmail.nottingham.ac.uk](mailto:mbzws@exmail.nottingham.ac.uk) by the 31st January 2025

For information about the DTP, please contact the LBD DTN manager [LBDDTN@newcastle.ac.uk](mailto:LBDDTN@newcastle.ac.uk)