Aston University
BIRMINGHAM UK

UNIVERSITY OF THE YEAR 2020 The Guardian

Reference: R210009

Salary: Grade 7, £33,797 per annum (pro-rata)

Contract Type: Fixed Term until 30 November 2021

Basis: Full Time

Closing Date: 23.59 hours GMT on Wednesday 20 January 2021

Interview Date: Before end of January 2021

Research Assistant

Candidate brief

Athena SWAN Silver Award

EU GENDER CHARTER

Job description

Job Purpose:

BBSRC-funded Research Assistant to support the study of the structure-function relationship of Extracellular Vesicles.

Background: Inflammation is a key response of the innate immune system to challenge but its net success depends on its ability to 'resolve' (i.e. switch off). It is characterised by complex 'waves' of molecular and cellular events that ultimately result in a 'switch' towards a pro-resolution/repair response and a return to normal tissue function. In order for this to be effective, inflammatory cells, that are no longer required, die by apoptosis and communicate their presence to, and are removed (phagocytosed) rapidly by, professional phagocytes (macrophages). Failure to resolve effectively leads to inflammatory disease.

Our recent work has detailed the molecular composition and function of extracellular vesicles that are released during apoptosis (apoptotic cell-derived extracellular vesicles: ACdEV). These EV recruit macrophages to sites of cell death to promote resolution of inflammation. Importantly, we have recently identified that these EV carry active enzymes that may help in the control of inflammation. We now need to fully define the 'active EV' and address the full functional significance of this novel extracellular metabolic unit.

Why is this important? A failure to control inflammatory responses can lead to chronic inflammation and many of the inflammatory diseases associated with ageing. So, by understanding the mechanisms of communication between cells promoting inflammation and those cells promoting resolution and repair, we will have a clearer insight to possible therapeutic approaches for diseases that are driven by inflammation (e.g. cardiovascular disease, cancer, neurodegeneration). Furthermore, we will study EV from a range of other cells (viable and apoptotic) that are known to help promote repair. For example, a type of stem cell, an 'MSC', has held great promise for regenerative medicine but recently the EV released from these cells have been proposed to be active to stimulate a 'repair environment'. Consequently, we will study in detail the inflammation-controlling metabolic activity of EV from MSC. This raises the possibility that we may be able to define the crucial factors required for EV repair activity, opening up novel stem cell-based or cell-free therapies for regenerative medicine.

In order to test our core hypothesis, we will analyse, from a range of dying and viable cells, EV composition for the presence of enzymes, their substrates and their products. We will test the EVs' ability to promote repair *in vitro* and *in vivo* and we will inhibit the key enzymes to assess the essential nature of this activity.

This work will, for the first time, detail an inflammation-controlling, metabolically-active extracellular compartment. It will define, at a molecular level, how dying cells communicate with other cells to ensure inflammation is controlled. This is important because ineffective control of inflammation leads to disease. Thus, exploitation of our work will target those conditions inflammation helps drive disease and will enable novel strategies to promote self-repair.

This project requires a full time researcher to support the broad research needs of this programme until its completion at the end of November 2021. The successful candidate will join the research group of Prof Andrew Devitt & Dr Milic work, to work with Dr Ivana Milic (BBSRC Researcher Co-Investigator) on this project. The post holder will report directly to Prof Andrew Devitt and Dr Ivana Milic.

Main Duties and Responsibilities

The researcher will be highly organised and enthusiastic scientific team player who will require the following attributes:

Decision Making - taken independently by the role holder

- The organisation and prioritisation of own workload to achieve goals in agreement with other team members.
- Preparation of required biological samples to integrate with the research of other team members.
- Data generation and recording.
- Time management.

- Resource management e.g. laboratory support.

Decision Making - taken in collaboration with others

- Laboratory assay development and optimisation
- Provision of additional technical help or training to other members of research group.
- Design and conduct of experimental investigations.
- Implementation of procedures to ensure health and safety, COSHH, radiation safety and HTA & ASPA legislation are adhered to.

- **Decision Making - referred to the appropriate line managers by the role holder**
- Overall project strategy and timelines
- Choice of methodology and technical issues
- Data quality control

Additional responsibilities

- Supporting the day to day running of the research programme to be undertaken including keeping managers informed of actions, gaining any necessary training and approvals and hands on research.
- Supporting the day to day running of the research team on this project and liaising with other members of the larger research group.
- Maintaining comprehensive laboratory note books. Recording and analysing data and preparing data for presentation to line managers and peers, patent preparation and publication
- Leading contributions to the day-to-day maintenance of the laboratory e.g. preparation of lab stocks, obtaining quotes for consumable reagents, preparation of orders, equipment maintenance and helping junior lab members.
- Supporting the preparation and submission of manuscripts.
- Engage in continuous personal and professional development in line with the demands of the role, including undertaking relevant training and development activities to develop themselves and support the development of others.
- Ensure and promote the personal health, safety and wellbeing of staff and students.
- Carry out duties in a way which promotes fairness in all matters and which engenders trust.
- Promote equality of opportunity and support diversity and inclusion as well as working to support the University’s environmental sustainability agenda and practices.

