ICR The Institute of Cancer Research

Postdoctoral Training Fellow, Chromosomal Translocations & Intracellular Antibody Group

Candidate Information

September 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.

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 focussed on new strategies using intracellular antibodies and derivates for therapy aimed at hard-to-drug chromosomal translocation gene products, such as tumour-specific chromosomal translocation fusion proteins. We are developing technologies using intracellular antibodies with warheads that influence cellular pathways to interfere with tumour viability together with methods to allow systemic delivery of these engineered intracellular antibodies.

Postdoctoral Training Fellow, Chromosomal Translocations & Intracellular Antibody Group

Candidate Information

The work is funded as part of CRUK-NCI-funded Grand Challenge programme NexTGen (Next Generation T cells for Childhood Cancer) aims to make fusion protein-specific intracellular antibodies to bind to EWS-FLI1 and related proteins. These will be delivered to tumours in vivo by hijacking tumour targeting CAR-T cells.

Our approach is multi-disciplinary, integrating molecular biology, cell biology, antibody design, structural biology, and chemical biology. The long term goal is creation of generic strategies for deploying intracellular antibodies are drugs per se In particular, this work is aimed at allowing the many chromosomal translocation fusion proteins, found in paediatric and childhood cancers. The work will involve new methods for specific intracellular antibodies and delivery protocols utilising CAR-T cells and their recognition of tumour surfaces to mediate transfer of the intracellular antibodies.

Since chromosomal translocation generated fusion proteins are tumour-specific, our aim is to develop generic intracellular antibody methods that can be applied to any fusion protein that occurs in the range of childhood cancers but also applicable to tumours in adult neoplasia. The allied technology for delivery of intracellular antibodies into tumours in patients is a major challenge that will take advantage of the proximity of CAR-T cells to cancer cells. In this way, we will use CAR-T cells as the vehicle to deliver the cargoes of intracellular antibodies for therapeutic enhancement.

Our mission is to make the discoveries that defeat cancer.

Postdoctoral Training Fellow, Chromosomal Translocations & Intracellular Antibody Group

Candidate Information

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

Postdoctoral Training Fellow, Chromosomal Translocations & Intracellular Antibody Group

Candidate Information

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 for 3 years
Reports to:	Professor Terry Rabbitts
Main purpose of the job:	Develop intracellular antibodies to target cancer-specific proteins in childhood cancers and to deliver these into tumour cells in patients .

Duties and responsibilities:

Develop new methods to select intracellular antibodies that bind specifically to fusion proteins that arise from tumour-specific chromosomal translocations
Protein engineering of intracellular antibodies to add warheads such as E3 ligase fragments
Perform in vitro biochemical and biophysical assays to determine the binding characteristics of intracellular antibodies
Perform cell-based assays to express intracellular antibodies
Engineer CAR-T cells to express fusion protein-specific intracellular antibodies
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

Postdoctoral Training Fellow, Chromosomal Translocations & Intracellular Antibody Group

Candidate Information

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.

Postdoctoral Training Fellow, Chromosomal Translocations & Intracellular Antibody Group

Candidate Information

Person specification

Education and Knowledge

PhD (or equivalent) in molecular biology	E
Strong knowledge of antibody structure	E
Strong knowledge of protein engineering	E
Strong knowledge of immunology	E
Knowledge of exosome biology	E
Strong knowledge of chromosomal translocations in cancer	D

Skills

Molecular biology techniques, including PCR, cloning, site-directed mutagenesis	E
Recombinant protein expression and purification	E
Phage antibody selection	E
Mammalian cell tissue culture and cell transfection and infection methods	E
Cell biology, such as western blotting, flow cytometry, immunofluorescence	E
Structural biology methods	E

Experience

Recombinant DNA cloning and manipulation methods, including PCR and high-efficiency cloning	E
Protein-protein and ligand interaction methods including surface plasmon resonance & BLI	E
Recombinant protein preparation and purification from E coli and mammalian cells	E
Phage antibody selection and affinity manipulation methods	E
Structural biology methods for analysis of protein structures	E
Mammalian cell tissue culture, infection & transfection methods, including lentivirus & retrovirus transduction	E
Mammalian protein-protein interaction cell assays, such as BRET	E
Immunobiology methods, including flow cytometry, ELISA and western blotting methods	E
Work with isolating and characterisation of exosomes	E
Mouse studies	D
HO Personal Licence	D

Postdoctoral Training Fellow, Chromosomal Translocations & Intracellular Antibody Group

Candidate Information

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.