1 Advertisement

Post Title: Post-Doctoral Research Fellow : Molecular mechanisms of Prim-Pol -
dependent pathways involved in DNA repair
School/department: School of Life Sciences/ Genome Damage and Stability Centre
Hours: full time or part time hours considered up to a maximum of 1.0 FTE.
Requests for flexible working options will be considered (subject to business need).
Contract: fixed term for 2 years
Reference: 1991
Salary: starting at £33,199 to £39,609 per annum
Placed on: 5 August 2019
Closing date: 4 September 2019. Applications must be received by midnight of the
closing date.
Expected start date: within 1 month of 1st October 2019

The School of Life Sciences is at the forefront of research in the biological sciences in the
UK, coming in the top 10 in the REF 2014.

Applicants are invited to apply for a BBSRC-funded postdoctoral position to study novel DNA
repair mechanisms. Cells possess a myriad of DNA maintenance pathways required to
ensure genome stability. The aim of this project is to study the molecular mechanisms of
Primase-Polymerases (Prim-Pols), and their complexes, involved in DNA repair processes in
mycobacteria. Specifically, we would like to characterise the components of specific repair
complexes and define their molecular mechanisms by reconstituting these pathways in vitro.
Applicants must have extensive experience in using biochemical, biophysical and structural
techniques to study the molecular interactions and mechanisms of protein complexes
involved in DNA / RNA repair, replication, transcription or related cellular processes.

The successful applicants will join the Genome Damage and Stability Centre, an
internationally renowned Institute carrying out research on the response of cells to DNA
damage, genome instability and its relationship to disease. We provide a stimulating and
supportive research environment and our expertise covers a wide range of experimental
systems. Further information about our research can be obtained from our website at
http://www.sussex.ac.uk/gdsc/.

What we offer:

- A highly motivated and dedicated international team.
- Innovative projects at the forefront of this research field.
- Excellent collaborative research facilities and environment.
- Collaborations with many labs in our centre and abroad.
- A project where your contribution will make a real impact!
The School is committed to equality and valuing diversity, and currently holds an Athena SWAN Silver Award. Applications are particularly welcomed from women and black and minority ethnic candidates, who are under-represented in academic posts in Science, Technology, Engineering, Medicine and Mathematics (STEMM) at Sussex. The School of Life Sciences welcomes applications to academic posts from candidates who wish to work part-time or as job-sharers.

The University offers various schemes to provide real benefits to parents, these can be found at Family Friendly Policies

Potential candidates are strongly encouraged to make informal contact with Prof. Aidan Doherty before applying. E-mail: AJD21@sussex.ac.uk ; Tel: +44 1273 877500.

Applications should be accompanied by a full CV, a statement of research interests and aspirations (not more than 4 pages), and the names of three academic referees.

For full details and how to apply see our vacancies page

The University of Sussex values the diversity of its staff and students and we welcome applicants from all backgrounds

2. The School/Division

The School of Life Sciences is the largest School in the University in terms of research activity with an annual research income of over £13m, and one of the largest in terms of student and staff population. The School has a teaching and research faculty of nearly 80, over 150 research fellows and technicians, and a small professional services team. Life Sciences have played a major role in the research and teaching of the University of Sussex since 1961. The original School of Biological Sciences (BIOLS), founded by John Maynard Smith FRS, trained some of the world’s leading biologists and biomedical scientists, and was a beacon of innovation and creativity in its integrated approach to research and teaching.

The current School of Life Sciences was formed in 2009 when Professor Laurence Pearl FRS was appointed as founding Head of the new School. Under his leadership the School adopted a unified structure with no formal departments. Instead there are six research Subject Groups – Neuroscience; Evolution, Behaviour and Environment; Genome Damage and Stability; Biochemistry and Biomedicine; Chemistry and the Sussex Drug Discovery Centre. Each research subject group is chaired by a prominent scientist, who is responsible for research leadership in their subject. The School currently has six Fellows of the Royal Society (FRS) and seven Fellows of the Academy of Medical Sciences (FMedSci) on its Faculty.

