ICR The Institute of Cancer Research

Analytical Scientist in single cell & spatial genomics

Candidate Information

November 2024

Description of the role

This position is based in the Breast Cancer Research Data Science Team led by Dr Syed Haider.

We are seeking a highly motivated bioinformatics researcher to apply and develop computational approaches for investigating subclonal architecture and plasticity in treatment resistant breast cancers. The successful candidate will employ computational approaches to meaningfully integrate single cell assays encompassing RNA, T/B cell repertoire and spatial genomics in order to identify mechanisms of treatment resistance and therapeutic candidates. Beyond computational discovery, 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 at the Institute of Cancer Research and Breast Cancer Now Research Unit at Kings College London.

Your work will focus on datasets generated using the state-of-the-art molecular profiling such as single cell sequencing and spatial genomic profiling on patient samples throughout disease progression to understand the molecular evolution of breast cancer and response to targeted therapies. Together with wet-lab colleagues, we will investigate molecular barcoding strategies in patient derived models, mechanistic hypotheses in vitro and in vivo and candidate biomarkers that inform the design of proof-of-concept clinical trials or drug discovery programmes. In addition, you will be responsible for the analysis and interpretation of high-throughput perturbation screens (where available) for matched single cell and spatial datasets.

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The project offers experience in data science such as statistical modelling and single cell multi-omics, while investigating 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 (genomics, single cell and spatial technologies). 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 MSc in a computational/numerical subject, have programming and scripting experience, and possess basic knowledge of biology. A background in the analysis and interpretation of single cell assays would be highly valuable. A PhD in a computational/numerical subject would be desirable.

This position is offered on a fixed term contract, for 3 years in the first instance. Starting salary is in the range of £37,050 to £45,732 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 team

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 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.

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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 values. 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

Our mission is to make the discoveries that defeat cancer.

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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:	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.

Duties and responsibilities:

Specific duties:

Analysis and interpretation of single cell -omics and barcoding sequencing datasets
Statistical analysis in R
Development/maintenance of analysis pipelines and methods for new platforms/technologies
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

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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.

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Person specification

Education and Knowledge

MSc in bioinformatics or computational biology or biostatistics or computer science or in a related quantitative field	Essential
PhD in bioinformatics or computational biology or biostatistics or computer science or in a related quantitative field	Desirable
Programming experience in R	Essential
Basic knowledge of NIX systems and shell scripting	Essential
Statistical modelling	Desirable
Basic knowledge of biology	Essential

Skills

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 bioinformatics	Essential
Experience in next generation sequencing data from single cell technologies	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	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. Syed Haider for further information by emailing Syed.Haider@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.