ICR The Institute of Cancer Research

Job description

Postdoctoral Training Fellow- Targeting radiation-induced Immunometabolic checkpoints in solid cancers

Radiation-enhanced Immunotherapy Group

Candidate Information

February 2024

Department / division:	**Division of Radiotherapy and Imaging**
Pay grade / staff group:	Postdoctoral Training Fellow
Hours / duration:	Full time (35 hours per week), Monday to Friday. Fixed term contract for 24 months
Reports to:	Dr Erik Wennerberg

Context

The Post Doc position is based in the Radiation-enhanced Immunotherapy Group (PI: Dr Erik Wennerberg), at the ICR Sutton campus.

The project aims to study how radiotherapy alters the tumour microenvironment in solid cancers, characterize radiation-induced immune checkpoints, focusing on perturbations of immunometabolic pathways, with the goal of developing treatment strategies that optimize the immunogenicity of radiotherapy-immunotherapy combinations.

About the Radiation-enhanced Immunotherapy Group

The newly established group is led by Dr Erik Wennerberg who has a track record studying mechanisms of tumour immune resistance in poorly immunogenic and aggressive cancers. We are dedicated to understanding how metabolic reprogramming contributes to immune resistance in developing tumours and how this process is affected by

Postdoctoral Training Fellow- Targeting radiation-induced Immunometabolic checkpoints in solid cancers

Candidate Information

cancer therapy. Our goal is to identify and characterise therapy-induced immune checkpoints that we can target to optimise immunotherapy treatments for patients with solid cancers. Especially those that develop therapy resistance.

Our Group is based in a dynamic and diverse research environment in the Division of Radiotherapy and Imaging. We are part of the wider Centre for Translational Immunotherapy (CTI), which brings together multidisciplinary immunology researchers across the ICR and the Royal Marsden Hospital. Further, we are connected to a wide network of national and international collaborators, including our close collaborators at Albert Einstein School of Medicine, New York. Our lab has an active public engagement programme that is central to our research approach and an inspiring training environment for early career scientists including tailored courses to support scientific, personal, and wider career development.

About the project

The altered metabolic landscape of established solid cancers contributes to a hostile microenvironment for tumor-infiltrating lymphocytes (TILs). The constant proliferative demand of cancer cells generates toxic metabolic waste products, tumor acidification and hypoxia, as well as depletion of essential nutrients. These factors are associated with resistance to both immunotherapy and radiotherapy and a better understanding of how they impact the immune landscape is needed for rational design of radiotherapy-immunotherapy combinations.

The postdoctoral training fellow will work with tissue and blood samples from patients treated with radiotherapy and/or immunotherapy to characterize treatment-induced changes in immunometabolic pathways that are associated with therapy resistance. This will include characterization of the tumour microenvironment by multiparameter immunofluorescence and digital spatial profiling, optimizing methods for immunometabolic profiling of TILs and circulating lymphocytes at the single cell level, as well as assessment of tumour metabolic reprogramming by transcriptomic and metabolomic analysis. In addition, the postdoctoral training fellow will use the ICR's unique preclinical radiotherapy modelling platform to investigate the immunomodulatory effects and anti-tumour efficacy of novel treatments targeting immunometabolic signalling pathways in syngeneic mouse models.

Our mission is to make the discoveries that defeat cancer.

This position is offered on a fixed term contract ending in July 2026. Starting salary is in the range of £35,844 to £43,902 per annum inclusive based on previous postdoctoral experience.

In addition to annual performance related pay awards, the salary scales are reviewed annually to consider cost of living increases. The position is based at the ICR site in Sutton. Annual leave entitlement is 28 days per annum. There is an additional entitlement to 8 bank/public holidays and 3 ICR-set privilege days.

Postdoctoral Training Fellow- Targeting radiation-induced Immunometabolic checkpoints in solid cancers

Candidate Information

Main purpose of the job

We are seeking an ambitious and motivated Postdoctoral Training Fellow to study how radiotherapy alters the tumour microenvironment in solid cancers, characterize radiation-induced immune checkpoints, focusing on perturbations of immunometabolic pathways, and ultimately develop treatment strategies that optimize the immunogenicity of radiotherapy-immunotherapy combinations.

Further information

You may contact Dr Erik Wennerberg for further information by emailing erik.wennerberg@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.

Postdoctoral Training Fellow- Targeting radiation-induced Immunometabolic checkpoints in solid cancers

Candidate Information

Duties and responsibilities

Key duties

Design and perform assays to assess the immune contexture, metabolic profile, and T cell receptor repertoire in patient tumour samples and blood samples
Work with immunocompetent syngeneic mouse tumour models to determine changes in tumour-localized immunometabolic signalling and immune infiltration as well as systemic immune effects following radiotherapy (SARRP platform) and immunotherapy
Explore novel therapeutic approaches targeting immunometabolic signalling for enhancing radiotherapy-induced immunity in preclinical models
Maintain accurate and detailed records of all experiment procedures in lab notebooks and electronically
Generate solid reproducible data and develop robust methods for analysis and statistical testing of the data
Critically analyse data and write up findings for publication in recognised peer-reviewed journals
Prepare written and oral reports for presentation at lab meetings
Present results at national and international conferences
Work with the team in a friendly, flexible, and organized manner
Familiarise yourself with the ICR's approach towards risk management including its policies and procedures, which require all staff to play an active part in identifying and managing risk
Any other duties, which may be required, which are consistent with the nature and grade of the post

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- Targeting radiation-induced Immunometabolic checkpoints in solid cancers

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- Targeting radiation-induced Immunometabolic checkpoints in solid cancers

Candidate Information

Person specification

Education and Knowledge

PhD in Biomedical Sciences (or equivalent)	Essential
Knowledge of cancer biology	Essential
Knowledge of the tumour immunology	Essential
Knowledge of cell metabolism	Desirable

Skills

Ability to work independently and meet deadlines	Essential
Ability to design experiments and execute them reproducibly	Essential
Ability to critically analyse data	Essential
Ability to produce scientific reports and manuscripts	Essential
Excellent communication and presentation skills	Essential
Ability to work effectively with teammates and collaborators in a friendly manner	Essential

Experience

Cell culture	Essential
Mouse tumour modelling	Essential
Immunohistochemistry/immunofluorescence	Essential
Image analysis	Desirable
Flow cytometry	Desirable
Bioinformatics	Desirable

Postdoctoral Training Fellow- Targeting radiation-induced Immunometabolic checkpoints in solid cancers

Candidate Information

About our organisation

The Institute of Cancer Research, London, is one of the world's most influential cancer research institutions with an outstanding track record of achievement dating back more than 100 years. Our mission is to make the discoveries that defeat cancer.

As well as being one of the UK's leading higher education institutions in research quality and impact, the ICR is consistently ranked as one of the world's most successful for industry collaboration. As a member institution of the University of London, we also provide postgraduate higher education of international distinction.

We are also a charity and rely on the support of partner organisations, funders, donors and the general public.

Read more to find out about our history, culture, and achievements, and how our funders, supporters and partnerships help drive our work.

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'.

> ***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**