Person specification

	Essential	Method of assessment
Education and qualifications	A good degree in a relevant academic discipline	Application form
Experience	Sound understanding and practical experience of common cell biology techniques including maintenance of cells and microscopy Competent in immunoassays (e.g. Western blotting, ELISA, flow cytometry) Experience in the isolation and analysis of extracellular vesicles Experience in the analysis of enzyme activity Experience of purchasing in a biological research laboratory Experience of implementing health and safety policies within a biological laboratory setting	Application form, interview and presentation
Aptitude and skills	Highly organised Ability to work both independently and under direction as a strong and supportive team player	Interview and presentation
Other	Ability to resolve routine work problems, plan and organise work activities Ability to work well under pressure and to meet deadlines Excellent written and verbal communication Excellent IT abilities Excellent people skills to support, maintain and contribute to a successful research team.	Application form, presentation and interview.

	Desirable	Method of assessment
Education and qualifications	A PhD in a relevant academic discipline	Application form

	Desirable	Method of assessment
Experience	Experience in the induction and analysis of apoptosis Experience in the functional and phenotypic characterisation of macrophages Sound practical experience for the large-scale growth of cells using bioreactor systems Sound practical experience of *in vivo* murine models (ideally models of inflammation) and their analysis	Application form, interview and presentation
Aptitude and skills	Understanding and practical experience of mass spectrometry for detailed molecular analysis of cell products.	Interview and presentation

How to apply

You can apply for this role online via our website https://www2.aston.ac.uk/staff-public/hr/jobs. Applications should be submitted by 23.59pm on the advertised closing date. All applicants must complete an application form, along with your CV.

Any CV sent direct to the Recruitment Team and Recruiting Manager will not be accepted. If you require a manual application form then please contact the Recruitment Team via jobs@aston.ac.uk.

Contact information

Enquiries about the vacancy:
Name: Professor Andrew Devitt
Job Title: Professor and Head of School Biosciences
Email: a.devitt1@aston.ac.uk

Enquiries about the application process, shortlisting or interviews:
Recruitment Team via jobs@aston.ac.uk or 0121 204 4500.

Additional Information

Visit our website https://www2.aston.ac.uk/staff-public/hr for full details of our salary scales and benefits Aston University staff enjoy

Salary scales: https://www2.aston.ac.uk/staff-public/hr/payroll-and-pensions/salary-scales/index

Benefits: https://www2.aston.ac.uk/staff-public/hr/Benefits-and-Rewards/index

Working in Birmingham: https://www2.aston.ac.uk/birmingham

Employment of Ex-Offenders: Under the Rehabilitation of Offenders Act 1974, a person with a criminal record is not required to disclose any spent convictions unless the positions they applying for is listed an exception under the act.

Eligibility to work in the UK: Candidates who are not citizens of the United Kingdom, or another EEA member country, should check their eligibility to enter or remain the UK in advance of making any job application via the UKVI website https://www.gov.uk/browse/visas-immigration/work-visas. Before applying you should ensure that you meet the requirements, including meeting the English language standards. If you do not meet the eligibility criteria, any application for a work visa would be unsuccessful

Equal Opportunities: Aston University promotes equality and diversity in all aspects of its work. We aim to ensure, through our admissions policies for students, and our staff recruitment and selection processes that we encourage applications from all groups represented in the wider community at a local, national and international level.

The University will endeavour not to discriminate unfairly or illegally, directly or indirectly, against student or potential students, staff or potential staff. This commitment applies to all functions of the University and to any stage of an individual's career.

An Equal Opportunities Monitoring Form is included within the application form. Data you provide on the Equal Opportunities Monitoring Form will be included in a general database, for statistical monitoring purposes, enabling the University to monitor the effectiveness of its Policy, Codes of Practice and Guidelines on Equal Opportunities in Employment. Individuals will not be identified by name.

Data Protection: Your personal data will be processed in compliance with the Data Protection Act 2018 and the General Data Protection Regulation ((EU) 2016/679) ("GDPR"). The University's Data Protection Policy and Privacy Notices, including the Job Applicant Privacy Notice can be found at https://www2.aston.ac.uk/data-protection. Your application will only be used to inform the selection process, unless you are successful, in which case it will form the basis of your personal record with the University which will be stored in manual and/or electronic files. Information in statistical form on present and former employees is given to appropriate outside bodies.

Full details of our terms and conditions of service and associated policies and procedures are available online at https://www2.aston.ac.uk/staff-public/hr/policies