Welcome by Rob Tulloh, Chair of BCV

Welcome to the last issue of the BCV Newsletter for this academic year. Detailed inside are a number of outstanding awards from the British Heart Foundation and other funders, and some informative articles on services and achievements which will appeal to the wider BCV community.

The outcome of the recent referendum has introduced a level of uncertainty with a number of our members with respect to residency, funding etc. I would like to echo the sentiments in Vice-Chancellor Hugh Brady’s various communications, in that Bristol CardioVascular values the contributions of the WHOLE of its community and we will continue to meet with University senior staff to ensure all staff and students receive all possible support. The University has created a new webpage which collates information pertaining to Brexit as and when events unfold, which you find of interest.

I would like to reassure everyone that it will be very much business as usual for BCV – we will continue to unfold our strategic priorities with respect to translation, inter-disciplinary collaboration and integration of facilities and expertise. We are very excited by the prospect of a planned BCV public engagement event to be held in mid 2017, which we expect to host at a city-central location, where we anticipate welcoming several hundred members of the public to follow the researchers’, clinicians’, support and facilities staff, and patients’ journeys. These would be combined into a narrative that would provide a holistic view of the contributions each area makes to research, management and treatment of cardiovascular disease. If anyone would like to help organise such an event, please do contact us; the endeavour will require a small army of volunteers, especially on the day, to make it successful.

May I wish everyone an enjoyable summer, hopefully with a bit more sunshine and warmth and a little less rain, and I look forward to meeting you again in the next issue.
**EVENTS**

**Brigstow ideas lunches - People, accountability and legacy**  
4 July 2016, 12.00 - 14.00. Verdon-Smith Room, Royal Fort House

**RCUK Global Challenges Research Fund Town Meetings - London**  
4 July 2016, 12.00 - 16.30. The Amba Hotel, London

**UK Research Office Talk for the Biomedical Sciences and Health Sciences Faculties**  
6 July 2016, 10.00 - 12.00. C44 Biomedical Sciences Building

**RCUK Global Challenges Research Fund Town Meetings - Cardiff**  
6 July 2016, 12.00 - 16.30. The Angel Hotel, Cardiff

**EPSRC Engineering Theme Open Session**  
7 July 2016, 11.30 - 12.45. EPSRC Engineering Theme team, Queens Building Lecture Theatre 1.15

**Don't wait to be asked!**  
12 July 2016, 12.30 - 14.30. Jill Schofield (Head of School of Economics, Finance and Management), venue tbc

**Soapbox Science 2016**  
16 July 2016, 10.00 - 17.00. Across Bristol

**GW4 Translational Biomedical Network: Bath event**  
18 July 2016, 13.30 - 16.30. University of Bath, 4 West 1.2 and Atrium

**Enhancing Facilitation Workshop**  
6 September 2016, 8.45 - 13.00. Dartington Suite, UWE, Frenchay

**1st Joint UK–Italian Purine Club Meeting**  
13 - 14 September 2016

**Engage 2016: Building Connections, Sharing Ideas**  
15 September 2016, 9.00 - 14.00. Richmond Building, Queens Road

**Symposium: Perinatal Medicine and the newborn brain**  
24 September 2016, 12.45 - 17.20. Chemistry Theatre, Cantock’s Close

**Brigstow ideas lunches - Ethics and Practices**  
3 October 2016, 12.00 - 14.00. Verdon-Smith Room, Royal Fort House

**Dr Rossa Brugha, Population Health and Gene Therapy, National Heart**
NEWS

Funding Successes with the British Heart Foundation

Dr Ingeborg Hers (PI) with Dr Samantha Moore (co-applicant) have been awarded a British Heart Foundation project grant entitled Glycogen synthase kinase-3a and glycogen synthase kinase-3b; yin and yang in platelet function and thrombus formation. £250,080 was awarded over three years.

Dr Ingeborg Hers (PI) has been awarded a second British Heart Foundation project grant for Identification of the molecular targets by which glycogen synthase kinase 3 regulates human platelet function and thrombosis. The amount is £180,601 for two and a half years.

