ICR The Institute of Cancer Research

Postdoctoral Training Fellow:

Epigenetic Tumour Dormancy

Candidate Information

August 2026

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 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 team

This position is based in the Breast Cancer Epigenetics and Evolution Team, led by Professor Luca Magnani, within the Division of Breast Cancer Research at The Institute of Cancer Research in Chelsea, London.

The lab studies how ER-positive breast cancer cells adapt to endocrine therapy without relying on canonical resistance mutations. We combine long-term evolutionary models, lineage tracing, functional perturbation and multi-omic profiling to identify mechanisms that allow residual cells to enter dormancy and later resume growth.

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Our TRADITIOM study established a stochastic, non-genetic route into endocrine therapy-induced dormancy. EPIMEM now follows this transition through time at bulk and single-cell resolution, with a focus on how an early transcriptional response becomes stabilised by chromatin reprogramming.

About the Division of Breast Cancer Research

The Breast Cancer Now Toby Robins Research Centre, in the Division of Breast Cancer Research at the ICR is the first centre in the UK entirely devoted to breast cancer research. Our goal is to advance research into the cause, diagnosis and treatment of breast cancer. It is located in state-of-the-art laboratory space, with excellent core facilities and is funded through a long term renewable programme grant from Breast Cancer Now. The Centre is directed by Clinician Scientist Professor Andrew Tutt. Professor Chris Lord is Deputy Director of the Centre. Our Breast Cancer Research Centre was recently awarded the 2022 Team Science award with our breast cancer clinical research partners int eh ICR's CTSU clinical trial unit and Royal Marsden Hospital, and also received recognition in an award to the ICR for the 2023 Queen's Anniversary Prize for transforming lives through world-leading breast cancer research.

Context

Endocrine therapy can suppress ER-driven proliferation for years, yet a fraction of tumour cells survives in a dormant state that can seed late relapse. Our recent lineage-tracing work showed that this persister pool is induced across many unrelated lineages and is not explained by recurrent genetic resistance drivers. Dormant cells acquire reproducible transcriptional and heterochromatin-associated features.

EPIMEM was built to resolve the interval between acute ER suppression and durable dormancy. The project combines longitudinal RNA profiling, CUT&Tag, chromatin accessibility, three-dimensional genome mapping and single-cell assays across acute response, latency, dormancy and awakening. Current analyses indicate that most transcriptional reprogramming precedes a later wave of repressive chromatin remodelling, with H3K27me3 and PRC2 emerging as a central mechanistic axis.

The new fellow will take over a mature experimental and analytical resource and drive the next mechanistic phase. The role is designed for a scientist who can work across experimental cancer epigenetics and quantitative genomics. The main goal is to test which chromatin changes are causal for dormancy entry, maintenance and reactivation, and to define therapeutic windows that prevent persistent disease.

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Main purpose of the job

The successful applicant will take scientific ownership of the next phase of EPIMEM. They will design and execute mechanistic experiments in long-term ER-positive breast cancer models, perturb candidate chromatin regulators, profile the resulting cell states and integrate these experiments with existing multi-omic datasets. The fellow will work closely with experimental, computational and translational collaborators and will lead manuscripts arising from the work.

Scientific scope

- Define the timing and causal role of H3K27me3/PRC2 during the transition from endocrine response to stable dormancy.
- Test genetic and pharmacological perturbations of chromatin regulators in long-term oestrogen-deprivation and endocrine-treatment models.
- Resolve how ER-regulated transcription, chromatin accessibility and repressive histone modifications interact during dormancy and awakening.
- Extend the project into single-cell, three-dimensional and single-molecule chromatin measurements where these assays answer a mechanistic question.
- Connect chromatin state to cell survival, cell-cycle re-entry, DNA damage and other adaptive phenotypes.

