



Higher Scientific Officer Candidate Information

November 2021

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 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.

Preclinical Modelling of Paediatric Cancer Evolution | Centre for Paediatric Oncology Experimental Medicine| Centre for Cancer Evolution: Molecular Pathology Division

The Preclinical Modelling of Paediatric Cancer Evolution team (PCE team) led by Dr. Alejandra Bruna is interested in studying the molecular mechanisms underlying paediatric cancer evolutionary processes leading to therapy resistance and relapse.

Cancer is difficult to cure because its intrinsically heterogeneous nature engages evolutionary forces to combat/in response to treatment stress. Indeed, intra-tumour heterogeneity (ITH) interplays with cell and population dynamics, cell-extrinsic and intrinsic selective forces and adaptation strategies. Recently, the role of genetic evolution as a main driver of cancer progression is intensely debated supported by a large body of evidence suggesting a major role for cell plasticity and epigenetic

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rewiring in therapeutic resistance. Our main goal in the lab is to identify non-genetic processes that anticipate and drive natural Darwinian, which will be a recipe for early biomarkers and/or therapeutic susceptibilities which could turn into superior therapeutic responses, and these could more easily predicted/anticipated.

The PCE lab combines preclinical modelling, functional genomics approaches and multi-parameter single cell analysis to investigate cell phenotypic dynamics (cell plasticity) and its role in tumour heterogeneity and its interplay with drug responses. We have developed tools to molecularly record and trace cells and transcriptional landscapes to unravel the evolutionary laws and principles underlying paediatric adaptation to treatment and relapse. Ultimately, we aim to translate our evolutionary knowledge into rational and individualised innovative therapeutic approaches.

The PCE lab is part of the Centre for Paediatric Oncology Experimental Medicine and the Centre for Evolution and Cancer and of the Division of Molecular Pathology. It is located at the newly built, multidisciplinary Centre for Cancer Drug Discovery in Sutton, London.

About the position

We have an opportunity for a Higher Scientific Officer (HSO) to oversee and provide technical support a collaborative environment that aims to further our understanding on the mechanisms underlying solid paediatric tumours adaptation and evolution to treatment and in relapse. The post-holder will be strategically supported by the fruitful and complementary alliance between PCE lab and Professor Louis Chesler's lab (director of the Paediatric Oncology Experimental Medicine and head of the Paediatric Tumour Biology lab), which will provide an excellent combination of expertise, tools, knowledge, and guidance. The post holder will be involved in preclinical work involving patient derived tumour models from difficult-to-treat paediatric cancers ex vivo and in vivo. The candidate will also collaborate with other members of the lab to generate high-dimensional datasets (CyTOF, bulk DNA and RNA-seq and scRNA-seq/lineage tracing). You will closely interact and support other researchers within the group as well as internal and external collaborative efforts, including those within ICR state-of-the-art core facilities, assisting and overseeing a highly collaborative framework in paediatric preclinical modelling.

Our mission is to make the discoveries that defeat cancer.

You are expected to participate in the day-to-day running of the laboratory, including ordering supplies, maintaining inventories. Applicants must have a degree in Biochemistry, Molecular Biology or Cell Biology and in-depth technical laboratory experience in data management, molecular biology and cell biology including cell lines.

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Experience on genomics, especially library preparation, together with knowledge and ability to perform standard laboratory techniques are desirable. Knowledge of cancer biology, 2-D and 3-D cell culture and cell viability assay methodologies, and familiarity with contemporary approaches to the generation of genetic modifications, such as the use of CRISPR, would also be advantageous.

The position will be offered initially on a fixed-term contract of 2 years. The full salary scale for the post is £32,000 to £44,400 p.a. inclusive. Starting salary expected to be £32,000 but the relevance of skills and previous experience will be taken into consideration.

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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:	Division of Molecular Pathology
Pay grade / staff group:	Higher Scientific Officer/ Scientific Professional 5
Hours / duration:	Full time (35 hours per week), Monday to Friday. Fixed term contract for 2 years
Reports to:	Team Leader (Dr Alejandra Bruna)
Main purpose of the job:	Technical and management support to identify novel therapeutic strategies for aggressive solid children's cancer

Duties and responsibilities:

Participating in the day-to-day running of the laboratory
Ordering supplies
Maintaining inventories
Applying and supporting flow cytometry and molecular biology techniques (for example: NGS) that are established in our laboratory for the phenotypic and genomic characterization of patient-derived samples
Overseeing and coordinating the interactions with ICR's core facilities and collaborators
Auditing and maintaining databases on a regular basis, including software updates and back-up of data.
Monitoring and maintenance of sample and database integrity
Carrying out routine laboratory tasks as required such as the preparation of solutions, storage of reagents, according to the ICR's H&S policies.

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 is a reflection of 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

First degree, BSc Hons (Upper 2nd or 1st) or equivalent, in a relevant biological science	E
PhD in the research area required (Associate Level) or be close to completion (Assistant Level)	E
Advanced knowledge directly related to the research projects (NGS)	E
Detailed knowledge of the molecular basis of childhood solid tumours	D

Skills

Demonstrable skills in the use of functional genomics techniques, including NGS	E
Ability to work well as part of a team and rapidly acquire new skills	E
Proven cell and molecular biology skills with extensive practical experience in <i>in vitro</i> work including, but not restricted to, development and validation of drug screening and molecular assays	E
Experience of using bioinformatics software and methodologies to analyze multi-omic and therapeutic datasets (e.g. R statistical environment)	D
High level of analytical and problem-solving capability	E
Ability to communicate complex information with clarity and to encourage the commitment of others	E

Experience

Experience of research with clear transferable skills	E
Experience in single cell RNA-sequencing or CRISPR technology	D
Experience in cell culture	E
Experience in cell viability assays	E
Experience on genomics, especially library preparation, together with knowledge and ability to perform standard laboratory techniques are desirable	E
2-D and 3-D cell culture and cell viability assay methodologies	D

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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

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.