3 Year PhD Studentship available for September 2018

**Department:** Cancer Studies (East Midlands Forensic Pathology Unit)

**Supervisors:** Dr Emma Cheshire [ecc25@le.ac.uk](mailto:ecc25@le.ac.uk) and Professor Guy Rutty [gnr3@le.ac.uk](mailto:gnr3@le.ac.uk)

**Eligibility:** UK/EU applicants only

**Project Title:** Morphology of cadaveric infant cerebral bridging veins

**Project Description:**

**Background**

In the infant population, head trauma is the single most common abusive injury causing death or permanent disability. When a baby is the victim of abusive head trauma (AHT) they have likely suffered a violent shaking and/or impact to the head. A common finding in such cases is bleeding known as subdural haemorrhage (SDH), which occurs between the brain and dura mater (one of three protective membranes surrounding the brain). The majority of medical professionals would agree that the source of SDH in these cases is traumatic damage to blood vessels known as “bridging veins” which traverse from the brain to the dura mater. However, non-abusive mechanisms of injury have been suggested for the findings in these cases, as well as alternative theories for the source of SDH. These theories have generated controversy as to the diagnosis of AHT during court proceedings.

Most of the current morphological data on bridging veins includes macroscopic observations from cadaver and imaging studies of the geriatric adult population, microscopic studies are very limited. With the exception of a recent publication from our group, macroscopic data on infant bridging veins is almost non-existent in the published scientific literature, with no microscopic studies to our knowledge. Traumatically damaged bridging veins from AHT cases are extremely difficult to visualise using clinical imaging modalities such as magnetic resonance and computed tomography, and also during surgery and autopsy examination.
Aim

This PhD project will investigate the microscopic and macroscopic morphology of infant bridging veins retained with consent from paediatric post-mortem examinations. Mechanically damaged bridging veins will also be examined for potential indicators of traumatic damage.

Location

The PhD student will be based in the East Midlands Forensic Pathology Unit, University of Leicester. They will undertake collaborative research with the Paediatric Pathology Department of the Leicester Royal Infirmary and will spend part of their time in the University of Leicester’s Core Biotechnology Services. The PhD student may also collaborate with other select research institutions to access a new imaging modality which combines microscopy with micro computed tomography (3D X-ray microscopy).

The student will be trained in both post-mortem and laboratory research techniques. They will be involved in sample collection, dissection, and tissue processing. They will develop protocols for the optimal processing of bridging veins for various microscopic and macroscopic imaging modalities (such as scanning electron microscopy, transmission electron microscopy, light microscopy, micro computed tomography and 3D X-ray microscopy). This project is an excellent opportunity for an individual interested in forensic pathology research and the undertaking of technically challenging, intricate practical work.

References


Funding details:

Funding provides a UK/EU tuition fee waiver and a stipend package at RCUK rates for 3 years, starting in September 2018.

Entry requirements:

Applicants are required to hold/or expect to obtain a UK Bachelor Degree 2:1 or better in a relevant subject. The University of Leicester English language requirements apply where applicable.

How to apply:

You should submit your application using our online application system.

Apply for ‘Cancer Studies Research’. Under intake date please select September 2018.

In the funding section of the application please select Studentship and indicate that you wish to be considered for a College of Life Sciences Studentship

In the proposal section please provide the name of the supervisors and project title.

Project / Funding Enquiries: Dr Emma Cheshire ecc25@le.ac.uk or +44(0)116 252 3259

Application enquiries to pgradmissions@le.ac.uk

Closing date for applications: 3rd April 2018