



Postdoctoral Training Fellow: Biochemistry and cell biology of ADP- ribosylation in Wnt/ β - catenin signalling and telomere maintenance Candidate Information

May 2025

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.

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Academic Services

At the ICR we aim to defeat cancer through scientific excellence, innovation and partnership. These principles also underpin our approach to scientific infrastructure, which is among the very best of any research centre in the UK. ICR benefits from our continual investment in world-leading scientific services that combine cutting-edge equipment with a highly skilled workforce.

Structural Biology of Cell Signalling Team, Divisions of Structural Biology & Cell and Molecular Biology

Work in the Structural Biology of Cell Signalling Team, led by Professor Sebastian Guettler, in the ICR Divisions of Structural Biology and Cell and Molecular Biology, centres on the molecular mechanisms of Wnt/ β -catenin signalling and telomere maintenance, both of which play key roles in stem cells and a wide range of cancers. A core interest of the team is to understand how ADP-ribosylation, a complex and extremely versatile post-translational modification, controls both these systems, and how ADP-ribosyltransferases are themselves regulated.

We seek a **Postdoctoral Training Fellow** to investigate the molecular mechanisms of tankyrase regulation and function, building on recent insights from structural and genetic studies.

You will join a multidisciplinary, collaborative and international team with a core expertise in biochemistry, structural biology (electron microscopy, X-ray crystallography), biophysics and genetics, and established collaborations in chemistry and proteomics.

The post would be particularly suitable for a candidate seeking to apply **cellular biochemistry**, **mammalian genetics** (CRISPR) and **light microscopy** (including live-cell imaging) to investigate the function and mechanism of tankyrase in various cellular roles, particularly **Wnt/ β -catenin signalling** and **telomere maintenance**. The position will offer a stimulating balance of independence and collaboration.

For more information on our work, please refer to the publications below and visit our lab website <https://sguettlerlab.org>. General information on Postdocs at the ICR can be found here: <https://www.icr.ac.uk/study-and-careers/careers-at-the-icr/postdocs>.

Our mission
is to make the
discoveries that
defeat cancer.

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Selected publications:

Casale, G., Liu, M., Le Bihan, Y.V., Inian, O., Stammers, E., Caldwell, J., van Montfort, R.L.M., Collins, I., Guettler, S. (2025). Discovery of first-in-class inhibitors of the TRF1-TIN2 protein-protein interaction by fragment screening. bioRxiv; doi: <https://doi.org/10.1101/2025.02.14.638354>

Jessop M., Broadway B.J., Miller K., Guettler S. (2024). Regulation of PARP1/2 and the tankyrases: emerging parallels. *Biochem J.* 481(17):1097-1123.

Pillay, N., Mariotti, L., Zaleska, M., Inian, O., Jessop, M., Hibbs, S., Desfosses, A., Hopkins, P.C.R., Templeton, C.M., Beuron, F., Morris, E.P., and Guettler, S. (2022). Structural basis of tankyrase activation by polymerization. *Nature* 612(7938), 162-169.

Ranes, M., Zaleska, M., Sakalas, S., Knight, R., and Guettler, S. (2021). Reconstitution of the destruction complex defines roles of AXIN polymers and APC in β -catenin capture, phosphorylation, and ubiquitylation. *Molecular Cell* 81, 3246–3261.e11.

Pollock, K., Liu, M., Zaleska, M., Pfuhl, M., Collins, I., Guettler, S. (2019). Fragment-based screening identifies molecules targeting the substrate-binding ankyrin repeat domains of tankyrase. *Sci Rep* 9, 19130.

