



**Faculty of Biological Sciences
School of Molecular and Cellular Biology**

Research Fellow in Molecular Biology/Virology

Fixed term for 2 years

Project – Recombinant expression of next-generation polio vaccines for the future

This post is available immediately to undertake studies towards the production of completely non-infectious, stable, recombinant poliovirus (PV) capsids potentially suitable for formulation as alternative polio vaccines.

This project will be based in the picornavirus laboratories led by Profs David Rowlands and Nicola Stonehouse. These laboratories are part of the highly successful molecular virology research group in Leeds. The post is funded by WHO/The Gates Foundation and is in collaboration with groups at the National Institute for Biological Standards and Control (NIBSC), Universities of Oxford and Reading, the John Innes Centre and the Pirbright Institute.

A first or upper second class degree and a PhD (or be close to completion) in Molecular Biology, Cell Biology, Biochemistry, Virology or related discipline, together with a strong molecular biology research background are required. You will join an enthusiastic and highly active research group studying various aspects of virology.

University Grade 7 (£31,656 - £37,768 p.a.) Due to funding limitations, it is unlikely an appointment will be made above £32,600 p.a.

Informal enquiries to: Professor David Rowlands, tel +44 (0)113 343 35641, email d.j.rowlands@leeds.ac.uk or Professor Nicola Stonehouse, tel +44 (0)113 343 33102, email: n.j.stonehouse@leeds.ac.uk.

Closing Date: 20 June 2016

Interviews are expected to be held on: 13 July 2016

Ref: FBSMB1062

**Click here for further information about working at the University of Leeds
www.leeds.ac.uk/info/20025/university_jobs**

Job Description

Responsible to: Head of School of Molecular and Cellular Biology

Reports to: Professor Dave Rowlands and Professor Nicola Stonehouse

Background to the post

Despite the success of global mass vaccination programmes in dramatically reducing the world wide incidence of poliomyelitis, residual pockets of infection remain and the disease has yet to be eradicated. Of the two available types of vaccine, the live attenuated product(s) (oral polio vaccine, OPV, Sabin vaccine) has had the biggest role in controlling poliovirus infection as it is inexpensive, effective and easy to administer in underdeveloped countries. However, RNA viruses, like PV, mutate rapidly and it has been shown that revertants with significantly higher virulence scores arise in vaccinees within days of vaccination and can give rise to disease in naive individuals. In addition, OPV is thermolabile and requires the utilization and maintenance of a cold chain. The killed vaccine made from formaldehyde-inactivated virulent PV and administered by injection (IPV) induces humoral immunity which effectively protects against disease but does not necessarily prevent replication of the virus in mucosal tissue. Although the IPV Salk vaccine is safe and effective, it is significantly more expensive than the Sabin vaccine, requires the growth of large amounts of virulent virus in its production and is more difficult to administer in unfavourable environments. Nevertheless, the Salk vaccine is rapidly becoming the vaccine of choice in developed countries. The goal of this work is to produce PV empty particles suitable for development as viable vaccine candidates. Only with the use of such completely safe polio vaccines will this disease be eradicated in the future.

Summary of the research programme

We have shown that our stabilized empty capsids (VLPs) have equal or superior stability and immunogenicity properties to commercial IPV and initial studies indicate that equivalent particles can be made by recombinant expression technologies. Several approaches are being investigated as part of the project. This position will focus on expression and purification of stabilized VLPs in *Pichia* yeast.

Research environment and facilities

This project builds on a productive collaboration between the Stonehouse and Rowlands groups. They form part of a very active Virology group at Leeds, which is one of the largest groups of researchers focussed on all aspects of virology within the UK. The group is active and dynamic and meets regularly both formally and informally to exchange ideas, problem solve and for social occasions. The groups are housed in custom-built laboratory space. These open plan laboratories are shared by cell biologists and structural biologists as well as virologists. This creates a multidisciplinary research atmosphere that fosters collaboration and novel solutions to scientific problems. Research facilities for modern molecular biology and virology are available in addition to faculty core facilities.

Main duties and responsibilities

- To generate and pursue independent and original research ideas in the appropriate subject area
- To design and conduct a programme of investigation in consultation with the principal investigator, as appropriate
- To evaluate methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to their own work
- To communicate or present research results through publication or other recognised forms of output
- To understand broader issues relating to the management of research
- To take part in knowledge-transfer activities, where appropriate and feasible
- To contribute to the supervision of junior researchers, as appropriate
- To maintain own continuing professional development and act as a mentor to less experienced colleagues, as appropriate
- To maintain a safe work environment, including ensuring compliance with legislation and the undertaking of risk assessments
- To undertake any other duties commensurate with the post as requested by the Head of School or nominee

Specific responsibilities and accountabilities

- Be responsible for ensuring good day-to-day progress of the project and contribute to strategic development.
- Be involved in defining and achieving project milestones.
- Maintain familiarity with the scientific literature pertaining to the project.
- Provide brief written monthly reports describing progress and future goals and contribute to reports required by the funding body and other outputs including scientific papers.
- Attend meetings to discuss the project as necessary.
- Present data at both internal meetings and scientific conferences (UK and overseas).
- Undertake other reasonable duties as required, including accepting some managerial responsibility within the laboratory.
- Demonstrate good time management skills, particularly with regard to working effectively within the core hours of 09.00-17.00.
- Contributing to the supervision of less experienced researchers (PhD students or technicians), and/or undergraduate project students may be required.

