



Edge Hill University

Postdoctoral Research Assistant (in Ageing and Mitochondrial Molecular Cell Biology)

Reference: EHA2267-0422-R

Salary: £31,406 - £34,304 per annum, pro rata
Grade 7, Points 27-30

Contract Type: Fixed Term for 3 years

Hours: Full Time (36.25 hours per week)

Location: Ormskirk



It is important to note that this job description is a guide to the work you will initially be required to undertake. It may be changed from time to time to meet changing circumstances. It does not form part of your contract of employment.

Job Description for the post of:

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Accountable to: Professor Paul Ashton, Head of Department

Reporting to: Professor Luminita Paraoan, Research Project Leader

About the Role

We are looking for a motivated and enthusiastic post-doctoral research assistant to join the Molecular Cell Biology and Mechanisms of Disease Group led by Professor Luminita Paraoan, in the Department of Biology at Edge Hill University. The project is central to the main area of interest in the group, specifically biology and function of the retinal pigment epithelium (RPE) in health, ageing and disease. The project aims to use innovative advanced *in vitro* cell-based models to characterise the role of mitochondrial dynamics and the mechanism of the endoplasmic reticulum-mitochondrial communication in ageing retinal pigmented epithelium in the context of identifying new therapeutic interventions for age-related macular degeneration (AMD).

Project background: Mitochondrial damage in the RPE, which is considered the initial site of insult in AMD, is ubiquitous in ageing and AMD. Indeed while ageing represents the highest risk factor for developing macular disease, more so than any individual genetic or environmental factor, the RPE is particularly susceptible to age-related changes due to its post-mitotic, terminally differentiated, non-regenerative nature, and its intense metabolic activity throughout life. A common observation in the ageing RPE, as well as in the RPE of AMD patients, is the presence and accumulation of dysfunctional/damaged mitochondria, with very little understanding at molecular level of how this occurs and progresses, and how it leads to AMD-related RPE dysfunction. We will elucidate important mitochondrial regulatory processes affected by age in RPE cells, especially changes affecting mitochondrial dynamics and newly identified endoplasmic reticulum (ER)-mitochondria communication, providing much needed insight into fundamental

molecular mechanisms underpinning the decline of RPE function. Given the importance of the mitochondria in the highly metabolically active RPE cells, boosting mitochondrial health in ageing/AMD RPE cells is a promising therapeutic option. The knowledge gained from this project will be essential for understanding the molecular mechanisms that damage the RPE to initiate and progress AMD, which in turn is required for advancing the disease management and development/assessment of early-stage, novel therapeutic strategies targeting key pathophysiological mechanisms.

You should have (or have already submitted) a PhD in biochemistry or molecular/cell biology, with an excellent educational and research record, inquisitive mind and exceptional drive for innovative research. It is expected that you will apply your research skills to a stimulating project and be willing to master new and existing techniques. You will be responsible for taking initiatives and responsibilities, under supervision of the principal investigator, in the planning of research, developing and applying suitable techniques and obtaining valid experimental data. You will be responsible for data analysis, records of findings, internal and external presentation of your data, attendance at conferences as necessary, preparing reports for research sponsors, drafting and preparation of publications for refereed journals, contribution to writing bids for research grants. You will have opportunities to undertake instruction of practical work of PhD, Masters and undergraduate students as agreed. It is expected that you will engage with the national and international collaborations of the group, and promote the reputation of the laboratory, Faculty and wider University.

The Department of Biology at Edge Hill University is a recently established department undergoing considerable investment in infrastructure, equipment and staffing. Research involves molecular basis of human disease, genetic and cell-based therapies, biology of ageing, embryology, population genetics, disease vectors and parasites, microbiology. Purpose-built research laboratories are based in the Technology Hub and provide facilities for all areas of biology, particularly cell culture, molecular biology, microscopy (Leica DMI8 live cell imaging microscope and a Zeiss Axio Observer with optical tweezers genetics and a £500K JEOL SEM/TEM suite), histology, microbiology. Other facilities including teaching spaces are housed in the main Biosciences building. It is anticipated that a further new joint Biomedical Science/Medical School building will be opened in 2023.

Duties and Responsibilities

The post holder will be expected to:

1. Engage positively in research activity in the broad area of Molecular Cell Biology of Ageing under the direction of the principal investigator.
2. Complete high quality research in the area of RPE ageing biology and associated subject areas, leading on elements of the project, under the direction of the PI. This includes being responsible for data acquisition and analysis, records of findings, internal and external presentation of your data, preparing reports for research sponsors, drafting and preparation of publications for refereed journals and contributing to writing bids for research grants.
3. Publish research outputs in leading peer-reviewed journals with an international audience, as lead author where appropriate.
4. Effectively disseminate research findings at internal and external scientific meetings and conferences, making research accessible to lay and expert audiences.
5. Engage with relevant academic and professional networks through active membership of societies, associations etc.
6. Contribute to the development of effective applications for research funding from both research councils and other external sources in collaboration with the project lead/principal investigator and others.
7. Explore opportunities for enterprise activity, knowledge exchange income and/or consultancy in this and related areas.
8. Contribute to the delivery of teaching at undergraduate and taught postgraduate level.
9. Assist in the supervision of third year undergraduate dissertation students and taught Masters within the area of research expertise.
10. Ensure that their skills and technical competence are kept under review and enhanced where required to enable them to utilise specialist equipment and software used in the research projects.
11. Assist in the development of the research skills of postgraduate students; for example, as part of a postgraduate supervisory team and/or through the delivery of practical workshops.
12. Contribute to relevant departmental and research group meetings.
13. Undertake additional duties, as required by the project lead/principal investigator or Head of Department.

In addition to the above all Edge Hill University staff are required to:

- a) Adhere to all Edge Hill's policies and procedures, including Equality and Diversity and Health and Safety
- b) Respect confidentiality: all confidential information should be kept in confidence and not released to unauthorised persons
- c) Undertake appropriate learning and development activities as required
- d) Participate in Edge Hill's Performance Review and Development Scheme
- e) Adhere to Edge Hill University's environmental policy and guidelines and undertake tasks in a sustainable manner
- f) Demonstrate excellent Customer Care in dealing with all customers

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Candidates should note that shortlisting will be based on information provided on the application form with regard to the applicant's ability to meet the criteria outlined in the Person Specification attached.

Internal staff wishing to apply for a fixed term role as a secondment opportunity must discuss this with their existing line manager before applying.

Person Specification for the post of:

Postdoctoral Research Assistant (in Ageing and Mitochondrial Molecular Cell Biology)

Full Time

Fixed Term for 3 years

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Please note that applications will be assessed against the Person Specification using this criteria. Applicants should provide evidence of their ability to meet the following:

		Essential	Desirable	*Method of assessment (A/I/S/T/P)
Qualifications				
1.	PhD (or expect to hold shortly) in biochemistry, molecular/cell biology or a related biological science discipline, with excellent educational background.	*		A
Experience and Knowledge				
2.	Detailed knowledge and practical experience of: Molecular cell biology techniques applicable to gene expression and analysis. Development and use of <i>in vitro</i> cell-based models, preferably using CRISPR/Cas9 gene editing. Desirable: Experience in iPSC culture/differentiation, mitochondrial cell biology	*	*	A/S/I
3.	Previous experience of conducting high quality research involving: Cell culture, relevant molecular/cell biology, cell function assays and biochemical approaches. Microscopy, preferably live-cell/confocal microscopy. Desirable: Bioinformatics analysis.	*	*	A/S/I
4.	Experience of publishing high quality academic peer reviewed articles, appropriate for stage of career	*		A/S/I

	Experience of interpreting results and able to use this to generate new research ideas.			
5.	Experience of working in the Higher Education sector		*	A
6.	Experience of working in multi-disciplinary research		*	S/I
7.	Knowledge of the processes involved in preparing and submitting research funding proposals		*	S/I
8.	Experience of teaching undergraduates and postgraduates, including supervising research projects		*	S/I

Abilities/Skills

9.	Able to communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience (both lay and expert). Ability to interpret timely and thoroughly experimental data and IT/statistical skills.	*		S/I/P
10.	Able to present research results at department meetings and conferences	*		I/P
11.	Excellent project planning and time management skills, able to work on own initiative and prioritising work effectively to meet deadlines	*		S/I
12.	Highly motivated with excellent technical skills, able to optimise and progress project, to work independently and without supervision as well as part of a team	*		S/I
13.	Ability to operate flexibly and reliably, adapting to change as required	*		S/I
14.	Able to develop and maintain effective working relationships at all levels	*		S/I
15.	Able to work within ethical guidelines and maintain high levels of research integrity at all times	*		S/I

***Method of Assessment**

(I-Interview, A-Application, S-Supporting Statement, T-Test, P-Presentation) Please note that applications will be assessed against the Person Specification using this criteria.

How to Apply

When you are ready to start the formal application process, please visit www.edgehill.ac.uk/jobs and click 'vacancies', search for the role you wish to apply for, and click 'Apply Online'. The online application form can be completed in stages and can be revisited at any time. The form automatically saves as you enter your information and it is simple to move backwards and forwards throughout at any time prior to submission. Help is available at each stage to guide you through the form. Before final submission, you can preview your application and can then choose to refine or submit the form.

For informal enquiries about this vacancy you may wish to contact: Professor Luminta Paraoan, Professor of Molecular Cell Biology at Luminita.Paraoan@edgehill.ac.uk.

Please refer to the advert for the closing date for this vacancy, all applications must be submitted by 23:59 on this date. Following the closing date, we will contact you by email to let you know whether or not you have been shortlisted to participate in the next stage of the selection process. We try our best to inform all applicants within two working weeks following the closing date.