Official opening of the Bristol Heart Institute (BHI)

The BHI was officially launched on 30 November 2017 at the Life Sciences Building, University of Bristol. The meeting was attended by more than 100 BHI members and guests. Professors Gianni Angelini & Alastair Poole introduced speakers representing different cardiovascular themes within the University. Professor Metin Avkiran (BHF Associate Medical Director) was the keynote speaker.
New University Appointment in Cardiovascular Physiology

Steve Harmer has recently been appointed a lecturer in cardiovascular physiology in the School of Physiology, Pharmacology & Neuroscience. Steve graduated with a first-class BSc (Hons) in Molecular Biology in 2002 from the University of Reading. He then undertook a PhD in Molecular Endocrinology at the University of Reading in the laboratory of Professor Philip Lowry and Dr Andrew Bicknell. After his PhD training Steve joined Professor Andrew Tinker’s group at University College London (UCL) to pursue post-doctoral research investigating the role of defective potassium ion channel trafficking in the Long QT Syndrome (LQTS).

In October 2011, he moved to the William Harvey Research Institute at Queen Mary University of London. During this period his work established that mutations in the KCNQ1/KCNE1 channel complex, which cause LQTS types 1 and 5 respectively, act in the majority of cases to cause defects in channel trafficking.

In January 2013, he was awarded an Intermediate Basic Science Research Fellowship from the British Heart Foundation (BHF). The focus of his research fellowship is to characterise the cellular and molecular mechanisms that underlie how cardiac potassium ion channels traffic to the cell surface and why mutations in these ion channels act to disrupt this process.
News & Events

Professor Caputo & repairing hearts with congenital disease

Prof Caputo tells Sarah Brealey how BHF support is helping him improve lives. Read full article here [https://www.bhf.org.uk/heart-matters-magazine/research/massimo-caputo](https://www.bhf.org.uk/heart-matters-magazine/research/massimo-caputo)

On December 4 2017, Professor Caputo hosted the British Heart Foundation (BHF) Ambassador Pippa Middleton who pledged her support for the charity's Christmas Appeal for young heart patients. She visited the paediatric cardiac ward at Bristol Royal Children’s Hospital to cheer up patients and listen to the many inspirational stories of young people living with a heart condition.

Researchers from Bristol Renal led by Dr Becky Foster has published a novel assay that provides sensitive measurement of physiologically relevant changes in albumin permeability in isolated human and rodent glomeruli. Glomeruli are specialized small blood vessels where ultrafiltration of blood occurs in the kidney.

When these structures become leaky, albumin passes through and can be detected in the urine (albuminuria), indicating kidney (glomerular) dysfunction. However, the kidneys compensate for albumin leak, therefore early changes in the urine go undetected. Therefore, a direct measure of glomerular albumin permeability would be more sensitive.

The Bristol team has developed an assay to measure albumin permeability in isolated glomeruli (see figure below). Permeability values were comparable to those measured previously measured in vivo. Permeability values were validated using various pathophysiological conditions as anticipated. A particularly exciting finding was that the growth factor, angiopoietin-1, reduced the albumin permeability associated with diabetes in rodents. This was through restoration of glomerular endothelial glycocalyx (the carbohydrate protective lining of all blood vessels), highlighting a novel potential therapeutic approach.

G**lomerular albumin permeability assay.** An isolated glomerulus containing fluorescence-labelled albumin is trapped using a glass blocker on a confocal microscope (A). The perfusion bath containing labelled albumin (green) is exchanged (wash) for that containing unlabeled albumin (black). The decline in fluorescence intensity in a glomerular capillary lumen (white asterix) is compared to an area in the perfusion bath (yellow asterix) and plotted (B). Glomerular albumin permeability can be calculated from this.

**In press: Kidney International (ID: KINT_ki-07-17-1172)**

A novel assay provides sensitive measurement of physiologically relevant changes in albumin permeability in isolated human and rodent glomeruli.

