ICR The Institute of Cancer Research

Postdoctoral Training Fellow in bioinformatics

Cancer Dynamics team
Dr Stephen John Sammut

Candidate Information

February 2025

The Institute of Cancer Research

About the role

We are seeking a highly motivated and ambitious postdoctoral researcher to apply existing and develop cutting-edge single-cell computational methods for modelling breast tumour evolution during chemotherapy and immunotherapy. Your work will contribute to the development of predictive frameworks that can be deployed in breast clinical trials to guide treatment decisions.

Our team has recently launched the BELIEVE neoadjuvant translational study (https://clinicaltrials.gov/study/NCT06681064) at the Royal Marsden Hospital, where breast cancers are serially biopsied during pre-operative chemotherapy. This unique dataset provides an unprecedented opportunity to uncover the molecular mechanisms driving treatment response and resistance. By leveraging these insights, we aim to develop computational models that can inform precision cancer therapies in real time.

Our translational research lab has a strong track record in developing computational frameworks that model breast cancer evolution to drive personalised treatment strategies (Sammut et al., **Nature** 2022, PMID: 34875674; Sammut et al., **Nature Immunology** 2024, PMID: 38698238). We have extensive expertise in the molecular profiling of early and metastatic breast cancer (PMID: 31141692), the characterisation of its mutational (PMID: 27161491) and methylation landscapes (PMID:

Cancer Dynamics team
Dr Stephen John Sammut
Candidate Information

34518533), and the development of dynamic models that predict relapse and survival (PMID: 30867590).

As part of our highly collaborative team of experimental scientists, computational biologists, and clinicians at the Institute of Cancer Research (ICR) and the Royal Marsden, you will:

- Work on high-impact translational breast cancer research at the UK's largest breast cancer research centre of excellence.
- Collaborate with world-leading experts in breast cancer biology, computational oncology, and translational medicine.
- Develop expertise in single-cell analysis, tumour profiling, machine learning integration, and precision medicine approaches.
- Apply problem-solving skills to tackle challenging computational and technical issues.
- Gain career-enhancing experience in translational science, with opportunities to present your work at major conferences and contribute to high-profile publications.

This role offers an outstanding opportunity to drive innovation at the interface of computational biology and clinical research, shaping the future of precision oncology.

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.

This position is offered on a fixed term 3 year contract. Starting salary is based on previous post doctoral experience in the range £45,600 - £49,350 p.a. inclusive.

In addition to annual performance related pay awards, the salary scales are reviewed annually to consider cost of living increases. The position is based at the ICR site in Chelsea.

Annual leave entitlement is 28 days per annum. There is an additional entitlement to 8 bank/public holidays and 3 ICR-set privilege days.

The ICR has a workforce agreement stating that there is a maximum duration of employment of 7 years including pre-ICR PDTF experience.

Cancer Dynamics team
Dr Stephen John Sammut
Candidate Information

About the division

The Breast Cancer Now Toby Robins Research Centre, within the Division of Breast Cancer Research 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, and also received recognition in an award to the ICR for the 2023 Queen's Anniversary Prize for transforming lives through world-leading breast cancer research.

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.

We are also a charity and rely on the support of partner organisations, funders, donors and the general public.

Read more to find out about our history, culture, and achievements, and how our funders, supporters and partnerships help drive our work.

Our mission is to make the discoveries that defeat cancer.

Cancer Dynamics team
Dr Stephen John Sammut
Candidate Information

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

Cancer Dynamics team
Dr Stephen John Sammut
Candidate Information

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:	Analyse single-cell data from a large cohort of serially sampled breast cancers during pre-operative chemotherapy to uncover the molecular mechanisms driving treatment response and resistance. This research will map tumour evolution throughout therapy, generating critical insights to advance more effective, personalised treatment strategies.

Duties and responsibilities:

Specific duties:

Development of computational approaches to process and analyse data derived from established and novel single cell profiling technologies being developed by the laboratory
Application of single cell sequencing data to understand the biology underlying response and resistance to therapy in breast cancer
Development and implementation of computational 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.

Cancer Dynamics team
Dr Stephen John Sammut
Candidate Information

Workforce Agreement for Postdoctoral Training Fellows

The ICR has a workforce agreement stating that there is a maximum duration of employment of 7 years including pre-ICR PDTF Experience

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.

Cancer Dynamics team
Dr Stephen John Sammut
Candidate Information

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 and/or Python	Essential
Demonstrable knowledge of cancer biology	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 and collaboratively within a diverse and multidisciplinary team	Essential
Track record of research publications in peer-reviewed journals, including both published papers and submitted 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 repository	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

Demonstrable experience in cancer sequencing data analysis	Essential
Demonstrable experience in single cell RNA/DNA analysis	Desirable
Demonstrable experience in using high performance compute clusters	Desirable

Cancer Dynamics team
Dr Stephen John Sammut
Candidate Information

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

Cancer Dynamics team
Dr Stephen John Sammut
Candidate Information

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.