

Electron Microscopy (EM) Research Specialist MRC Toxicology Unit

Job Reference: PU24108

Closing Date: Monday 19th October



The role

Salary:

Grade 7

£30,942 - £40,322

Contract:

This is an open-ended position with MRC funding available up to March 2023 in the first instance.

Location:

Cambridge

Department:

MRC Toxicology Unit

Working pattern:

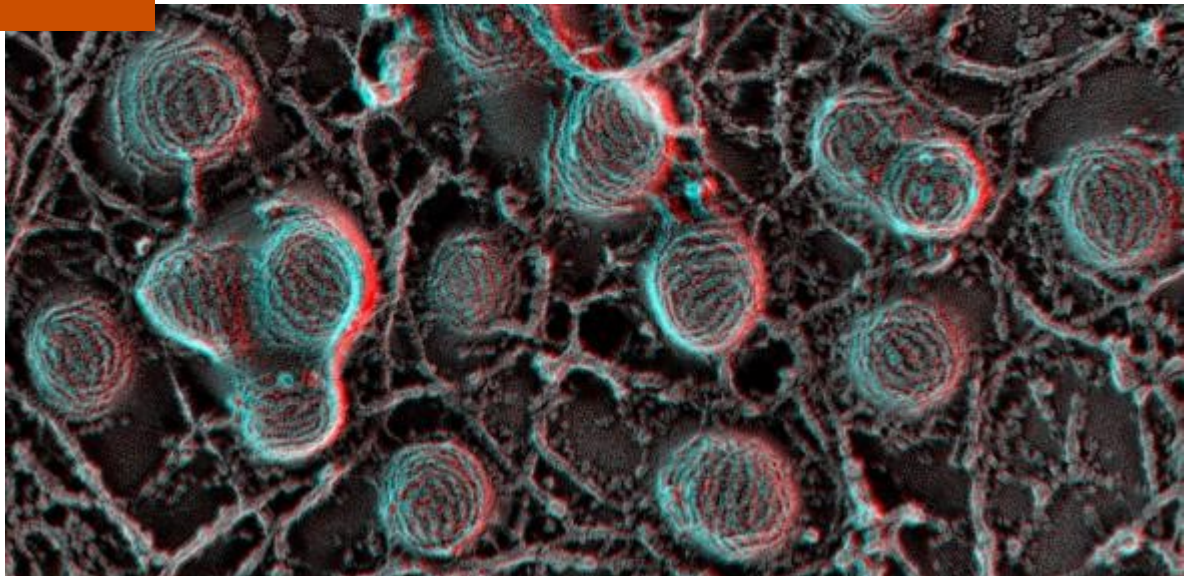
Full-time

Purpose of the role

The EM & Ultrastructural Pathology Facility provides expertise in experimentation and processing on a broad range of samples for molecular and cellular toxicology using a spectrum of techniques in electron cryo-microscopy (tomography and single-particle analysis), large-volume microscopy as well as the conventional EM including QF-DE (quick-freeze, deep-etch and rotary replication), CEMOVIS (cryo-electron microscopy of vitreous sections), Tokuyasu method, CLEM (correlation light and electron microscopy), HAADF-STEM (high-angle annular dark-field scanning transmission electron microscopy) and conventional immune-gold labeling.

The post holder reports to Dr Nobuhiro Morone, Head of the Electron Microscopy and Ultrastructural Pathology Group and provides high level method development and quality TEM and SEM imaging in order to support the Toxicology Unit in providing an efficient and effective delivery of research projects.

This role is pivotal for the provision of high quality imaging for the MRC Toxicology Unit. This includes initial research consultation, sample preparation, image acquisition and data processing for scientists and students. The post holder will work on several EM research projects with large-volume SEM as well as 3D-TEM, in collaboration with the Unit programs and external excellent projects (toxicology, oncology, immunology, neurobiology, developmental biology, virology), providing specialist technical support to the programs in order to develop the translation of basic research into clinically and public health-relevant outcomes.



