



June 2025

Description of the role

This is a position in the Breast Cancer Research Data Science Team led by Dr Syed Haider, working in close collaboration with the Cancer Stem Cells laboratory led by Prof. Axel Behrens.

We are seeking a highly motivated researcher to apply and develop computational approaches for investigating genomic and transcriptomic determinants of heterogeneity in treatment resistant breast cancers. The successful candidate will employ computational approaches to meaningfully integrate bulk/single cell genomic/transcriptomic and imaging assays to identify mechanisms of treatment resistance in breast cancer. In addition to computational discovery; resulting suitable therapeutic targets will be subject to pre-clinical investigation and subsequent design of translational studies at our research centre. Hence, this study will be performed closely in collaboration with experimental and clinical investigators at the Breast Cancer Now Research Centre, Institute of Cancer Research, London.

Your work will focus on datasets generated using the state-of-the-art highthroughput molecular profiling of patient samples and organoids derived from these samples to understand how therapy resistance occurs in breast cancer. In addition, you will be responsible for the analysis and integration of public datasets to test the robustness of new findings, and for the generation of new hypotheses.

The project offers experience in cancer stem cells biology, data science and statistical modelling while investigating the presence of novel molecular biomarkers of aggressive breast cancers. The successful candidate will also have opportunities to optimise/extend our existing

computational pipelines for pre-processing of big data in breast cancer. Given the multidisciplinary nature of this position, the successful candidate is expected to play a key role in liaising with wet-lab scientists, as well as write up of research results in a highly collaborative environment.

Applicants should hold a PhD in quantitative subject with exposure to genomic/transcriptomics dataset, have programming and scripting experience, and possess relevant experience in statistics and genetics.

This position is offered on a fixed term contract, for 3 years in the first instance. Starting salary is in the range of £39,805 to £49,023 per annum inclusive based on previous experience.

In addition to annual performance related pay awards, the salary scales are reviewed annually to consider cost of living increases.

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

About the teams

The Breast Cancer Research Data Science Team is an interdisciplinary group of researchers (~12) who are experts in high-throughput data analyses, machine learning and software engineering. We work in a highly dynamic and collaborative environment focussing on the identification of molecular markers of breast cancer by interrogating genomic, epigenomic and transcriptomic datasets profiled using bulk as well as single-cell assays. These molecular datasets are generated using patient samples and patient-derived models (xenografts and organoids), and interpreted alongside clinical covariates of patients. In particular, we are interested in the application and development of bioinformatics methods to help understand the molecular basis of treatment resistant breast cancers.

The Cancer Stem Cell team led by Professor Axel Behrens uses a combination of sophisticated genetics and human cancer organoids to understand the biology of cancer and to develop novel therapeutic options. Recent key discoveries of the Behrens team include identification of cancer stem cell populations in breast and pancreatic Cancer (Blaas et al., Nature Cell Biology 2016; Wang et al., Nature Cell Biology 2019), and the elucidation of mechanisms guiding tumour maintenance, tumour morphology and tumour cell fate (Messal et al., Nature 2019; Nelson et al., Nature Communications 2022; Lan et al., Nature, 2022).

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 funding 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.

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

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 <u>values</u>. They are what bring us together as one team - as 'One ICR'.

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

Job description

Department / division:	Breast Cancer Research
Pay grade / staff group:	Analytical Scientist 2
Hours / duration:	Full time 35 hours per week, Monday to Friday. Fixed term contract for 3 years
Reports to:	Dr Syed Haider
Accountable to:	Prof. Axel Behrens and Dr. Syed Haider
Main purpose of the job:	The postholder will work independently and as a part of a multi-disciplinary team, to identify molecular markers of therapy resistance using in-house and publicly available high-throughput sequencing and clinical datasets. The identified targets will be used to guide pre-clinical studies at the Breast Cancer Now Research Centre. The successful post holder will be involved in the design, analysis, interpretation and scientific writing of results for high impact journals.

Specific duties

Analysis and interpretation of high-throughput sequencing datasets

Statistical analysis in R

Where necessary, development and maintenance of analysis pipelines

Collaborate with other teams within the Breast Cancer Now Research Centre and ICR

Reporting progress in lab meetings, ICR events and conferences

Preparation of data and manuscripts for publications

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.

Education and Knowledge

PhD in a quantitative genomics subject	Essential
BSc/MSc in a quantitative genetics/genomics subject	Essential
Programming experience in R	Essential
Basic knowledge of NIX systems and shell scripting	Essential
Experience in statistical/genetic modelling	Essential
Basic knowledge of biology	Essential

Skills

Person

specification

Ability to work independently, collaboratively and as a part of an interdisciplinary team	Essential
Ability to work accurately, with a strong attention to detail and to deadlines	Essential
Ability to write scientific manuscripts	Essential
Proven ability to design and implement experiments	Essential
Excellent interpersonal skills to facilitate liaison with colleagues and collaborators	Essential

Experience

Experience in statistical genetics	Essential
Experience in next generation sequencing data	Essential
Experience in using NIX systems and compute clusters	Essential

General

Interest in cancer research	Essential
Excellent data presentation skills	Essential
Excellent organisational skills	Essential
Ability to project a positive and professional image of the ICR-BCN both to ICR and at external events/conferences	Essential
Effective verbal and written communication	Essential
Committed to publish collaborative & independent research	

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 Prof. Axel Behrens (<u>Axel.Behrens@icr.ac.uk</u>) or Dr. Syed Haider (<u>Syed.Haider@icr.ac.uk</u>) for further information by email. 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.