Also in receipt of a BHF project grant was Dr Simon Satchell for his project entitled Restoring coronary microvascular endothelial glycocalyx as a therapy for diabetic cardiomyopathy. This collaborative three-year project, funded to the tune of £242,243, includes co-applicants Dr Yan Qiu, Prof Paolo Maddedu, Dr Becky Foster, Dr Gavin Welsh and Dr Andrew Salmon and named collaborators Dr Steve White and Prof Saaded Suleiman. This is a continuation of a current BHF project grant in which the team have shown that coronary microvascular endothelial cell (CMVEC) glycocalyx damage accompanies development of diabetic cardiomyopathy and that CMVEC glycocalyx disruption impairs cardiac function in rodent models. As glycocalyx damage is also key in the pathogenesis of microalbuminuria, these observations provide a mechanistic link between microalbuminuria and cardiac disease. The new project will confirm that glycocalyx damage contributes to the cardiac dysfunction seen in diabetes, and show that this can be rescued by restoration of the glycocalyx or prevention of its damage. This project will identify the endothelial glycocalyx as a therapeutic target in diabetic cardiomyopathy.

Prof Neil Marrion (PI) along with co-applicants Prof Jules Hancox, Dr Andrew James and Prof Raimondo Ascione have been awarded a British Heart Foundation grant entitled Determination of the SK channel composition contributing to atrial action potential duration. The £70,133 grant will be completed over a year.

Prof Jules Hancox (PI) with co-applicants Prof Clive Orchard and Prof Henggui Zhang (University of Manchester) have been awarded a British Heart Foundation project grant entitled Potassium channel linked short QT syndrome - a mechanical as well as electrical disorder. £263,540 was awarded over three years.
Three Minute Thesis Competition

Congratulations are extended to Mr Pouya Saghedi Pour who successfully competed in the semi-finals of the 3MT and made it through to the finals.

Using Skin Cells to Mend Broken Hearts
Cardiovascular disease is the leading global cause of death, accounting for 17.3 million deaths per year, a number that is expected to grow to more than 23.6 million by 2030. At the very heart of this global problem are heart diseases initiated by heart attacks for which the damaged and necrotic heart tissue has no cure.

My research here at the Bristol Cardiovascular and Heart Institute, is focusing on exploring the research methods in conversion of patients skin cells (fibroblasts) into cardiac cells (cardiomyocytes) through the use of the body's own cardiac transcription factors, present in the early embryo, in combination with microRNAs with the primary focus of having the converted cardiac cells being injected directly into the patient's infarct site, thereby curing the broken heart tissue with the patient's own cardiac cells.

Public Engagement

The Public Engagement team supports and promotes engagement beyond academia at UoB. They offer the following:
- Advice on developing engagement activities
- Help with funding applications for engagement, including as a route to impact in research grants
- Delivering teaching and training on engagement and impact
- Enabling sharing of good practice internally through an engagers’ network and our annual Engage conference, as well as externally with other universities and engagement practitioners
- Co-ordinating a programme of grant-funded innovative engagement activities
- Ensuring engagement and impact are recognised and embedded in University structures and processes

Public engagement is an exciting and rewarding part of research, working out how best to communicate the ideas from research to stakeholders, in ways that will help change lives for the better. The team is available to help researchers disseminate their work to the wider community, assist in finding partners in industry, policy, healthcare etc., and provide support in achieving greater impact, both at grant application and reporting stages.

The Public Engagement office publishes a bi-monthly Engagers’ Digest for funding opportunities, training, news and more for those interested in public engagement. Register by emailing cpe-info@bristol.ac.uk.
P2X3 Antagonism Reduces Hypertension

Afferent Pharmaceuticals who collaborate closely with Prof Julian Paton (pictured right), specialise in the development of small molecule compounds targeting the P2X3 receptor for the treatment of poorly managed and common neurogenic conditions. They recently presented data from preclinical research that validates P2X3 as a new therapeutic target for hypertension at the American Thoracic International Conference in May 2016. AF-130 is an orally available compound that selectively blocks the P2X3 receptor, and is Afferent’s second-generation P2X3 antagonist.

Data show that aberrant carotid body signalling in two preclinical models of hypertension is caused in part by up-regulation and stimulation of P2X3 receptors of the carotid sinus nerve. The carotid body critically monitors changes in the blood oxygenation and helps the autonomic nervous system to control cardiovascular and respiratory activity. After treatment with the P2X3 inhibitor, they were able to inhibit the aberrant carotid body signalling that leads to hypertension.

Proof-of-concept Phase II Clinical Trials are now planned to continue this work.