The role continued

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Key responsibilities:

- Develop and modify analytical methods and techniques to support the effective use of the EM facility
- Provide high quality imaging for EM projects involving large-volume SEM and 3D-TEM for Unit programs and external projects. Provide specialist technical support to the programs in order to develop the translation of basic research into clinically and public health-relevant outcomes
- Manage technical resources within the facility: operate and maintain equipment, upgrade as required. Lead in the assessment of equipment failures and quality assurance
- Analyse experimental data and interpret results in order to contribute to scientific understanding. Use results to make changes to experimental equipment and methods. Provide advice, together with the Head of EM, to research groups on analytical strategy and data interpretation
- Contribute to planning of joint research projects. Discuss objectives and progress of various research projects, provide critical and constructive comments during meetings and 1:1 interactions with research staff
- Act as Safety Officer ensuring safe operation of equipment. Review and draw up risk assessments, advise staff when new safety procedures are developed, advise on safety considerations on experiments undertaken, represent the facility in safety committee meetings as required
- Prepare specimens requiring specialist skills from verbal instruction to technical specifications. Perform complex cellular and molecular EM procedures, conduct experiments on behalf of researchers and students, analyse and interpret results in order to make changes to experimental processes
- Manage flow of work requests to ensure timely delivery of imaging samples to end users
- Responsible for the specification and supply of chemicals/ consumables and equipment, agree joint purchasing with line manager. Provide input into the purchase of high value equipment for the facility
- Design and maintain lab databases to ensure research work is up to date and that records are archived and accessible
- To perform ultramicrotomy as required
- Responsible for the organisation of computing facilities in collaboration with the computer officer. Give specification on use of computers and software appropriate for equipment control, data acquisition and analysis. Responsible for maintenance of relevant section of the Unit website
- Other duties as appropriate for the grade

Person specification

	Essential	Desirable
Experience		
Practical EM experience of basic research associated with toxicology, oncology, immunology, neurobiology, developmental biology, and virology	√	
Experience in light and electron microscopy (SEM/TEM) including maintenance, preparatory expertise and screening, data collection, refinement and immuno-gold labelling	√	
Extensive experience in the operation of large-volume scanning electron microscope (SEM) as well as conventional SEM	√	
Experience in image processing techniques for 3D reconstruction	√	
Experience of handling cryogenic samples and cryo-preparation for single particle analysis and tomography		√
Experience of developing new EM techniques		√
Experience in providing training for electron microscopy to groups and on a one-to-one basis	√	
Experience in laboratory management	√	
Excellent team player	√	
Experience with LIMS software and workflows		√
Skills		
High degree of precision and accuracy	√	
Excellent communication and scientific presentation skills to staff colleague and student/researcher at all levels	√	
Demonstrate advanced knowledge of lab research work involving a critical understanding of relevant theory and/or basic principles for electron microscopy	√	
Enthusiasm to learn and optimize new procedures and techniques	√	
Ability to work independently when required	√	
Effective written and verbal communication skills	√	
Ability to think creatively and problem-solve	√	
Correlative light and electron microscopy	√	
Cryo-single particle analysis, and in-situ tomography		√
Experience of CLEM		√
Image analysis with Relion (MRC-LMB) for single particle analysis Image analysis with ilastik (EMBO) for large-volume microscopy		√
Qualifications		
Degree in relevant research area/ level 6 vocational qualification or an equivalent level of practical experience	√	
Educated to PhD level		√

Medical Research Council Toxicology Unit



The Unit

Our Mission is to understand the fundamental mechanisms that determine cell fate following exposure to exogenous and endogenous toxicants and to translate the Unit's discovery science into clinical and industrial environments.

We aim to produce novel insights to enhance successful drug design; develop predictive adverse outcome models that can be shared with our industrial partners; and gain a greater understanding of diseases that result from toxic injury and so provide innovative therapeutic avenues for translation into a clinical setting. In addition to informing the field of toxicology, our research outputs will provide novel information about the processes of ageing, including the development of neurological disorders, and will establish new ways in which to stratify patients for therapy.

Our research environment provides state-of-the-art research facilities including microscopy, Cryo-EM, flow cytometry, proteomics, bioinformatics and imaging. In addition, excellent opportunities exist for collaborative interactions with University of Cambridge researchers.

At the core of each of our programmes is mechanistic toxicology-based research of the highest quality. All programmes are expected to deliver research at an internationally competitive level.

