

**Faculty of Biological Sciences
School of Biomedical Sciences**

**Summer Research Placement
8 weeks, between July 1st and August 26th**

Job Summary

Stipend is £270 per week.

Informal enquiries may be made to Dr Emily Storey (E.Storey@leeds.ac.uk)

To apply, please send your CV and a covering letter (200-300 words maximum)

**Closing Date: Noon on 2nd February 2024
Interviews: w/c February 19th 2024**

Job Description

The diaphragm is the major muscle that supports breathing and is vital for human survival. Critical illnesses such as sepsis and COVID-19 require intensive care unit (ICU) treatment and are closely linked to rapid-onset diaphragm weakness. Diaphragm weakness in the ICU is directly associated with delayed recovery and poor clinical outcomes. How and why this occurs remains poorly understood.

There is currently no treatment for ICU-induced diaphragm weakness. Like other muscles, the diaphragm is maintained by muscle stem cells (MuSCs) which maintain homeostasis and promote regeneration, but their role in ICU-induced diaphragm weakness remains poorly explored.

The successful candidate will be directly supervised by Dr Emily Storey to investigate the role of MuSCs in sepsis-induced diaphragm weakness using an *in vivo* experimental mouse model and *in vitro* cell culture approaches. Isolated MuSCs from the diaphragm before and after sepsis will be performed using mechanical and enzymatic digestion of the tissue followed by fluorescent activated cell sorting (FACS). Properties of the MuSCs such as their number and their size will be compared using data output from the FACS analysis. Gene expression of myogenic markers will also be explored in the MuSC cell populations.

The successful candidate will learn laboratory skills including primary cell isolation, flow cytometry and polymerase chain reaction (PCR) to quantify gene expression. The candidate will attend weekly tutorials and laboratory meetings, in addition to being asked to regularly present findings in scientific discussions as part of a multidisciplinary team including collaboration with clinicians working in the ICU department at St James' Hospital. The work will take place in the School of Biomedical Sciences, Faculty of Biological Science. Applicants should be motivated, collaborative and interested in muscle biology and clinical disease. Necessary training will be provided to ensure successful delivery of the project, but previous experience of cell-based techniques would be an advantage.

Reports to: Dr Emily Storey, PDRA

Main Duties and Responsibilities

- To conduct laboratory research using a range of techniques including primary cell isolation, flow cytometry, and PCR.
- To analyse data generated from laboratory work and hypothesise the meaning of results.
- To provide input, communicate ideas, and help guide the project.
- To work independently, and part of a larger team of researchers.
- To contribute to weekly meetings and communicate and present scientific findings to the laboratory group.

Person Specification

Essential

- The candidate should be a highly motivated individual, with a strong interest in muscle biology and clinical disease.

Desirable (optional to include this)

- Experience in cell-based techniques or cell culture.

Additional Information

Details of the terms and conditions of employment for all staff at the university, including information on pensions and benefits, are available on the Human Resources web pages accessible via the links on the right hand side, or at <http://www.leeds.ac.uk/hr/index.htm>

Criminal Record Disclosures

A Criminal Records Disclosure is not required for this position. However, applicants who have unspent convictions must indicate this in the 'other personal details' section of the application.

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 Disability Discrimination Act once their disability becomes known.

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

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/>