Overview
This multidisciplinary theme focuses on the study of the pathophysiological mechanisms underlying cardiovascular disease and metabolic diseases such as obesity and diabetes. The theme brings together scientists and physicians with expertise in cell and molecular biology, immunology, physiology, nutrition and appetite regulation, drug development, chemistry, and the regulation of sleep and circadian rhythms.

We aim to translate this understanding into effective treatment with improved nutrition regimes and drug treatments which target the underlying abnormalities and the development of diagnostic methods including molecular bio-markers.

Our state of the art facilities include functional genomics, proteomics and metabonomics suites, a mass spectrometry unit for measurement of stable isotopes for in vivo kinetic studies and in vitro facilities for cellular electrophysiology and imaging. Clinical studies are undertaken in our Clinical Research Centre which has twelve individual rooms and a 12-bedded ward with full clinical/sleep monitoring ability or in the Metabolic Research Unit at the Diabetes Centre, Royal Surrey County Hospital, adjacent to the new purpose-designed academic building for postgraduate medicine.

Areas of particular interest
• Redox-signalling of endothelial dysfunction
• The immune system in atherosclerosis
• The genetics of cardiovascular disease
• Arrhythmias and contractile dysfunction
• Circadian rhythms and cardiovascular function
• Vitamin D, insulin resistance and diabetes
• Lipid metabolism in obesity and diabetes
• Nutritional intervention in cardiometabolic disorders
• Resistant starch in insulin resistance and diabetes

For further information please go to: www.surrey.ac.uk/fhms/research/cardiovascular/
Grants

Dr MD Robertson, L Thomas, Dr D Russell-Jones and Prof AM Umpleby
Resistant Starch as a complementary Treatment for Type 2 Diabetes. 2010-2012. Diabetes UK.

Prof C Fry

Prof B Griffin and Prof AM Umpleby
How does dietary carbohydrate influence the formation of an atherogenic lipoprotein phenotype? 2009-2012. BBSRC.

Prof AM Umpleby, Dr F Shojaee-Moradie and Dr M Stolinski

Prof JM Li
Dynamic phosphorylation of p40phox regulates the interaction with p47phox and the superoxide production by NADPH oxidase in microvascular endothelial cells. 2006-2010. The Wellcome Trust

Prof AM Umpleby, Dr M Stolinski, and Prof DL Russell-Jones

Dr RI Jabr and Prof CH Fry
The role of calcineurin in regulating action potential propagation in the myocardium through connexion-43 dephosphorylation. 2008-2010. British Heart Foundation.

Dr FR Green