The Unit is committed to training the next generation of toxicologists and through new and developing collaborations, both within Cambridge and UK-wide, translating our findings into industrial and clinical settings.

The Toxicology Unit is currently located at Leicester and will physically relocate to Cambridge in 2020. This position will be based in the Gleeson Building.

The School of the Biological Sciences

The School of the Biological Sciences is one of the six Schools that are responsible for delivering teaching and research and the administration of those activities within the University. The School delivers internationally-leading research and teaching on animal, plant and microbial science at scales that range from the atomic, molecular and cellular through whole organisms to populations and communities. The research impacts on the pharmaceutical and biotechnological industries, on human and animal health and the clinic as well as in conservation, agriculture and the environment.

About the School

The School of the Biological Sciences employs around 2000 staff teaching over 4000 students (around 2000 undergraduates in the Natural Sciences, Medical Sciences and Veterinary Sciences and Psychological and Behavioural Sciences Triposes plus around 2000 postgraduates).

The School collaborates closely with the School of Clinical Medicine. The joint Graduate School of Life Sciences looks strategically at graduate provision and education across the two Schools and at the undergraduate level the Medical Education Committee oversees medical education.

The School is currently arranged in two Faculty Boards (Biology and Veterinary Medicine) which are divided into nine Departments: Biochemistry, Genetics, Pathology, Pharmacology, Physiology, Development and Neuroscience, Plant Sciences, Psychology and Zoology are part of the Faculty Board of Biology while Veterinary Medicine is part of the Faculty Board of Veterinary Medicine.



The School also contains five major interdisciplinary Institutes: Wellcome Trust / CRUK Gurdon Institute for Cancer and Development, Wellcome Trust / MRC Stem Cell Institute, Cambridge Systems Biology Centre, Cambridge Centre for Crop Science and the Sainsbury Laboratory for Plant Development. It has also incorporated the MRC Toxicology Unit, Leicester which will physically relocate to Cambridge in 2020.

The School is involved with several Strategic Research Initiatives including being a major player in the Cambridge Conservation Initiative. The School is associated with the Museum of Zoology and the Botanic Garden. Key officers of the School plus details of relevant Research Ethics Committee (Human Biology and Psychology) can be found on the School's website..

Athena SWAN

The Athena SWAN Charter was launched in June 2005 to recognise and reward commitment to advancing the careers of women working in higher education in science, technology, engineering, mathematics and medicine (STEMM).

The University of Cambridge was a founder member of Athena SWAN Charter and the University won its first award in the inaugural round of March 2006.

Since then, the University has successfully renewed its Bronze Athena SWAN award in 2009 and 2012 and in 2014 achieved a Silver Athena SWAN award.

Many of the Departments in the School of Biological Sciences hold awards at Bronze or Silver level and the School continues to support the Athena SWAN process across all subjects.

Terms of appointment

Tenure and probation

This is an open-ended position with MRC funding available up to March 2023 in the first instance.

Appointments will be subject to satisfactory completion of a 9 month probationary period.

Hours of Work and Working Pattern

Your employment is full time. There are no conditions relating to hours and times of work but you are expected to work such hours and days as are reasonably necessary for the proper performance of your duties. Your times of work should be agreed between you and your head of institution

Pension

You will automatically be enrolled to become a member of USS (Universities Superannuation Scheme) – a defined benefits pension scheme. For further information please visit: www.pensions.admin.cam.ac.uk/.

Annual leave

Full-time employees are entitled to annual paid leave of 41 days inclusive of public holidays.

For contracts issued for new part-time employees from 1 October 2019, annual leave will be pro rata'd based on days worked. This entitlement is pro rata in the holiday year of commencement of employment and in the year your employment terminates.

General information Pre-employment checks

Right to work in the UK

We have a legal responsibility to ensure that you have the right to work in the UK before you can start working for us. If you do not have the right to work in the UK already, any offer of employment we make to you will be conditional upon you gaining it.

Health declaration

Once an offer of employment has been made the successful candidate will be required to complete a work health declaration form.

Qualifications

The person specification for this position lists qualifications that are essential and/or desirable. Please note that if you are offered the post you will be asked to provide your relevant original certificates of these qualifications.