Professor Sarah Guthrie was appointed Head of School in September 2017, and the School will continue to develop under her leadership

The School admits nearly 600 undergraduates each year on to a range of BSc and MSci degrees, with around 75 students on post-graduate taught degrees in Genetic Manipulation and Cell Biology, Cancer Cell Biology and Neuroscience. Taught programmes are firmly based on our research excellence, and offer students substantial

December 2018
opportunities for personal research experience along with conventional lecture, seminar and tutorial teaching. We offer 3-year BSc and 4-year integrated Masters degrees (MSci) in Biochemistry, Biomedical Science, Biology, Ecology, Genetics, Neurosciences, and Zoology, and Royal Society of Chemistry accredited BSc and MChem degrees in Chemistry and Chemistry and Drug Design. We also offer a Foundation Year in Biological Sciences which is ideally suited for students whose A-level (or equivalent) qualifications don’t meet the requirements for direct entry on to our BSc/Masters degrees.

We have a large and vigorous post graduate research community with over 170 PhD students undertaking cutting-edge research across all our areas of interest. As well as standard PhD programmes in all the Subject Groups, we also offer a highly interdisciplinary 4-year Neurosciences PhD incorporating a first year with laboratory rotations, run in partnership with the Schools of Psychology and Engineering and Informatics, and the Brighton and Sussex Medical School.

In the REF2014 more than 96% of the School's research was rated as ‘world leading’, 'internationally excellent', or 'internationally recognised'. Our Biological Sciences research in particular was ranked 10th in the UK overall, and 8th on quality of our research outputs — putting us comfortably above the majority of Russell Group institutions.

3. JOB DESCRIPTION

Job Title: Research Fellow

Grade: Research Fellow I, Grade 7

School: Life Sciences

Location: Genome Damage and Stability Centre (GDSC)

Responsible to: Principal Investigator through to Head of School

Direct reports: n/a

Key contacts: Members of research group, members of faculty within the School and University.

Role description: Research Fellow I is an early career-grade research position. Post-holders will be expected to contribute to
the work of the research team, and also to develop their research skills with support from more experienced members of staff.

PRINCIPAL ACCOUNTABILITIES

1. To engage in individual and/or collaborative research activity resulting in high-quality publications; and to develop research funding and knowledge exchange income individually or in collaboration with others, as appropriate, depending on the size and scope of the bid.

2. To contribute to School teaching activities.

KEY RESPONSIBILITIES

2. Research, Scholarship & Enterprise

2.1 Develop research objectives and proposals for own or joint research, at acceptable levels, with assistance if required.

2.2 Conduct research projects individually and in collaboration with others.

2.3 Analyse and interpret research findings and draw conclusions on the outcomes.

2.4 Produce high-quality research outputs for publication in monographs or recognised high-quality journals, or performance/exhibition, as appropriate, and contribute to the School's REF submission at acceptable levels of volume and academic excellence.

2.5 Contribute to the preparation of proposals and applications to external bodies, for example for funding purposes.

2.6 Individually or with colleagues, explore opportunities for enterprise activity, knowledge exchange income and/or consultancy, where permissible.

2.7 Build internal contacts and participate in internal networks and relevant external networks in order to form relationships and collaborations.

2.8 Continually update knowledge and understanding in field or specialism, and engage in continuous professional development.

