Cardiovascular Sciences PhD, MD, and MPhil Supervisors

We offer PhD, MD, and MPhil supervision in areas that are compatible with the research interests of our academic staff.

Research interests include:

David Adlam

• **Rare coronary artery diseases:**
- spontaneous coronary artery dissection (SCAD) and Coronary aneurysms and estasia (CAE)
- Cardio-oncology
- National data linkage studies
- Novel medical devices
- Coronary optical coherence tomography (including as part of minimal invasive autopsy)
- Endocarditis

Matt Bown

• **Abdominal aortic aneurysms**

- Genomics
- AAA growth
- AAA screening
- Data linkage

Nick Brindle

• How receptors work: mechanistic, functional and structural biology of receptors
• Directed evolution for creating new proteins and understanding protein function and structure
• Cardiovascular protective signalling

Yihai Cao

• **Molecular mechanisms of pathological angiogenesis that contributes to:**
- Obesity
- Metabolic diseases
- Diabetic complications
- Cancer
- Metastasis
- Cardiovascular disease

Emma Chung

• Medical Physics
• Diagnostic radiology
• Brain injury and Cerebral Haemodynamics
• Cardiovascular anatomy and physiology
• Laboratory and computational models of blood flow

Tim Coats

• Diagnostics and monitoring in Emergency Care
• Coagulation following injury
• Multi-centre trials in emergency care
• Predictive modeling of outcome following injury

Veryan Codd

• **The role of biological ageing in coronary artery disease**
- Investigating the biological mechanism by which telomere length influences cardiovascular risk
- How modulating telomere length affects cellular physiology and response to pro-atherogenic stress
- Investigating the relationship between telomere length and other cardiovascular phenotypes and risk factors
• **Genetic regulation of telomere length in humans**
- Identification of additional genetic determinants of LTL
- Identification of the functional SNP(s) within each locus and the mechanism by which they impact on gene/protein function and LTL regulation.
- Investigating the biological mechanism by which the Chr2 (ACYP2) and Chr19 (ZNF) influence LTL
- Epigenetic and gene expression changes associated with changes in LTL

Tony Gershlick

• Ischemic Heart Disease
• Coronary intervention
• Novel intracoronary stents
• Clinical trials
• Novel Antiplatelet agents
• Stent thrombosis and restenosis

Victoria Haunton

• Cerebral blood flow and autoregulation in neurodegenerative diseases, including idiopathic Parkinson's disease, mild cognitive impairment and dementia syndromes
• Parkinson's disease
• Haemodynamic mechanisms of post-operative cognitive dysfunction
• Predictors of decline in mild cognitive impairment
• Post-stroke dementia/cognitive decline
• Clinical trials

Karl Herbert

• Molecular and cellular mechanisms of cardiovascular ageing
• Oxidative DNA damage and repair in humans
• Mitochondria and cellular oxidative stress

Dave Lambert

Signal transduction associated with the following receptor systems as relevant to pain, sepsis and cardiovascular disease
• Classical and non classical (Nociceptin) Opioid receptors
• Vanilloid (TRPV1) receptors
• Urotensin II receptors

Gerry McCann

• The role of cardiac MRI in the management of patients with suspected cardiac disease

• Aortic stenosis- determinants of symptoms and timing of surgery
• Diabetic cardiomyopathy
• Assessment of novel treatments for STEMI and cardiovascular dysfunction/heart failure

Amit Mistri
• Epidemiology of Stroke and TIA
• Anticoagulation for Stroke prevention in Atrial fibrillation
• Effect of oxygen on cerebral haemodynamics
• The prognostic relevance of blood pressure variability

Gavin Murphy
• Inflammatory Organ Injury Post Cardiac Surgery
• Blood Management

Ross Naylor
• Reducing the risks of carotid surgery
• Factors mediating acute changes in carotid plaque morphology
• Aortic graft infection
• Antiplatelet function during carotid surgery