References

Offers of appointment will be subject to the receipt of satisfactory references.

Screening Checks

This role requires a security check. Any offer of employment we make to you will be conditional upon the satisfactory completion of these checks; whether an outcome is satisfactory will be determined by the University.

Information if you have a disability

The University welcomes applications from individuals with disabilities. We are committed to ensuring fair treatment throughout the recruitment process. We will make adjustments to enable applicants to compete to the best of their ability wherever it is reasonable to do so and, if successful, to assist them during their employment. Information for disabled applicants is available at <http://www.admin.cam.ac.uk/offices/hr/staff/disabled/>

We encourage you to declare any disability that you may have, and any reasonable adjustments that you may require, in the section provided for this purpose in the application form. This will enable us to accommodate your needs throughout the process as required. However, applicants and employees may declare a disability at any time.

If you prefer to discuss any special arrangements connected with a disability, please contact, Rebecca Heatherley rsh49@cam.ac.uk. Alternatively, you may contact the HR Business Manager responsible for the department you are applying to via hrenquiries@admin.cam.ac.uk.



The University

The University of Cambridge is one of the world's oldest and most successful universities. We are a renowned centre for research, education, and scholarship that makes a significant contribution to society. The University is consistently ranked amongst the top universities in the world. Our affiliates have won more Nobel Prizes than any other University.

Our sustained pursuit of academic excellence is built on a long history of first-class teaching and research within a distinctive collegiate system. For eight centuries our ideas and innovations have shaped the world. Our principal goal is to remain one of the world's leading universities in an increasingly competitive global higher education sector. Today the University of Cambridge is at the centre of a cluster of over 4,300 businesses employing 58,000 people. Our capital investment projects include the West Cambridge site, the North West Cambridge development and the growth of the Biomedical Campus in the south of the city. The North West Cambridge development includes the opening of a primary school – the first in the UK to be managed by a University. So we are deeply embedded in, and committed to serving, our local community. These are all conspicuous signs of a University that is not only adapting to new needs, but also anticipating the future.

Our mission is to contribute to society through the pursuit of education, learning, and research at the highest international levels of excellence. Our core values are:

- freedom of thought and expression; and
- freedom from discrimination.





About us

The University is one of the world's leading academic centres. It comprises 150 faculties and departments, together with a central administration and other institutions. Our institutions, museums and collections are a world-class resource for researchers, students and members of the public representing one of the country's highest concentrations of internationally important collections.

The University has an annual income of £1.66 billion. Research income, won competitively from the UK Research Councils, the European Union (EU), major charities and industry, exceeds £400 million per annum and continues to grow.

The Colleges and the University remain committed to admitting the best students regardless of their background and to investing considerable resources both in widening access and financial support.

The 31 Colleges are self-governing, separate legal entities which appoint their own staff. Many academic staff are invited to join a College as a Teaching Fellow, which provides a further social and intellectual dimension. The Colleges admit students, provide

Our ideas and innovations have shaped the world. Our campaign, 'Dear World... Yours, Cambridge', will raise £2 billion to help us shape all our futures.

student accommodation and deliver small group teaching. The University awards degrees and its faculties and departments provide lectures and seminars for students and determine the syllabi for teaching and conducting research.

