



Postdoctoral Training Fellow in Cancer Bioinformatics Candidate Information

Jan 2023

The Institute of Cancer Research

Description of the role

This position is based in the Breast Cancer Research Bioinformatics Team led by Dr Syed Haider at the ICR, Breast Cancer Now Toby Robins Research Centre, South Kensington, London.

We are seeking a highly motivated bioinformatics postdoctoral researcher to apply and develop computational approaches that can identify new therapeutic candidates for aggressive breast cancers. The successful candidate will employ computational approaches to meaningfully integrate genomic profiles from public and in-house clinical cohorts with genome-wide perturbation screens (CRISPR-Cas9) to identify high-confidence 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 (Professors Chris Lord and Andrew Tutt).

Your work will focus on integrating whole genome, exome, transcriptome and clinical datasets from breast cancer studies (e.g. PMIDs: 29713086, 34081848, 33098992, 30420699). In particular, focussing on in-house trials and reverse translation studies investigating DNA repair pathways and mechanisms of PARP inhibitor sensitivity and resistance with a view of finding new candidate synthetic lethal targets (PMID: 28302823), which will be further interrogated using our in-house genome-wide CRISPR-Cas9 and RNAi screens. Competence in programming and good methodological understanding of CRISPR screens as well as cancer sequencing data is essential.

The project offers experience in data science such as statistical modelling and machine learning, while investigating novel molecular

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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 clinical and wet-lab scientists, as well as write up of research results in a highly collaborative environment.

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 top in the league table of university research quality compiled from the Research Excellence Framework (REF 2014). 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.

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About the team

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.

The Breast Cancer Research Bioinformatics Team is an interdisciplinary group of researchers (~10) who are experts in genomic data analysis and machine learning. 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.

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Applicants should hold a PhD* in a computational/numerical subject, have programming and scripting experience, and possess basic knowledge of biology. A background in analysis and interpretation of genomic datasets is essential, in particular CRISPR screens.

This position is offered on a fixed term contract, till 31 July 2025 in the first instance. Starting salary is in the range of £34,344* to £46,724 per annum inclusive based on previous post-doctoral 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.

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.

**** 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.***

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:	Breast Cancer Research
Pay grade / staff group:	Postdoctoral Training Fellow
Hours / duration:	Full time 35 hours per week, Monday to Friday. Fixed term contract till 31 July 2025 in the first instance.
Reports to:	Dr Syed Haider
Accountable to:	Prof. Chris Lord
Main purpose of the job:	The postholder will work independently and as a part of a multi-disciplinary team, to identify cancer causing aberrations and molecular markers using in-house and publicly available high-throughput genome sequencing and clinical datasets. The identified targets will be used to guide clinical trials at the Breast Cancer Now Centre (ICR). 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 cancer genome sequencing datasets (WGS, WES, RNA, CRISPR)
Statistical analysis in R
Development of analysis methods for new platforms/technologies and research questions where necessary
Collaborate with other teams within the Breast Cancer Now Centre and ICR
Reporting progress in lab meetings, ICR events and conferences
Preparation of data and manuscripts for publications

Workforce Agreement for Postdoctoral Training Fellows

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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

PhD in bioinformatics, computational biology, biostatistics, computer science or in a related quantitative field	Essential
Programming experience in R	Essential
Basic knowledge of NIX systems and shell scripting	Essential
Statistical modelling	Essential
Machine learning	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 genomics or genetics	Essential
Experience in Next Generation Sequencing data analysis	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.