



Senior Scientific Officer - CLEM & cryoET

Candidate Information

June 2024

The Institute of Cancer Research

About our organisation

We are one of the world's most influential cancer research institutes with an outstanding record of achievement dating back more than 100 years. We are world leaders in identifying cancer genes, discovering cancer drugs and developing precision radiotherapy. Together with our hospital partner The Royal Marsden, we are rated in the top four centres for cancer research and treatment worldwide. As well as being a world-class institute, we are a college of the University of London.

We came second in the league table of university research quality compiled from the Research Excellence Framework (REF 2021). We have charitable status and rely on support from partner organisations, charities, donors and the general public. We have more than 1000 staff and postgraduate students across three sites – in Chelsea and Sutton.

Academic Services

At the ICR we aim to defeat cancer through scientific excellence, innovation and partnership. These principles also underpin our approach to scientific infrastructure, which is among the very best of any research centre in the UK. ICR benefits from our continual investment in world-leading scientific services that combine cutting-edge equipment with a highly skilled workforce.

Division of Structural Biology

The Division of Structural Biology aims to describe the structural and biochemical properties of proteins and the complexes they form, in order to understand the significance of these proteins in the development and treatment of cancer. Current research areas include the mechanisms of gene transcription, mRNA splicing, the DNA damage response, genome integrity, cell cycle regulation, protein homeostasis, cell signalling and drug discovery. Our state-of-the-art Microscopy Facilities are a vital component of our research infrastructure and key to training the next generation of Structural Biologists.

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This position is newly established in order to provide the required expertise and technical support in the running of a new correlative light and electron microscopy (CLEM) workflow for targeting specific molecules and complexes for imaging at high resolution by cryogenic Electron Tomography (cryoET) *in situ*, i.e. in a range of cell or tissue models. The CLEM workflow is a collaboration between the Light Microscopy Facility (Core Research Facilities) and the Electron Microscopy Facility (Structural Biology), and this post will need to work closely with both Facility Managers, working collaboratively to operate and maintain laboratory space and instruments used in CLEM workflows.

The senior scientific officer's responsibilities will include: management of the microscopes and sample preparation equipment; advising users on project design and providing technical advice and expertise; providing training and continued development to researchers; and developing successful CLEM and cryoET workflows in collaboration with colleagues. The post-holder will also be expected to participate in giving regular training courses to members of the institute on *in situ* structural biology and image analysis.

Our mission
is to make the
discoveries that
defeat cancer.

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Our values

The ICR has a highly skilled and committed workforce, with a wide variety of roles, each requiring different skills. But whether you work as a researcher, or work as part of our corporate team, your work and behaviour is underpinned by these six values. They are what bring us together as one team - as 'One ICR'.



Pursuing excellence

We aspire to excellence in everything we do, and aim to be leaders in our field.



Acting with Integrity

We promote an open and honest environment that gives credit and acknowledges mistakes, so that our actions stand up to scrutiny.



Valuing all our people

We value the contribution of all our people, help them reach their full potential, and treat everyone with kindness and respect.



Working together

We collaborate with colleagues and partners to bring together different skills, resources and perspectives.



Leading innovation

We do things differently in ways that no one else has done before, and share the expertise and learning we gain.



Making a difference

We all play our part, doing a little bit more, a little bit better, to help improve the lives of people with cancer.



Our values set out how each of us at the ICR, works together to meet our mission – to make the discoveries that defeat cancer. They summarise our desired behaviours, attitudes and culture – how we value one another and how we take pride in the work we do, to deliver impact for people with cancer and their loved ones.”

Professor Kristian Helin
Chief Executive

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Job description

Department / division:	Division of Structural Biology / Academic Services
Pay grade / staff group:	Scientific Professional 3 (SSO)
Hours / duration:	Full time (35 hours per week)
Reports to:	Teige Matthews-Palmer and Kai Betteridge
Main purpose of the job:	The Senior Scientific Officer (CLEM & cryoET) will lead the development and implementation of cryo-CLEM methods collaboratively within both the Light and Electron Microscopy Facilities. They will support users through operation, training, and management of the workflow within the facilities.

Duties and responsibilities:

Specialist technical support and scientific work

To develop and implement appropriate Correlative Light & Electron Microscopy (CLEM) workflows and methods for the application of CLEM *to in situ* structural biology using cryogenic Electron Tomography (cryoET) within the Light and Electron Microscopy Facilities in a collaborative manner.

Ensure all equipment related to correlative workflows within the facilities operates to a high standard through appropriate maintenance and testing. This includes an EM GP 2 Plunge Freezer, EM ICE High Pressure Freezer, Ultracut7 FC7 Ultramicrotome, the Stellaris 5 Cryo Confocal Microscope, and associated equipment of the CLEM lab, as well as supporting tomography capability of the Glacios TEM.