Sara Desideri,¹ Karen L. Onions,¹ Yan Qiu,¹ Raina Ramnath,¹ Matthew J. Butler¹ Chis R. Neal,¹ Matthew L. R. King,¹ Andrew E. Salmon,¹ Moin A. Saleem,¹ Gavin I. Welsh,¹ C. Charles Michel,² Simon C. Satchell,² Andrew. H. J. Salmon¹ and Rebecca R. Foster.¹

¹ Bristol Renal, Bristol Medical School, University of Bristol. ²Department of Bioengineering, Imperial College, London, UK
Industry Engagement and Translation

***support available – come and talk to us***

The Business Fellow for the Faculty of Biomedical Sciences, Professor Stuart Mundell acts as a facilitator for any industry-related activities within FBS and the BHI. Charlotte Bell and John Halliwell the respective Knowledge Exchange Associate (KEA) for the Faculty of Biomedical and Health Sciences are here to help with building partnerships, securing collaborative funding and setting up knowledge exchange activities e.g. secondments, industry themed workshops, CASE studentships.

All would like to hear from you about your current collaborations, so they can understand how you are currently engaging with industry, so please do get in touch.

In 2018 there are plans to organize an interactive event to further strengthen links from the BHI with industry. It will provide engagement opportunities for industrialists and external stakeholders to meet researchers and explore areas of mutual interest potentially leading to future partnerships.

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The early days of Cardiovascular Research at the Bristol Royal Infirmary

The full article by Saadeh Suleiman can be found at this link:
http://www.bristol.ac.uk/media-library/sites/cardiovascular/documents/RFL7-The%20first%20team.pdf
Congratulations!

- **Professor Paolo Maddedu**
  This year’s Health and Care Awards winners are just a small handful of the 30,000 people working tirelessly every day in the city’s GP surgeries, hospitals, community centres and research labs. [http://www.bristolpost.co.uk/news/health/health-care-awards-2017-winners-680624#ICID=sharebar_twitter](http://www.bristolpost.co.uk/news/health/health-care-awards-2017-winners-680624#ICID=sharebar_twitter)

- **Dr. Thomas Hinton** was awarded a prize at the European Society for Cardiology for his abstract. [https://www.escardio.org/The-ESC/About/Awards/Moderated-Posters-Awards](https://www.escardio.org/The-ESC/About/Awards/Moderated-Posters-Awards)

- **Ms. Zoe Adams** was awarded a BHF basic science PhD studentship to work on: Sex differences in the role of sympathetic nerve activity in the development of hypertension in humans.

**Recent PhDs**

- **Megan Swim**: Stem cell tissue engineering and potential application in corrective congenital heart surgery.
- **Raheleh Amini**: The role of cyclic-AMP/PKA/Epac signalling in cardioprotection of diseased heart.
- **Steve Simmonds**: Regulation of macrophage behaviour by Wnt signalling: implications for atherosclerosis.
- **Priyantha Kulatilake**: Altered Wnt/β-Catenin Signalling in the Kidney as a Result of Ageing or Hypertension.
- **Caroline Norris**: Pericardial Adipose Tissue Stem Cell Expansion and Characterisation for Regenerative Medicine Applications.

**Cardiovascular External Examiners**

Please invite postgraduate external examiners to give a seminar during their visit to Bristol. The BHI would help with advertising and if necessary would help financially.

**BHI logo**

Please try and use the BHI logo as part of your signature.


The Steering Group of the Bristol Heart Institute
Currently Include:

**Director:**
Gianni Angelini, BHF Professor of Cardiac Surgery and Cardiovascular theme lead at the NIHR Bristol Biomedical Research Centre

**Deputy Director:**
Alastair Poole, Professor of Pharmacology and Cell Biology

**Members:**
- Dr Chiara Bucciarelli-Ducci *Imaging*
- Prof Massimo Caputo *Congenital Heart Surgery*
- Prof Sarah George *Cardiovascular Signalling*
- Dr Emma Hart *Autonomic Regulation & Dysfunction*
- Dr Andrews James *Cardiac Biology*
- Dr Thomas Johnson *Cardiology*
- Prof Stuart Mundell *Vascular Biology & Atherothrombosis*
- Prof Ruth Newbury-Ecob *Clinical Genetics*
- Dr Simon Satchell *Renal, Diabetic & Hypertensive Disease*
- Prof Saadeh Suleiman *Cardiac Biology*
- Dr Nicholas Timpson *Population Health and Epidemiology*
- Prof Robert Tulloh *Consultant Paediatric Cardiologist*
- Collette Sheahan *RED liaison*

If you have anything you wish to discuss in relation to the newsletter please contact Saadeh Suleiman (m.s.suleiman@bristol.ac.uk).

Please send comments, videos, publications, events, news etc. to Clair.Dunbavand@bristol.ac.uk to populate the website.