University Values

All staff are expected to operate in line with the University's values and standards, which work as an integral part of our strategy and set out the principles of how we work together. More information about the University's strategy and values is available at <http://www.leeds.ac.uk/comms/strategy/>.

The University of Leeds' commitment to women in science has been recognised with a national accolade, the University has received the Athena SWAN Bronze Award in recognition of our success in recruiting, retaining and developing/promoting women in Science, Engineering and Technology (SET).

The University offers generous terms and conditions of employment, a wide range of benefits, services, facilities and family friendly policies. Full details are available on the Human Resources web pages accessible at www.leeds.ac.uk/hr/index.htm

Person Specification

Essential

- A first degree in a biological science and a PhD (or be close to completion) or equivalent in molecular biology, biochemistry, cell biology, virology or a related discipline
- Effective practical skills at the bench
- A strong molecular biology research background
- Practical experience in recombinant DNA technologies.
- Practical experience in expression and purification of proteins from yeast
- Practical experience in purification of virus-like particles and/or viruses
- Ability to design, execute and write up experimental work independently
- Proven ability to work effectively and responsibly without close supervision
- The ability to work efficiently and manage your time as part of a multi-disciplinary team
- An ability to prioritise and deal with varied tasks and work under pressure to deadlines
- The ability to communicate well with supervisors and collaborators, as well as at national and international conferences
- A high standard of written English (in order to write high quality articles for publication)
- Good data management, analytical and computer skills
- Drive, enthusiasm and ambition to produce work of the highest quality
- An ability to keep accurate records
- Good organisational and time management skills
- Good written and verbal communication skills
- Commitment to own continuous professional development

Desirable

- Practical experience with picornaviruses
- Evidence of work published in refereed journals
- An ability to maintain equipment where necessary
- Ability to use own initiative in determining the course of the research project

Additional Information

The University offers generous terms and conditions of employment, a wide range of benefits, services, facilities and family friendly policies. Full details are available on the Human Resources web pages accessible at www.leeds.ac.uk/hr

The Partnership

The Partnership has been developed by students and staff and describes the mutual expectations of us all as members of the University of Leeds community. More information about the Partnership is available at <http://partnership.leeds.ac.uk>

Disclosure and Barring Service checks

A Disclosure and Barring Service (DBS) Check is not required for this position. However, applicants who have unspent convictions, cautions, reprimands and warnings, including any pending criminal proceedings must indicate this in the 'other personal details' section of the application form and send details to the Recruitment Officer at disclosure@leeds.ac.uk.

Disabled Applicants

The post is located in the Faculty of Biological Sciences. Disabled applicants wishing to review access to the building are invited to contact the department direct. Additional information may be sought from the Recruitment Officer, email disclosure@leeds.ac.uk or tel + 44 (0)113 343 1723.

Disabled applicants are not obliged to inform employers of their disability but will still be covered by the Equality Act once their disability becomes known.

Further information for applicants with disabilities, impairments or health conditions is available in the applicant guidance.

School of Molecular and Cellular Biology

The School, comprising some 40 principal investigators, together with our sister Schools of School of Biomedical Sciences and School of Biology, was formed in September 2005. The aim of the school is to provide a stimulating environment for the prosecution of world-class research. We have a strong emphasis on inter-disciplinary activity, with the aim of developing the boundaries between traditional disciplines. To this end, collaborations between members of SMCB and our sister schools within FBS are strongly encouraged. Moreover, the Astbury Centre for Structural Molecular Biology is a cross-faculty centre that includes staff from the Faculty of Mathematics and Physical Sciences and the Faculty of Medicine and Health.

Biological Sciences

The Faculty of Biological Sciences is one of the leading groups of life-science researchers within the UK, offering superb facilities, providing a high quality research training environment and delivering an exceptional student education.

Our position amongst the UK elite for bioscience research was confirmed in the results of the recent Research Excellence Framework (REF) where we were ranked as 6th in the country for research impact. The assessment also identified that over 80% of biological science research at Leeds has a top quality rating of either "world leading" or "internationally excellent".

In addition to 110 academic staff, the Faculty has over 400 postdoctoral fellows and postgraduate students supported by a current active research grant portfolio of around £50m derived from a range of sources including charities, research councils, the European Union and industry.

With around 2000 undergraduate students and 150 taught postgraduate students, we are one of the largest life sciences faculties in the UK. Our programmes cover the breadth of the biological sciences with undergraduate programmes in the areas of biology, biochemistry, microbiology, sport and exercise sciences and medical sciences including physiology and neuroscience.

Significant investments in our infrastructure contribute to our dynamic and vibrant research environment, offering excellent opportunities for leading edge research focused around key areas, including neuroscience, sports and exercise science, membrane biology, and structural molecular biology.

The Faculty has 3 Schools:

- [School of Biomedical Sciences](#)
- [School of Molecular and Cellular Biology](#)
- [School of Biology](#)

Find out more about the Faculty [here](#).