Provide colleagues with training, guidance and expert advice to enable their research, encompassing experimental design, sample preparation, instrument use and data analysis; making significant and essential contributions for the success of challenging CLEM and cryoET studies.

To provide administrative support by managing communal laboratory systems including purchasing, booking systems, usage reporting, and instrument troubleshooting logs, and managing service calls for instruments.

Remain up-to-date with developments in cryogenic electron microscopy and tomography through publications, conferences and professional associations. Share this knowledge, test and critically appraise new methods or instrumentation, and develop capabilities applying CLEM at the cutting edge of volumetric and *in situ* molecular structure imaging. Incorporate new technology as appropriate.

To communicate with researchers internally and externally to facilitate and guide new users and new projects, systematically collect feedback, including from the User Group, to improve laboratory operation and research support.

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Creating a safe and productive work environment, by ensuring that the activity of trainees, contractors and researchers within the imaging facilities conforms to the requirements of COSHH, Local Rules and other Codes of Practice.

To work with a range of people in a productive and independent manner, by managing the visits of service engineers and other visitors, responding to troubleshooting queries from users and maintaining supplies, stocks and equipment in the facilities.

To work in a flexible, organised, and independent manner, plan and prioritise work and meet objectives within pre-determined timescales.

To work as part of a team, be enthusiastic about learning, and take an interest in the relevant literature and personal development.

General

All staff must ensure that they familiarise themselves with and adhere to any ICR policies that are relevant to their work and that all personal and sensitive personal data is treated with the utmost confidentiality and in line with the General Data Protection Regulations

Any other duties that are consistent with the nature and grade of the post that may be required.

To work in accordance with the ICR's Values.

To promote a safe, healthy and fair environment for people to work, where bullying and harassment will not be tolerated.

This job description is a reflection of the present position and is subject to review and alteration in detail and emphasis in the light of future changes or development.

Workforce Agreement

The ICR has a workforce agreement stating that Postdoctoral Training Fellows can only be employed for up to 7 years as PDTF at the ICR, providing total postdoctoral experience (including previous employment at this level elsewhere) does not exceed 10 years.

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Person specification

Education and Knowledge

PhD in a relevant scientific area (e.g., Structural Biology, Physics, Biochemistry)	Desirable
A thorough theoretical and practical understanding of cryoET and correlative light & electron microscopy workflows	Essential

Skills & Experience

Preparation of cells on grids via plunge freezing, or tissues by high pressure freezing for cryogenic imaging in a vitreous state.	Essential
Proven experience in Cryo Electron Microscopy of Vitreous Sections (CEMOVIS) and ability to cut sections via ultramicrotomy.	Desirable
Proven experience in operating advanced light and electron microscopy equipment.	Essential
Proven experience in cryogenic electron tomography (cryoET) and sub-tomographic averaging, including data collection, tomographic reconstruction and averaging.	Essential
Experience designing samples and projects using CLEM methods to enable <i>in situ</i> molecular reconstruction.	Essential
Ability to critically judge the quality/feasibility of cryoET and CLEM projects.	Essential
Demonstrable ability to support researchers from different teams in their research projects through training and technical supervision/guidance.	Essential
Demonstrable ability to work effectively with facility users, colleagues and contractors, including PhD students, research staff, collaborators, stores and facilities, engineers and visitors.	Essential

General

Excellent interpersonal skills with the ability to establish effective working relationships	Essential
Ability to work flexibly and independently	Essential
Ability to plan, organise and prioritise workload to meet deadlines and perform work with care to a high standard	Essential
Excellent verbal and written communication skills	Essential
Excellent IT skills	Essential

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Benefits

We offer a fantastic working environment, great opportunities for career development and the chance to make a real difference to defeat cancer. We aim to recruit and develop the best – the most outstanding scientists and clinicians, and the most talented professional and administrative staff.

The annual leave entitlement for full time employees is 28 days per annum on joining. This will increase by a further day after 2 years' and 5 years' service.

Staff membership to the Universities Superannuation Scheme (USS) is available. The USS is a defined benefit scheme and provides a highly competitive pension scheme with robust benefits. The rate of contributions is determined by USS and details of the costs and benefits of this scheme can be found on their website. If staff are transferring from the NHS, they can opt to remain members of the NHS Pension Scheme.

We offer a range of family friendly benefits such as flexible working, a parents' group, and a maternity mentoring scheme. Other great benefits include interest free loans for discounted season tickets for travel and bicycle purchases, access to the NHS discounts website, a free and confidential Employee Assistance Programme which offers a range of well-being, financial and legal advice services, two staff restaurants, and access to a gym and sporting facilities at our Sutton site.

Further information

You may contact Teige Matthews-Palmer or Kai Betteridge for further information by emailing teige.matthews-palmer@icr.ac.uk or kai.betteridge@icr.ac.uk. This job description is a reflection of the current position and is subject to review and alteration in detail and emphasis in the light of future changes or development.