What will the fellow inherit:

- Established long-term ER-positive breast cancer models spanning acute response, latency, dormancy and awakening.
- Matched bulk RNA-seq, CUT&Tag, ATAC-seq and Hi-C datasets across the EPIMEM time course.
- Single-cell datasets and ongoing single-molecule chromatin work for selected project questions.
- Validated perturbation strategies for candidate chromatin regulators and a strong network of computational and translational collaborators.

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:	Breast Cancer Epigenetics and Evolution Team Division of Breast Cancer Research
Pay grade / staff group:	Postdoctoral Training Fellow Salary on the current ICR PDTF scale, according to experience
Hours / duration:	Full time (35 hours per week), Monday to Friday 2-year fixed-term post in the first instance, start date to be agreed
Reports to:	Professor Luca Magnani
Accountable to:	

Duties and responsibilities:

Key Duties

Plan and run long-term ER-positive breast cancer dormancy experiments under oestrogen deprivation and endocrine therapy.
Design perturbation experiments that test candidate regulators of dormancy entry, maintenance and awakening.
Perform and troubleshoot chromatin profiling assays such as CUT&Tag, CUT&RUN and ATAC-seq, according to project needs.
Use genome editing, targeted protein perturbation or small-molecule inhibition to test causal mechanisms.
Generate high-quality sequencing libraries and complete appropriate assay-specific quality control.
Analyse or co-analyse RNA-seq and epigenomic datasets using reproducible workflows in R, Python or established genomics software.
Integrate new experiments with existing EPIMEM datasets, including single-cell and three-dimensional genome data.
Maintain detailed experimental records, sample metadata, code and analysis provenance.
Work closely with computational scientists, research technicians, students and external collaborators.
Present data at team meetings, conferences and collaborator meetings.
Prepare figures, manuscripts and supporting material for peer-reviewed publication.
Contribute scientific content to grant applications and follow-up project development.

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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.

Workforce Agreement

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).

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Person specification

Education and Knowledge

Criterion	Requirement
PhD, or thesis submitted, in cancer biology, epigenetics, genomics, molecular biology or a closely related discipline	Essential
Strong knowledge of chromatin biology, epigenetic gene regulation and transcription	Essential
Strong knowledge of mammalian cell and molecular biology	Essential
Working knowledge of quantitative experimental design and statistics	Essential
Knowledge of ER or other nuclear receptor biology	Desirable
Knowledge of tumour dormancy, drug-tolerant persister states or non-genetic cancer evolution	Desirable

Skills & Experience

Criterion	Requirement
Ability to design mechanistic experiments with clear controls and interpretable endpoints	Essential
Ability to troubleshoot technically demanding molecular assays	Essential
Strong mammalian cell-culture skills and careful long-term experimental practice	Essential
Ability to analyse genomic data in R or Python, or to work productively with a computational collaborator while retaining analytical ownership	Essential
Ability to interpret multi-omic data and separate association from causal evidence	Essential
Clear scientific writing and oral presentation skills	Essential
Strong organisation, sample tracking and reproducible record keeping	Essential
Ability to work independently and as part of a cross-disciplinary team	Essential
Substantial experience in mammalian cell and molecular biology	Essential

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Hands-on experience with cancer cell culture or another experimentally demanding mammalian model	Essential
Experience with at least one chromatin profiling method, such as CUT&Tag, CUT&RUN, ChIP-seq or ATAC-seq	Essential
Experience producing or analysing next-generation sequencing data	Essential
Evidence of independent experimental design and delivery of a research project	Essential
Experience preparing figures and scientific manuscripts	Essential
CRISPR-Cas9, degron systems or other genetic perturbation methods	Desirable
Single-cell RNA or epigenomic assays	Desirable
Hi-C, 3D genome analysis or chromatin-looping assays	Desirable
Long-read or single-molecule chromatin methods, including FIBER-seq	Desirable
Flow cytometry, quantitative imaging or live-cell phenotyping	Desirable
ER-positive breast cancer, endocrine therapy or nuclear receptor models	Desirable
Preclinical in vivo cancer models or close work with in vivo collaborators	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.

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 Luca Magnani for further information by emailing luca.magnani@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.