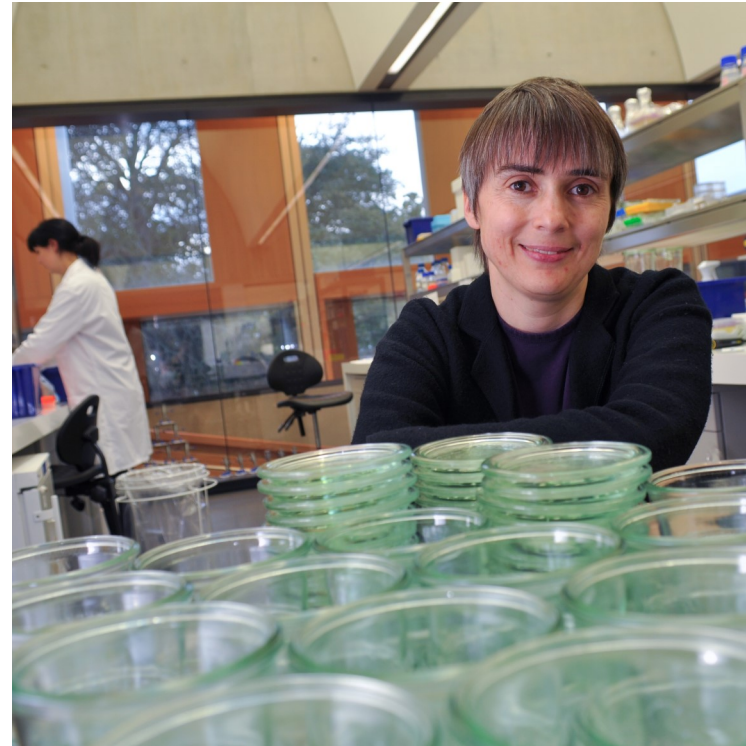
The University's estate is undergoing the most significant transformation in its history. Cambridge has been able to create a new science and technology campus to the west of the city centre, and is now expanding further to the north west of Cambridge including investing in affordable homes for University key workers and community facilities. Even with our continued development, the University remains within walking or cycling distance across the campus. The University is a major partner on the Cambridge Biomedical Campus and we continue to redevelop our historic city centre sites demonstrating our determination to ensure that we can offer the best facilities and opportunities for our staff and students.

Our instinct for seeking out excellence and setting up enduring and mutually beneficial collaborations has led us to establish strategic partnerships across the globe. Whether it is the successful Cambridge-Africa Programme involving universities in Ghana, Uganda and elsewhere on the African continent; or the close association with the government of India to pursue new research in crop science; or the creation, with Germany's Max Planck Institutes, of a Cambridge-based centre for the study of ethics, human economy and social change – international partnerships are now an inextricable part of the University's make-up.

Working at the University

Working at Cambridge you will join a diverse, talented and innovative community, with more than 18,000 students and over 11,000 staff from all walks of life and corners of the world.

The University continually explores strategies to attract and retain the best people. It is committed to supporting its staff to achieve their best. We are a fair, diverse and inclusive society and we believe our staff are our greatest asset. There is strong commitment to developing institutional leadership and supporting and encouraging staff development at all levels. Furthermore, the University's Athena SWAN award recognises and celebrates good practice in recruiting, retaining and promoting women. We offer a variety of roles including academic, research, professional, managerial and support roles. We also offer extensive benefits and excellent learning opportunities within a stimulating working environment. The University has signed up to the Race Equality Charter, a notional framework for improving the representation, progression and success of minority ethnic staff and students within higher education.



Living in Cambridge



Cambridge is rich in cultural diversity. From beautiful University and College buildings, museums and art galleries, quaint gardens and punts on the River Cam, to a vibrant restaurant and café scene, our employees are surrounded by the wonderful features of this unique city.

If you prefer the faster pace of life, London is a 45 minute train journey away. For those travelling from overseas, Stansted Airport is just 45 minutes away and Heathrow Airport under 2 hours away.

The University is a short distance from a host of other attractions such as Ely Cathedral, Newmarket Races and various wildlife parks and stately homes.

Cambridge is also within easy reach of the beautiful Broads and coastlines of Norfolk and Suffolk.

Further information about attractions in and around Cambridge can be found at [Visit Cambridge](http://www.visitcambridge.org), the official tourism website for the city.



What Cambridge can offer



We offer a comprehensive reward package to attract, motivate and retain high performing staff at all levels and in all areas of work. The University offers a wide range of competitive benefits, from family leave entitlement, to shopping and travel discount schemes. Our generous annual leave package contributes to the positive wellbeing of our University employees. Sabbatical leave enables academics to focus on research and scholarship, whilst still maintaining their full salary. The University also has a career break scheme for academic and academic-related staff, with additional flexible working policies for all other staff.

CAMbens employee benefits

We offer a CAMbens scheme for University employees, providing access to online and in-store shopping discounts and cashback. With more than 2,000 participating retailers, employees can save money on a wide range of household expenses, from groceries and clothes, to holidays and insurance and much more. A range of local discounts are also available, helping employees to save money whilst also supporting local Cambridge businesses. CAMbens Cars and CAMbens Cycle to Work salary sacrifice schemes are also available, which enable employees to save money on transport costs. A 10% discount rate on the purchase of train

season tickets, bulk buy tickets and an interest free travel to work loan are also available for staff of the University of Cambridge.