Chris Nelson
• **Study of the genetic variation underlying cardiovascular disease and related traits via**
- Genome wide association studies
- Genome wide transcriptome analysis
- Mendelian randomisation
- Collapsing statistics
- Runs of homozygosity
- Pathway analysis
- Genome wide Meta-analyses of genetic data
- Whole genome imputation
- Gene-gene interactions
- Work on sex-chromosomes including Y-haplogroups
- Genome wide methylation data

William Nicolson – email: wbn@le.ac.uk

• Action potential duration restitution and its role in the genesis of ventricular arrhythmia and sudden cardiac death.
• Heart failure: in particular optimising cardiac resynchronisation therapy

André Ng
• Autonomic modulation of Electrical Restitution and Ventricular Fibrillation initiation
• Nitric oxide in mediating vagal protection of the heart against VF
• Non-invasive markers of ventricular arrhythmia risk stratification
• Atrial fibrillation - spectral characteristics and catheter ablation
• Electromechanical refinement of multi-site cardiac pacing

Leong Ng
• Studies on the role of cardiovascular peptides in heart disease
• Use of hormonal markers for diagnosis and prognosis in heart disease and to determine therapeutic

response to various drug treatments
• Use of proteomic technologies in biomarker discovery

Ronney Panerai

• Physiological measurement and modelling
• Cerebral haemodynamics, particularly the regulation of cerebral blood flow
• Cardiovascular system regulation, particularly the short-term regulation of arterial blood pressure

Rich Rainbow

• **Regulation of ion channels by intracellular signalling in cardiovascular tissue**
- Vasoconstrictor signalling in smooth muscle and the endothelium in health and disease
- Regulation of vascular and cardiac ion channels
- Calcium signalling in cardiomyocytes during ischaemia, reperfusion and cardioprotection
- The role of ion channels in cardioprotection

Tom Robinson

• Blood Pressure and Acute Stroke
• Autonomic Dysfunction and Acute Stroke
• Cerebrovascular Autoregulation and Acute Stroke
• Multi-centre Stroke Trials
• Predicting Disability in an Ageing Population

Glenn Rodrigo

• **Cardioprotection against Ischaemia/Reperfusion injury of the myocardium and its subsequent hypertrophic remodelling**
- Remote ischaemic conditioning and prevention of acute reperfusion injury
- Remote ischaemic conditioning and chronic remodelling process
- Modifying effects of disease states on the protective effects of remote ischaemic conditioning
• **The cellular basis for the circadian rhythms in the cardiovascular system**
- Autonomic control of cardiac electrical and mechanical activity
- Autonomic control of vascular smooth muscle contraction and its impact on blood pressure

Nilesh Samani

• Cardiovascular genetics
• Role of biological ageing in coronary heart disease

Rob Sayers

• Pathogenesis and outcome of abdominal aortic aneurysms

Iain Squire

• Natriuretic peptides and other biomarkers in heart failure
• Epidemiology of heart failure
• Novel pharmacological therapies in heart failure
• Data linkage as a research tool
• Multicentre trials in heart failure
• Epidemiology and management of acute coronary artery disease

Toru Suzuki

• aortic diseases
• cardiovascular biomarkers/proteomics

Bill Toff

- Cardiac arrhythmia and implantable cardiac rhythm management devices (pacemakers and defibrillators)
- Resuscitation science
- Cardiovascular clinical trials
- Aviation medicine and cardiovascular aspects of fitness to fly

Jonathan Thompson

- Development of novel non-invasive monitoring modalities in acute illness
- Integration of non-invasive monitoring for early diagnosis in acute illness
- The role of properdin and complement activation in human and experimental sepsis
- The nociceptin system in laboratory models of sepsis, in human sepsis and inflammatory states

Tom Webb

- Understanding the molecular and cellular mechanisms of genetic variants associated with coronary artery disease

Shu Ye

- Cardiovascular genetics
- Mechanisms underlying influences of genetic variants on cardiovascular diseases
- Pathogenesis of atherosclerosis
- Roles of proteinases in cardiovascular diseases