ICR The Institute of Cancer Research

Research Data and Systems Engineer

Candidate Information

June 2025

The Institute of Cancer Research (ICR)

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 second in the league table of university research quality compiled from the Research Excellence Framework (REF 2021). 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.

About the Research Teams and the Generations Study

The Research Data and Systems Engineer will work with the Integrative Epidemiology Team (led by Professor Montserrat Garcia- Closas) and Clinical Epidemiology Team (led by Professor Amy Berrington) at the ICR Division of Genetics and Epidemiology. The Division is internationally renowned for its pioneering work in understanding the underlying genetic and environmental causes of cancer risk. High-quality laboratory, epidemiological and clinical research within the division is driven by energetic, innovative leadership and complemented by participation in national and international research consortiums, clinical collaborations, and technological partnerships.

At the Integrative Epidemiology Team we use integrative analyses of large-scale data in epidemiological studies to investigate the causes of cancer, understand carcinogenic processes and improve risk assessment for precision prevention. At the Clinical Epidemiology Team

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we use real world data to investigate the late-effects of cancer treatments, cancer survival and cancer risks from other medications. Our work informs prevention and public health strategies at both the population and individual levels to reduce the burden of cancer.

We have a program of research based on the ongoing Generations Study, a national study of over 110,000 women from the UK. Women in the study have provided blood samples and detailed questionnaire information at recruitment, and in repeat follow-up questionnaires. Data includes self- reported risk factor information, hormone levels, genetics, and artificial intelligence (AI) analyses of tissue images from breast tumours, benign breast disease and mammography images. We also access their medical records to collect information on cancer screening and treatments. The scientific staff comprise epidemiologists, statisticians and data scientist who collaborate with researchers around the world.

We are part of the newly formed Cancer Epidemiology and Prevention Research Unit https://www.icr.ac.uk/our-research/centres- and-collaborations/strategic-collaborations/the-cancer-epidemiology- and-prevention-research-unit-(cepru), a research partnership between The ICR and Imperial College London to establish collaborations in research, training and knowledge dissemination in cancer epidemiology and prevention.

We are seeking to appoint a **Research Data and Systems Engineer** to join our dynamic and forefront research group using epidemiological and real-world data-driven approaches to understand the causes of cancer and how to prevent it.

The Job Role and Requirements

This is an exciting opportunity to join a dynamic, multidisciplinary team working on one of the UK's most important studies of cancer and women's health.

As a **Research Data and Systems Engineer**, you will help manage and develop the study's data infrastructure and operational systems, ensuring the efficient processing of multi-source data — including online surveys and participant communications — and contributing to the stability and performance of key systems.

You will work closely with epidemiologists, statisticians, data scientists, and operational managers to design and implement end-to-end data pipelines and backend solutions aligned with FAIR (Findable, Accessible, Interoperable, and Re-usable) principles. This role offers excellent opportunities for professional development in data engineering and large-scale cohort operations, while contributing to impactful cancer prevention research.

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You will be working in the ICR campus based in Sutton, London under the direction of Professor Garcia-Closas. The post will be full time for 3 years in the first instance with potential for renewal thereafter. The starting date would be as soon as practical, by mutual agreement. Salary will be on the scale £39,806 to £49,023 per annum according to qualifications and experience. This is an on-site job; however flexible, hybrid ways of working can be considered with a minimum mutually agreed days working on-site to enable the collaboration and contact with other members of the team.

For further information, potential applicants can contact Professor Garcia-Closas (E-mail: montse.garcia-closas01@icr.ac.uk). More information about the Institute of Cancer Research can be found on our website (www.icr.ac.uk).

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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:	Genetics and Epidemiology Division
Pay grade / staff group:	Analytical Scientist 2 (SPG5)
Hours / duration:	Full time (35 hours per week), Monday to Friday. Fixed term contract for 3 years
Reports to:	Montserrat Garcia-Closas, Professor of Epidemiology
Accountable to:	Professor Garcia-Closas
Main purpose of the job:	To develop and manage data systems to enable impactful cancer research.

Duties and responsibilities:

The post holder will be expected, under supervision, to work on the following, as required:

Key Duties and Responsibilities

Database and Systems Development and Management:

- Develop, optimize and maintain complex SQL queries, views, and stored procedures in Microsoft SQL Server to support efficient data processing for the Generations Study.
- Build and maintain backend components and tools (using Python and JavaScript where appropriate) to support scalable, reliable application infrastructure and automation of key processes.
- Manage data pipelines and ensure accurate and timely data flow between participant-facing systems (online surveys, newsletters, SMS/email communications, participant queries) and the study database
- Apply best practices in data management, validation, and quality assurance to maintain data integrity, consistency, and interoperability.

Operational Support and Maintenance:

- Monitor, troubleshoot, and resolve technical issues across all systems supporting participant communications and data management.
- Ensure the stability, security, and performance of operational systems and databases.
- Support operational workflows and provide technical solutions to streamline study processes

Collaboration and Communication:

- Collaborate with cross-functional teams on application development, integration, and deployment to deliver cohesive solutions.
- Communicate effectively with team members, including data engineers, analysts, operational managers and project leads, to align on technical requirements and priorities.

Any other duties which may be required, that are consistent with the nature and grade of the post

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This job description reflects the present position and is subject to review and alteration in detail and emphasis in the light of future changes or development.

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 reflects the present position and is subject to review and alteration in detail and emphasis in the light of future changes or development.

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Person specification

Education and Knowledge

Bachelor's degree in computer science, data science, software engineering or related field	Essential
Master's degree in computer science, data science, software engineering or related field	Desirable

Experience

Experience (2-5 years) managing relational databases and large, complex datasets, including development of complex SQL queries, views, stored procedures, and data pipelines.	Essential
Hands-on experience developing backend components and automation scripts using Python to support data processing and operational workflows	Essential
Proven ability to troubleshoot and maintain performance, stability, and quality assurance of data systems and applications.	Essential
Experience managing participant communications systems (online surveys, emails, SMS, query handling), with reliable data integration into central databases.	Desirable
Knowledge of developing interactive web applications using JavaScript (React, Node.js)	Desirable

Skills/Knowledge

Proficiency in Python and SQL programming for data manipulation, automation, and systems development	Essential
In-depth knowledge of relational database systems (MS SQL Server), data integration best practices, and version control (GitHub).	Essential
Analytical and problem-solving skills for effective data validation, integration and transformation, with attention to documentation for transparency and reproducibility.	Essential
Understanding of systems integration, automation, and scalable architecture to support operational needs of large cohort studies.	Essential
Knowledge of cloud services (MS Azure), and familiarity with Research Data Management (RDM), FAIR principles, and Open Science	Desirable
Excellent communication skills to interact with multidisciplinary teams and convey complex technical concepts to non-technical stakeholders.	Desirable

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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. All staff receive an additional three days at Christmas.

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. Montserrat Garcia-Closas for further information by emailing Montse.garcia-closas01@icr.ac.uk.