Family-friendly policies

The University recognises the importance of supporting its staff. We have a range of family-friendly policies to aid employees' work-life balance including a generous maternity, adoption and shared parental leave entitlement of 18 weeks full pay and emergency family care support via My Family Care.

In addition, our Ofsted rated 'outstanding' workplace nurseries, childcare vouchers, a childcare salary sacrifice scheme and a high quality holiday play scheme are available to help support University employees with caring responsibilities. The Newcomers and Visiting Scholars Group is an organisation within the University run by volunteers whose aim is to help newly arrived wives, husbands, partners and families of Visiting Scholars and members of the University to settle in Cambridge and give them an opportunity to meet local people.

Your wellbeing

The University's Sport Centre, Counselling Services and Occupational Health are just some of the support services available to University employees to promote their physical and mental wellbeing. There are many societies in Cambridge catering for almost every taste and interest. Whether you want to take part in a sport, participate in music or drama, pursue a hobby, or join a political group, you will almost certainly find that a society exists for this purpose. The University also hosts the [Cambridge Science Festival](#) and [Cambridge Festival of](#)



What Cambridge can offer

Pay and benefits

The University salary structure includes automatic service-related pay progression in many of its grades and an annual cost of living increase. In addition to this, employees are rewarded for outstanding contribution through a number of regular pay progression schemes. The University offers attractive pensions schemes for employees, with an additional benefit of a salary exchange arrangement providing tax and national insurance savings. Payroll giving is also a simple, tax-efficient way for employees to make monthly donations to charity.

Relocating to Cambridge

The University Accommodation Service exists to help employees in their search for a rental home in Cambridge. A new University development at North West Cambridge called Eddington offers subsidised rented accommodation to University staff. The development consists of high quality furnished one and two bedroom apartments. For more information about the development and how to apply please visit the website www.nwcambridge.co.uk

The importance of helping individuals settle into a new



area is also recognised by the University. The Shared Equity Scheme <https://www.hr.admin.cam.ac.uk/pay-benefits/cambens-employee-benefits/financial/shared-equity-scheme> provides financial assistance to qualifying new members of staff with the purchase of living accommodation, where they have to relocate to take up their appointment. Removal expenses are also available for qualifying new members of staff.

Equality & diversity

The University has a vibrant and varied community. We support and encourage under-represented groups and we value diversity. We welcome applications from individuals with disabilities. Our recruitment and



selection procedures follow best practice. We have an Equal Opportunities Policy, along with a range of diversity networks for women, black and minority ethnic and lesbian, gay, bisexual and transgender staff. More details are available here: <http://www.equality.admin.cam.ac.uk/>

Development opportunities

We support new employees to settle in through various activities. The encouragement of career development for all staff is one of the University's values and we put this into practice through various services and initiatives. Our Personal and Professional Development Department provides development opportunities and courses for all University employees. These include face-to-face sessions, online learning modules and webinars. Employees may also apply for financial support to undertake training that will lead to a qualification. We offer reduced staff fees for University of Cambridge graduate courses and the opportunity to attend lectures and seminars held by University departments and institutions. The CareerStart@Cam programme also supports employees in assistant staff roles who do not hold higher education qualifications to develop their skills, experience and qualifications.

Whether it is understanding the molecular basis of neurodegenerative diseases, or helping farmers in India increase their yield, or discovering better ways to live in large cities – I know that what we do in Cambridge affects lives, and livelihoods, the world over.

Vice Chancellor Emeritus, Professor Sir Leszek Borysiewicz, 2016

How to apply

Applications should be submitted online via the University of Cambridge jobs page www.jobs.cam.ac.uk by clicking "Apply online" in the job advert. You will need an email address to register for our online system.

Informal enquiries are invited and can be directed to

Nobuhiro Morone nm669@mrc-tox.cam.ac.uk

If you have any queries regarding the application process please contact:

Rebecca Heatherley rsh49@mrc-tox.cam.ac.uk.

The closing date for applications is 19th October 2020.