**Marie Skłodowska-Curie Postdoctoral Fellowships**

**2021 Call Expression of Interest**

Personal details

|  |  |
| --- | --- |
| Full name |  |
| Current position |  |
| Current Organisation |  |
| Email address |  |
| Title of PhD thesis |  |
| Your PhD award date |  |
| Have you lived, worked or studied in the UK since October 2018? |  |

Proposed research

|  |  |
| --- | --- |
| Title | *<your proposed research title>* |
| Topic | *<see list of available topics overleaf>* |
| *< brief outline of your proposal> (maximum 300 words)* | |

Please attach your full CV and send your Expression of Interest to [evolution@qmul.ac.uk](mailto:evolution@qmul.ac.uk) by midnight (UK time) on Friday, 16th July 2021.

**Centre for Endocrinology**

* Mitochondrial redox regulation of steroidogenesis
* PPOX mutations as a novel cause of adrenal insufficiency
* Defining the molecular regulation of dermal fibroblast lineage identity and cell state during skin development
* Dissecting the epigenetic and transcriptional regulators of persistent pro-fibrotic fibroblast behaviour in connective tissue diseases
* Role of melanocortin receptor accessory proteins in adrenal function and metabolism
* Obesity and multi-morbidities in Down Syndrome
* Cellular models of neurodegeneration: cytoskeletal dysfunction in an inherited ataxia
* Disruption of cellular metabolism in neuroendocrine tumours driven by succinate dehydrogenase mutations
* Adrenocortical stem cells in health and disease
* Genetics & genomics of stem cell-driven hypothalamic-pituitary tumours
* Genetic aspects of pituitary tumours
* Novel genes in endocrine genetics

**Centre for Biochemical Pharmacology**

* Study the pathways that control an efficient inflammatory reaction with a focus on the endogenous effectors of resolution. Harnessing these pro-resolving pathways, their ligands and receptors, to control joint disease and organ-injury associated with inflammatory arthritis
* Analysis of the biology of extracellular vesicles in the context of vascular and tissue inflammation, studying their composition(s) and function(s), with the scope to develop novel regenerative medicine approaches
* The impact of maternal immune responses during pregnancy on long-term fetal/offspring outcomes
* Innate-adaptive immune interactions in cardiovascular responses during pregnancy
* Induction of therapeutic senescence for the treatment of fibroblast-mediated diseases
* Understanding the mechanisms elicited by specialized pro-resolving mediators in the reprogramming of immune cells during bacterial infections
* Dissecting the cellular and molecular pathways elicited by the parasympathetic nervous system in the regulation of resolution mechanisms during sterile and infectious inflammation
* Antibody repertoires and autoimmune response in COVID infected donors at various stages of the disease
* Development of CAR T cells for autoimmune disease
* Impact of pregnancy conditions (hypoxia and obesity) on developmental origin of cardiometabolic syndrome and heart failure in the offspring
* Therapeutic Potential of Modulating Myocardial ATP Homeostasis in Type 2 Diabetes
* Unravelling the role of class I PI3K signalling in eukaryotic and prokaryotic amino acid sensing in the intestinal epithelium and gut homeostasis
* Building disease responsive promoters for gene therapy application in inflammatory diseases. Methods: Molecular biology, cell culture and animal models of inflammation
* Improving local delivery of glucocorticoids through the use of polymer coated crystals Methods, Soft lithography, Electron microscopy, cell culture and animal models of inflammation
* Autoimmune inflammation of the heart
* Metabolic regulation of T lymphocyte trafficking
* Bioengineering 3D in vitro models to study chronic inflammation
* Investigating why chronic inflammatory diseases fail to resolve
* Utilising extracellular vesicles for enhanced targeting/therapeutic delivery
* How macrophages eat continuously? Understanding the mechanistic basis of macrophage bioenergetics that sustains energy demand for high-burden phagocytosis during inflammation
* Role of extracellular vesicles in mediating defective inflammation resolution in advanced atherosclerosis
* Understanding the mechanisms driving non-ischemic cardiovascular disease in rheumatoid arthritis

**Centre for Clinical Pharmacology**

* Applying artificial intelligence and image processing for cancer prediction
* Using machine learning to investigate the interplay between genetics and thyroid function
* Is inflammation the common mechanism linking chronic mental and physical illnesses? A mendelian Randomization study to investigate potential causative mechanisms
* Redox signalling in the cardiovascular system
* Developing new electrophilic drugs
* AI for IMID Precision Medicine
* Using AI to Understand Multimorbidity and Polypharmacy

**Centre for Microvascular Research**

* The role of junctional receptor trafficking as a means of controlling cell tension during endothelial cell migration and angiogenesis
* New approaches to limit the clotting response by controlling exocytosis from endothelial cells: visualisation by in vitro and in vivo models
* Neutrophil reverse transendothelial cell migration in vivo: Analysis of phenotype, cellular behaviour and transcriptomic profile
* Role of tyrosine phosphatase receptors in pathological angiogenesis

**Centre for Translational Medicine & Therapeutics**

* Role and therapeutic potential of C-type natriuretic peptide in heart failure with preserved ejection fraction
* Ageing and metabolic disorders as risk factors in vascular dementia: therapeutic avenues
* New treatments to reduce systemic inflammation and organ failure in preclinical models of sepsis and COVID-19

**Centre for Advanced CV Imaging**

* Development and validation of artificial intelligence solutions in cardiac imaging
* Cardiovascular epidemiology using cardiac imaging data from large scale population studies and Barts BioResource
* 4D computed tomography for advanced phenotyping of the heart: from atherosclerosis to non-invasive biopsy

**Centre for CV Medicine & Devices**

* Cardiovascular trials of regenerative medicine
* Cardiovascular device innovation
* Identifying the molecular mechanisms that underlie sex-differences in cardiovascular disease
* Defining the role of xanthine oxidoreductase in the non-canonical pathway for nitric oxide generation
* Exploring the role and potential of inorganic nitrite in diabetes

**Centre for Experimental Medicine & Rheumatology**

* Predictive biomarker signature for chronic pain in patients with early rheumatoid arthritis
* Endogenous opioid modulation of persistent post-surgical pain: translational studies in mice and patients