ICR The Institute of Cancer Research

Post Doctoral Training Fellow

Cancer Dynamics team
Dr Stephen John Sammut

Candidate Information

May 2023

The Institute of Cancer Research

About the role

The Cancer Dynamics Laboratory, headed by Dr Stephen John Sammut, focuses on developing computational and experimental frameworks that model changes in breast cancer biology during treatment using high dimensional multiplatform profiling technologies to develop personalised precision cancer therapies (Sammut et al, *Nature* 2022, PMID: 34875674). The lab has extensive expertise in the molecular profiling of early and metastatic breast cancer (PMID: 31141692) and we have contributed to the deep characterisation of its mutational (PMID: 27161491) and methylation landscapes (PMID: 34518533) as well as the development of dynamic models that predict relapse and survival (PMID: 30867590). We are deeply committed to changing the way breast cancer is treated and improving the outcomes of this disease.

We are seeking to recruit a highly motivated and ambitious postdoctoral researcher to develop and apply computational approaches for modelling and predicting response to anticancer therapies in breast cancer using tumour profiling data acquired before and during anticancer therapy. The successful candidate will emply computational approaches and machine learning to integrate data from bulk, single cell resolved, and phenotyping technologies to model evolutionary trajectories associated with response to therapy, and identify druggable mechanisms of resistance to therapy. This work will inform the development and delivery of the next generation of personalised cancer medicine clinical trials.

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The successful candidate will be a part of a highly collaborative team of experimental scientists, computational biologists and physicians at the ICR and Royal Marsden Hospital. In this post you will have the opportunity to develop your career through cutting-edge research, collaborations with world-leading experts in the field of breast cancer and be based at the largest breast cancer research centre of excellence in the UK. You will have the opportunity to work under your own initiative and apply problem-solving skills to troubleshoot challenging technical issues. Within this role, you will develop experience in breast cancer biology, the analysis of tumour profiling data, integration of biological data using machine learning, and translational science.

The successful candidate must have a PhD in a computational biology or other numerical subject, have extensive programming experience, and possess a basic knowledge of cancer biology. A background in the analysis and interpretation of molecular data is essential. If available, please include a link to your online, publicly-available source code repository in your application. Good communication skills, including excellent written and spoken English, are essential.

About the division

The Breast Cancer Now Toby Robins Research Centre at the ICR is the first centre in the UK entirely devoted to breast cancer research. Our goal is to advance research into the causes, diagnosis and treatment of breast cancer. It is located in state-of-the-art laboratory space, with excellent core facilities and is funded through a long term renewable programme grant from Breast Cancer Now. The Centre is directed by Clinician Scientist Professor Andrew Tutt. Professor Chris Lord is Deputy Director of the Centre. Our Breast Cancer Research Centre was recently awarded the 2022 AACR Team Science award with our breast cancer clinical research partners in the ICR's CTSU clinical trial unit and Royal Marsden Hospital.

About our organisation

The Institute of Cancer Research, London, is one of the world's most influential cancer research institutions with an outstanding track record of achievement dating back more than 100 years. Our mission is to make the discoveries that defeat cancer.
As well as being one of the UK's leading higher education institutions in research quality and impact, the ICR is consistently ranked as one of the world's most successful for industry collaboration. As a member institution of the University of London, we also provide postgraduate higher education of international distinction.

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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 Breast Cancer Research
Pay grade / staff group:	Postdoctoral Training Fellow
Hours / duration:	Full time (35 hours per week), Monday to Friday. Fixed term contract for 3 years
Reports to:	Dr Stephen John Sammut
Main purpose of the job:	The post holder will develop computational frameworks that integrate static and on-therapy tumour profiling data obtained from multi-platform technologies to predict response to therapy and identify druggable mechanisms of resistance.

Duties and responsibilities:

Analysis and interpretation of molecular and imaging data obtained from human breast cancers
Development and implementation of machine learning frameworks that integrate multi-platform data for novel biomarker discovery and disease modelling
Development and maintenance of analysis pipelines and methods for new platforms/technologies
To contribute to the preparation of reports on the work carried out by the laboratory and produce work suitable for high-quality, high-impact publications
To supervise and help manage junior team members
To participate in and contribute to regular group meetings
To meet objectives within pre-determined timescales.

Workforce Agreement for Post Doctoral Training Fellows

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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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.

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Person specification

Education and Knowledge

PhD** in bioinformatics, computational biology, biostatistics, computer science or in a related quantitative field	Essential
Advanced programming experience in R	Essential
Knowledge of NIX systems and shell scripting	Essential
Programming experience in Python	Desirable
Experience in machine learning	Desirable
Demonstrable knowledge of cancer biology	Essential
Demonstrable interest in relevant scientific literature	Essential

***** as a minimum requirement, candidates must have submitted their thesis by the start date of their employment and awarded their PhD within the six month probationary period.***

Skills

Proven ability to work independently, collaboratively and as a part of an interdisciplinary team	Essential
Proven ability to write scientific manuscripts	Essential
Proven ability to work accurately, with a strong attention to detail and to deadlines	Essential
Meticulous attention to detail for record keeping	Essential
Availability of online, publicly-available, source code	Desirable
Ability to plan, organise and prioritise a busy workload	Essential
Proven ability to independently design, optimise and implement experiments	Essential
Demonstrable communication skills, written (including scientific writing) and oral	Essential

Experience

Experience in the analysis of cancer profiling data	Essential
Experience in machine learning	Desirable
Experience in using high performance compute clusters	Essential

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General

Interest in cancer research	Essential
Excellent data presentation skills	Essential
Self-motivated and enthusiastic, ability to make decisions and to take initiative	Essential
Ability to interact effectively with other team members and work as part of a dynamic team to drive projects forward	Essential
Flexibility to work as an individual or as a member of a team	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 Dr Stephen John Sammut for further information by emailing Stephen-john.sammut@icr.ac.uk. Please note, this address is for enquiries only and you should not send your application to this address. 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.