ICR The Institute of Cancer Research

Postdoctoral Training Fellow, Chromosomal Translocations Group

Candidate Information

April 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 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.

Division of Cancer Therapeutics, Chromosomal Translocations Group

Professor Terry Rabbitts' research is focused on with new strategies using intracellular antibodies and derivates for therapy aimed at hard-to-drug chromosomal translocation gene products.
We are focused on with new strategies for therapy aimed at chromosomal translocation gene products, like LMO2 and translocation protein fusions, and hard-to-drug proteins, like mutant RAS and MYC. We are developing technologies using intracellular antibodies with warheads (such as E3 ligase for protein degradation or pro-caspases for induced cell death)

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together with methods to allow systemic delivery of these protein macromolecules (designated macrodrugs). Our work has also recently shown that the binding sites of singe domain intracellular antibodies to the target protein (the paratope-epitope interaction region) can used to select small molecule compounds that act as surrogates of the antibody for drug discovery.

The long term goal is creation of generic strategies for deploying intracellular antibodies are drugs per se and for using intracellular antibodies in small molecule drug discovery programmes. In particular, this work is aimed at allowing the many chromosomal translocation fusion proteins, found in blood cancers, in sarcomas and in carcinomas, to be used as drug targets in cancer treatment.

Our research is multi-disciplinary, integrating molecular and cellular biology, intracellular antibody design, chemical biology and structural biology.

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:	Division of Cancer Therapeutics
Pay grade / staff group:	Postdoctoral Training Fellow
Hours / duration:	Full time (35 hours per week), Monday to Friday. Fixed term contract till 2 August 2023
Reports to:	Professor Terry Rabbitts
Main purpose of the job:	The role is to develop new mRNA delivery nanocarriers for application of biodegraders in blood cancer treatment

Duties and responsibilities:

Work with and develop new lipid or polymer-based nanoparticles as delivery vehicles for nucleic acids encoding inhibitory intracellular antibody biodegraders
Perform cell-based and in vivo assays for the delivery of nanoparticles to cells using antibody-conjugated nanoparticles for cell-surface receptor-dependent endocytosis
Prepare reports of results for oral or written presentations at internal and external meetings and for publication in scientific journals or patents
Ensure that work conforms to the requirements of COSHH, Local Rules for Health and Safety, Home Office regulations and other Codes of Practice as required by the ICR Safety Policy
Work and communicate effectively with other members of the Team, and external collaborators

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

Strong knowledge of nanoparticle chemistry and biology	E
PhD (or equivalent) in molecular and cell biology or chemistry (*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)*	E
Strong knowledge of chromosomal translocations in cancer	E
Deep knowledge of molecular immunology	E

Skills

Lipid nanoparticle assembly & analysis	E
Polymer nanoparticle assembly & analysis	E
Nanoparticle analysis methods (including DLS, scanning and transmission EM)	E
In vitro mRNA synthesis	E
Recombinant antibody expression & purification	E
Mammalian tissue culture	E
Skill set to include molecular cloning, western blot, qPCR, ELISA, IHC, immunofluorescence	E
Sortase technology	E
Systemic delivery protocols in pre-clinical models	D
NMR, X-ray diffraction	D

Experience

Experience of nanoparticle production	E
Experience of nanoparticle surface modification, such as pegylation and ligand attachment including antibody coupling	E
Experience with flow cytometry and cell sorting	E
Experience with viral infection methods for mammalian cells	E
Experience with writing manuscripts and grant applications to the highest levels	E
Experience with organic chemistry synthesis	D
HO Personal Licence	D
Proven publication record in high impact peer-reviewed journals	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

You may contact Prof. Terry Rabbitts for further information by emailing terry.rabbitts@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.