



Post-Doctoral Training Fellow in Data Science Candidate Information

January 2022

The Institute of Cancer Research

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 one of 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 public.

We have more than 1000 staff and postgraduate students across two sites – in Chelsea and Sutton.

About the Cancer Genomics Team

The focus of the Cancer Genomics Team is the identification and characterisation of genetic changes influencing the development of cancer. We are a multidisciplinary team of researchers from diverse backgrounds, including mathematics, physics and molecular biology who are collectively engaged in a number of collaborative projects, nationally and internationally.

Our research focuses on the following strands:

- Exploiting large-scale sequencing datasets, up to Petabyte in size to identify genetic changes influencing predisposition and development of cancer.
- Translating cancer gene identification into biological insights and clinical advances.

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- Development and implementation of new statistical, analytical and computational approaches to tackle associated challenges.
- Our recent research has made a major contribution to advances in the understanding of the genetic basis of cancer and our work has featured in over 50 papers published in Nature Genetics, Nature and Science.

About the position

We are seeking a Post-Doctoral Training Fellow to join the Cancer Genomics Team at the Sutton branch of the ICR. Our goal is to implement cutting-edge informatics to analyse large-scale genomic datasets in collaboration with experimental investigators to identify and characterise genomic changes influencing the development and evolution of cancer. Our research is supported by grants from Cancer Research UK, The MRC and The Wellcome Trust, and we have an excellent track record in generating high-impact publications.

You will work as part of a team of inter-disciplinary data scientists who are experts in analysis of next generation sequencing data, machine learning and software development and therefore offering unique learning opportunities. Prior experience in biological science is desirable but not a prerequisite for the position. The work will include application of existing tools as well as development of statistical methods using in-house and publicly available datasets such as the 100,000 Genomes Project.

Strong analytical skills are required in order to perform integrated analysis and visualisation of complex multi-omic data. You will have opportunities to create/optimize computational pipelines and develop new analytical methods. You will work closely with experimental biologists and it is essential to be able to communicate your findings effectively.

Applicants should hold a higher degree in mathematics/statistics/physics/computer science or a related discipline and have experience in programming and scripting.

The successful applicant will enjoy working as part of a multidisciplinary team interacting with internal and external collaborators. The appointee will excel in coordinating and exploring the medical research areas through exploiting these collaborations and be a highly motivated fast learner.

The starting salary is £38,607- £39,372 per annum, the full salary range for the grade is £38,607 - £45,224. This is a fixed-term appointment for 3 years in the first instance. The starting salary will be based on previous postdoctoral experience and future progression is based on annual performance review.

If the candidate has not yet been awarded their PhD, the salary will be set at £32,844 until the successful completion of their viva.

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: Cancer Genomics /Division of Genetics and Epidemiology

Pay grade / staff group: Post-Doctoral Training Fellow

Hours / duration: Full time (35 hours per week), Monday to Friday. Fixed term contract for 3 years

Reports to: Professor Richard Houlston

Main purpose of the job: The post-holder will work independently and as a part of a multi-disciplinary team of analytical scientists, to identify genomic changes influence the development and evolution of cancer through analysis of large-scale genomic datasets. The successful post holder will be involved in the design, analysis, interpretation and scientific writing of results for high-impact journals.

Duties and responsibilities:

To contribute to ongoing studies to identify and characterise genomic aberrations influencing the development and evolution of cancer including, but not restricted to:

Running high intensity computational algorithms on the ICR's HPC

Statistical analyses

Analysis of large-scale datasets

Automation and scripting of common analytical tasks

Development of analytical methodologies where appropriate

To interact with other members of the group and collaborators to pursue the agreed program of work

To maintain accurate records of experiments

To meet objects within pre-determined timescales

To prepare reports of results for oral and written presentations

To train and support more junior staff members

To keep up to date with relevant literature

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Workforce Agreement for Postdoctoral 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

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

BSc or equivalent qualification in mathematics/ physics/statistics/computer science	Essential
Post-graduate qualification (PhD) in a quantitative science*	Essential
Programming experience in R or any high-level programming language (C/C++, Python)	Essential
Statistical modelling	Desirable
Machine learning / Artificial intelligence	Desirable
Proven track record of data analysis (as evidenced by recent publications in appropriate peer reviewed journals)	Desirable

Skills

Ability to work independently, collaboratively and as part of a bioinformatics and experimental teams	Essential
Ability to work accurately, with a strong attention to detail	Essential
Excellent interpersonal skills to facilitate liaison with colleagues and collaborators	Essential
Interest in cancer research	Essential
Good communication skills both written and oral	Essential
Ability to work effectively and efficiently as an individual or as a team member	Essential
Excellent interpersonal skills with the ability to work flexibly and to establish effective working relationships	Essential
Ability to write scientific manuscripts	Desirable

Experience

Experience in statistical genetics or genomics	Desirable
Experience in analysis of large-scale data	Desirable
Experience of using compute clusters	Desirable
Experience in analysis of next generation sequencing data or other complex genetic data	Desirable

****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.***

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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 Professor Richard Houlston FRS for further information by emailing richard.houlston@icr.ac.uk. 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.