2. Teaching & Student Support

2.1 Undertake teaching duties, if required.

2.2 Assist in the assessment of student knowledge and supervision of student projects if required.

2.3 Assist in the development of student research skills, for example as part of a postgraduate supervision team.
3. Contribution to School & University

3.1 Attend and contribute to relevant School and project meetings.

3.2 Undertake additional duties, as required by the Principal Investigator and/or Head of School.

4. Role-specific duties

4.1 Identification of DNA repair binding partners from mycobacterial cell

4.2 Biochemical, biophysical and structural analysis and characterisation of protein complexes involved in DNA repair

4.3 Keeping up with relevant scientific literature

4.4 Keeping accurate and complete records of lab work

4.5 Organising time to appropriately progress the project

4.6 Progression of specific project to level appropriate for publication in a timely manner, and interfacing with supervisor on regular basis to discuss results and project progression/direction

4.7 Presenting results in lab meetings, internal seminars and, if appropriate, external seminars, and aiding new/junior members of the laboratory where appropriate

4.8 Contributing to annual science outreach activity

This Job Description sets out current duties of the post that may vary from time to time without changing the general character of the post or level of responsibility entailed.

INDICATIVE PERFORMANCE CRITERIA

- A PhD or equivalent scholarly or relevant professional activity
- Pursuing a line of independent research within a research group.
- Publishing research (either from a recently completed PhD or new original research).
- Other forms of externally recognised professional practice of creative output of a standing equivalent to regular publication of original research.
- Initiating, developing or participating in links between the University and external bodies such as business and industry, the professions, community organisations and policy-makers.
Evidence of successful engagement in teaching or supervision.

5. PERSON SPECIFICATION

ESSENTIAL CRITERIA

1. Normally educated to doctoral level, or other equivalent qualification, or appropriate level of experience, as appropriate to the discipline (see role-specific criteria below).

2. Evidence of engagement in high-quality research activities.

3. Excellent presentation skills, with the ability to communicate effectively, both orally and in writing, with students, colleagues and external audiences.

4. Ability to work individually on own initiative and without close supervision, and as part of a team.

5. Ability to exercise a degree of innovation and creative problem-solving.

6. Excellent organisational and administrative skills.

7. Ability to prioritise and meet deadlines.

8. Excellent IT skills.

ESSENTIAL ROLE-SPECIFIC CRITERIA

1. Extensive and in depth knowledge and experience of using a broad range of biochemical and biophysical techniques to study DNA /RNA binding repair/replication related protein complexes and characterising the molecular mechanisms by which they are employed to modify nucleic acids.

2. In depth knowledge and practice of studying DNA/ RNA modification enzymes (e.g. polymerases, nucleases, ligases, CrispR enzymes, etc) using a range of enzyme assays and related molecular techniques, including gel-based and fluorescent DNA binding and enzyme kinetic assays.

3. Extensive experience of protein over-expression and chromatography purification for biochemical and structural studies.

4. Experience of a broad range of molecular biology skills, including PCR, gene cloning, site-directed mutagenesis,

5. Experience of basic microbiology skills
6. Excellent oral and written communication skills

7. A good working knowledge of enzyme mechanisms involved in DNA / RNA processing

8. Knowledge of basic protein structure and sequence analysis

9. PhD in Biochemistry, structural biology or a closely related subject

10. Professional presentation of data

11. Honesty, motivation, demonstrable independence and commitment

12. Proven ability to develop new skills and set up new techniques

13. Demonstrable ability to work co-operatively as a member of a research team and lead a research project

14. A track-record of lead (first) author, high-quality, publications in well cited journals within the last 2 years.

15. A demonstrated ability to write scientific papers and prepare high-quality figures and images.

DESIRABLE CRITERIA


2. Experience of doing protein pull-down experiments.

3. Experience at purifying specifically tagged protein complexes from cells.

4. Experience of working on the in vitro biochemistry of protein complexes directly involved in DNA repair e.g. mismatch or base excision repair.

5. Experience of preparing bacterial cell free extracts and isolating protein complexes.

6. Experience of crystallizing DNA/ RNA binding proteins and using protein crystallography methods to solve their crystal structures

7. Collection of electron microscopy images and structural image analysis
8. Experience of writing research proposals

Date: 1st July, 2019