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## Postdoctoral Research Associate

**Salary:** £40,215 to £41,938 per annum.

**Location:** National Heart and Lung Institute, Hammersmith Campus, Imperial College London, London, UK.

**Closing date:** 7<sup>th</sup> October 2020

### Job Summary

Applications are invited for a British Heart Foundation-funded position of Post-doctoral Research Associate in the Endothelial Homeostasis research group, led by Prof. Anna Randi, to study the molecular and cellular mechanisms that control organotypic endothelial phenotypes and function. Currently Head of Vascular Science in NHLI, Prof. Randi leads a team of basic and clinician scientists addressing different aspects of endothelial biology, producing world-leading research.

(<https://www.imperial.ac.uk/people/a.randi/research.html>)

This project focuses on one of the most important questions currently investigated in vascular biology: the molecular determinants of organotypic endothelial heterogeneity. The project follows our recent discoveries (*Shah et al, Nature Comms 2017*; *Dufton et al, Nature Comms 2017*; *Peghaire et al, Nature Comms 2019*) on how systemic loss of endothelial homeostasis causes vascular and tissue dysfunction, including spontaneous bleeding and thrombosis, in an organotypic manner. The model we use is endothelial-specific loss of the master endothelial transcription factor ERG, which is essential for vascular development, angiogenesis and homeostasis. This pathway may also play a role in the pathogenesis of microvascular thrombosis found in severe COVID19 patients, an area under investigation in the lab.

The aim of this study is to understand how epigenetic and microenvironmental cues influence the phenotype of endothelial cells, focussing on permeability and thrombus formation as functional readouts. Models include a perfused 3D microvascular chip developed in the Randi laboratory which allows modification of the microenvironment. The effect of co-culture, flow and ECM on endothelial cells' phenotype and function will be investigated using single-cell qPCR and RNA-Seq and 3D high-resolution imaging. Endothelial cells isolated from controls and patients with vascular disorders will be used to develop personalised disease models for molecular studies and drug testing.

### Duties and responsibilities

You will be responsible for carrying out in vitro studies on endothelial cells, in mono and co-cultures with pericytes and with cells from selected tissues such as liver, intestine, lung. 3D cultures on a perfused microvascular chip model will be used. You will use live imaging for permeability and thrombus formation studies; you will isolate cells and process them for molecular profiling with single cell transcriptomics. You will work in a multidisciplinary collaborative team of researchers with expertise ranging from molecular and cell biology to pharmacology, bioinformatics and bioengineering. The environment is ideal for a candidate who is keen to work in a team and bring new exciting ideas that span multiple approaches and disciplines.

### Essential requirements

You should have a PhD in a relevant biological discipline and have experience in studying endothelial cells. A strong background using in vitro models of endothelial cell cultures and function is essential. Familiarity with basic cell and molecular biology techniques is essential. Previous experience in co-culture, 3D vascular models and single cell transcriptomics is desirable. The post will require collaboration with other groups both within and outside the department, and the ability to coordinate research projects with colleagues inside and outside the College. Enthusiasm, drive and a passion for science are essential for this position.

### Further Information

This is a full-time, fixed-term position until 26 March 2022.

Should you require any further details on the role please contact: Prof Anna Randi – [a.randi@imperial.ac.uk](mailto:a.randi@imperial.ac.uk).

**To apply for this position:** <https://www.imperial.ac.uk/jobs/description/MED02006/research-associate>