DPhil studentship in clinical mass spectrometry and machine learning applied to the characterisation of brain tumours

Supervisor: Professor Claire Vallance

Start date: 1st October 2026

Applications are invited for a **DPhil studentship** in clinical mass spectrometry, available from October 2026, to work under the supervision of **Professor Claire Vallance** in the Department of Chemistry at the University of Oxford.

The studentship will cover course fees at a Home rate and provide a stipend of no less than the standard UK Research Council rate (currently set at £20,780 p.a.) for four years. Please note the eligibility criteria set out by the UKRI at: https://www.ukri.org/what-we-do/developing-people-and-skills/esrc/funding-for-postgraduate-training-and-development/eligibility-for-studentship-funding/

Research in the Vallance group involves the application of atmospheric pressure and imaging mass spectrometry both to clinical medicine and to fundamental problems in chemical reaction dynamics. An overview of the group's research can be found on our research group website at https://vallance.web.ox.ac.uk.

The project is sponsored by the Doogood Foundation, and will be carried out in close collaboration with consultant pathologist Olaf Ansorge and consultant neurosurgeon Puneet Plaha, both based at Oxford's John Radcliffe Hospital.

We have recently completed a pilot study investigating the use of atmospheric pressure ionisation mass spectrometry coupled with machine learning for differentiating between brain tumours and normal tissue. The project will extend this work to investigate the infiltration zone forming the boundary between the two types of tissue, with the eventual aim being to develop improved methods for defining the surgical boundary during tumour resection. A number of other related research avenues may also be explored within the project.

Prof. Vallance can be contacted for further information: claire.vallance@chem.ox.ac.uk

Candidates with a first-class or strong upper second-class undergraduate degree in Chemistry, medical sciences, or a related subject are encouraged to apply. Previous experience in one or more of mass spectrometry, statistical data analysis, machine learning, and scientific programming would be useful, but not essential. The project will involve a mixture of experiments and data analysis, and applicants should feel confident in their ability to learn about and use new mathematical and machine learning tools as needed, even if these have not formed part of their prior studies. The candidate is expected to have a strong commitment to research and should have demonstrated the ability to learn new skills independently. The successful applicant will be based in the Chemistry Research Laboratory (CRL), Oxford, but will also spend significant time at the John Radcliffe hospital.

Candidates should submit a formal application for DPhil in Chemistry via the Oxford online application system:
https://www.ox.ac.uk/admissions/graduate/application-guide
https://www.ox.ac.uk/admissions/graduate/courses/dphil-chemistry

Please quote **CV/Chem/2026** under 'Departmental Studentship Applications'.

Application deadline: **12.00 noon UK time on 30th March 2026**

Queries relating to the application and admission process should be directed to: graduate.admissions@chem.ox.ac.uk; tel.: +44 (0) 1865 272569.

The Department of Chemistry holds the Athena SWAN Silver Award and the Vallance group is dedicated to promoting diversity, equality and inclusion.