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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:	Structural Biology, Cell and Molecular Biology
Pay grade / staff group:	Postdoctoral Training Fellow
Hours / duration:	Full time (35 hours per week), Fixed term contract for three years with possibility of extension
Reports to:	Sebastian Guettler
Main purpose of the job:	Functional characterisation of tankyrase in human cells

Duties and responsibilities:

Together with Team Members and Collaborators, to shape and conduct a multidisciplinary, innovative project by providing intellectual input/leadership and leading the experimental laboratory work

To generate and test hypotheses of molecular mechanisms informed by genetic, structural, biochemical and proteomic studies as well as the scientific literature

To generate and use cell models to study the mechanisms of tankyrase-dependent ADP-ribosylation in a range of biological contexts, including Wnt/ β -catenin signalling and telomere maintenance. This includes the use of CRISPR technologies to introduce tags or point mutations into endogenous proteins.

To assess tankyrase activity and function using cellular biochemistry and molecular biology methods, including immunoprecipitation/affinity purification, interrogation of post-translational modifications by immunoblotting, assessment of telomere length and integrity, assessment of Wnt/ β -catenin signalling

To work with Colleagues in ICR's Light Microscopy Facility to develop and use imaging techniques in both fixed and live cells

To perform quantitative enzyme activity assays using HPLC and radiometric assays

To work with Colleagues in ICR's Proteomics & Metabolomics Core Facility to develop and use proteomics techniques to assess protein interactions and post-translational modifications

To analyse and interpret experimental findings, and to plan subsequent experiments to probe hypotheses

To contribute to the smooth running of experimental work in the laboratory

To familiarise yourself with the use and maintenance of specialised laboratory equipment

To work both independently and collaboratively, and to consult when appropriate

To work in a flexible and organised manner to meet objectives and deadlines

To maintain accurate and complete records of experiments and data in a timely manner, in accordance with ICR regulations universal standards

To acquire a solid knowledge of the literature in the subject area

To present your work in seminars and participate in journal clubs

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To draft and co-write research publications resulting from the project
To attend scientific conferences and courses, as agreed with the Group Leader
To contribute to the training of other Team Members
To contribute to the academic life and positive research culture of the laboratory, and by extension that of the ICR
To interact with the Group Leader and other Team and Division Members, fostering a positive working environment
Any general laboratory duties that will be shared with other Members of the team

General

All Staff must ensure 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

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.

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Person specification

Education and Knowledge

PhD in a biological science or any other area relevant to the laboratory's research*	Essential
Evidence of contributing to research publications	Essential

Skills

Demonstrable ability to design, conduct, analyse and interpret experiments	Essential
Demonstrable skills in molecular biology (recombinant DNA techniques)	Essential
Demonstrable skills in contemporary cell biology and biochemistry using mammalian cells	Essential
Demonstrable skills in contemporary mammalian genetics, including CRISPR	Essential
Demonstrable ability to navigate and interpret protein structural models (PDB, AlphaFold)	Essential
Demonstrable skills in fluorescence microscopy techniques in both fixed and live cells	Essential
Demonstrable skills in proteomics sample preparation	Desirable
Competent at laboratory techniques, including protocol development and optimisation, problem solving, and troubleshooting	Essential
Ability to work effectively and efficiently, both independently and as part of a team	Essential
Good observation skills, attention to detail and ability to keep appropriate records	Essential
Proficient IT and statistics skills	Essential
Excellent oral and written communication skills	Essential
Excellent organisational skills. This includes the ability to effectively conduct collaborations	Essential
Excellent interpersonal skills with the ability to establish effective working relationships	Essential
Independent scientific thinking and readiness to acquire a solid knowledge of the literature relevant to the project in a timely manner	Essential

Experience

Solid experience in recombinant DNA techniques and mammalian genetics (CRISPR)	Essential
Solid experience in mammalian cell biology and cellular biochemistry	Essential
Solid experience in conducting a multi-faceted research project to completion (i.e., publication)	Essential

**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.*

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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 Sebastian Guettler for further information by emailing sebastian.guettler@icr.ac.uk. This job description reflects the current position and is subject to review and alteration in detail and emphasis in the light of future changes or development.