Professor Andrew Trafford, BVSc, MRCVS, PhD

I am a Professor of Cardiac Pathophysiology and a British Heart Foundation Senior Basic Science Research Fellow. My research fellowship is entitled - "Dysfunctional beta-adrenergic signalling in heart failure: Impact on cellular calcium homeostasis and role as a therapeutic target"

Research Group - 8 PhD and MPhil students, 5 post doctoral research associates, 2 research technicians. Our group is primarily supported by The British Heart Foundation and has a current grants awarded to > £2 million in value. Our research activities focus on the control and mis-control of contraction and arrhythmia mechanisms in the heart.

Teaching - I participate in a number of undergraduate units delivering both core lectures (Cardiovascular Systems in Health and Disease), and practical sessions (Pharmacology). I also deliver a number of post-graduate tutorials. I also offer a number of undergraduate (BSc, MBChB) and MRes laboratory projects and literature review topics.

Administration -I am an editorial board member of several journals including Journal of Molecular & Cellular Cardiology, Frontiers in Cardiac Physiology and Europace. I have also (2009-13) been a council member of The Physiological Society and a member of the International Program Steering Committee for The International Union of Physiological Sciences (2011-13).

Research interests

Heart disease is a major cause of premature death and increased morbidity in Western societies and claims more lives that all cancers combined. Our research, in broad terms, is aimed at defining the cellular and molecular mechanisms that are altered in the diseased heart. We are particularly interested in why it is that heart disease occurs mainly in the elderly and whether ageing itself causes changes to the hearts structure and the way it contracts which predisposes it to develop arrhythmias or to fail. Our longer term aims are to identify novel therapeutic approaches that can be translated from the experimental setting to the clinical arena in order to decrease the burden of heart disease or even cause its repair. To this end our research has three interlinked strands:

Heart Failure and Arrhythmias - using animals models to understand the cellular and molecular mechanisms responsible for contractile dysfunction and high incidence of arrhythmias in patients with heart failure.

Ageing - using animal models to determine the alterations in cardiovascular physiology using both in vivo and in vitro methodologies

Extracellular Matrix Remodelling in the Heart - examining the alterations in the composition and structure of the cardiac ECM to determine the contribution of the hearts non contractile elements to deteriorating cardiac function in disease states and during ageing.

Keywords

Heart Failure, Ageing, Arrhythmias, Extracellular Matrix