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