New Enterprise Competition

The competition is the University’s flagship business idea challenge which is open to students, staff, and recent graduates. Whilst there are different stages to the competition, all you really need is an original idea for a self-sustaining business. It’s open to both commercial and social enterprises, and includes everything from simple conceptual ideas through to businesses in their first year of trading.

Throughout the competition participants are provided with educational events, opportunities to get feedback and support, and the chance to meet all kinds of useful contacts.

Each year the total prize pot is around £35,000, all kindly donated by sponsors. This includes cash prizes, packages of legal support, and business acceleration services.

The deadline for applications is 1 September 2016. Details on how to apply are on the website.
NIHR Awards: Outstanding Contributions

Senior Investigators are the NIHR’s preeminent researchers and represent the country’s most outstanding leaders of clinical and applied health and social care research. They are fundamental to the formation of the NIHR Faculty, through:

- Providing research leadership to the NIHR Faculty, promoting clinical and applied research in health and social care
- Helping plan and speak at events
- Hosting visiting fellows and mentor trainees
- Constituting a network of experts, able to provide advice to the Department of Health’s Director General for Research and Development

Thirty-four new Senior Investigators were appointed, including:
- Prof Ashley Blom, Orthopaedics
- Prof Rona Campbell, Preventive Medicine
- Prof Matthew Hickman, Epidemiology
- Prof Christopher Salisbury, Primary Health Care

In addition, four Emeritus Senior Investigators were appointed:
- Prof Gianni Angelini, Cardiac & Cardiovascular Systems
- Prof Jenny Donovan, Public Health
- Prof David Gunnell, Epidemiology & Prevention of Chronic Disease
- Prof Tim Peters, Economics, Statistics & Biostatistics

It is a considerable achievement to attain Emeritus status, holders having succeeded twice in open competition and completed two terms as a Senior Investigator. Criteria include quality and volume of internationally excellent research, relevance to patients and the public, and impact on improvements in healthcare.

More info...

Bioinformatics Group

A new bioinformatics group has been created (currently led by Tom Williams in Earth Sciences) and a dedicated seminar series and wiki are being set up. If anyone would like to contribute to the wiki, please fill in the Google document. The information in the document will go towards populating the site.

Bioinformatics expertise is available through Dr Stephen Cross (pictured), Research Assistant in Imaging, who has been in place since Feb 2016 thanks to funding by the EBI. The post, based at the Wolfson Bioimaging Facility, is for two years, and it is anticipated that it will have a demonstrable impact on research.
Horizon 2020 Funding

Following the result of the referendum on 23 June 2016, The International Team in Research Development wish to confirm that there will be no immediate impact with regards to Horizon 2020 funding. All existing grants will continue to run as normal and anything currently under submission or in the granting process will also continue as normal. As many of you will have read, we will continue to be an EU member state for two more years at least and during this time we will be eligible to apply to each and every call under Horizon 2020.

If the UK does eventually withdraw from the EU then there is a possibility that we will have negotiated associated status to H2020, like other countries such as Norway and Israel. Universities UK will be leading discussions around this with the government, and Bristol will be fully engaged with this process as well as via the Russell Group. If no agreement can be reached then this would likely mean the UK could no longer access H2020 funding but this would not come into effect until October 2018 at the earliest, based on current predictions.

In summary, in the short term it is very much business as usual and we would encourage everyone to continue to apply. If anyone has any concerns or questions, please do contact the EU and overseas team.

Young Investigator of the Year Award

Dr Adam Perriman, Senior Research Fellow in the School of Cellular and Molecular Medicine, has won the British Biophysical Society’s Young Investigator of the Year award and medal.

The award was introduced in 2002 to celebrate an outstanding contribution in any area of biophysics made by a young researcher in the UK and Ireland and is presented every two years to those within 10 years of completion of their PhD. The winner receives a cheque for £1000 and a medal to commemorate the event.

Adam’s research focuses on the construction and study of novel hybrid biomolecular systems using advanced physical techniques. His research spans the fields of nanotechnology, biophysical chemistry, and tissue engineering.

He will receive his prize at the Society’s 2016 meeting in July at the University of Liverpool, where he will also deliver a plenary lecture.
Genomic Medicine Centre in the West of England

A partnership made up of NHS provider organisations in Bristol, Bath, Cheltenham and Gloucestershire, universities, the West of England Academic Health Science Network, NHS commissioners and patient organisations has been designated the West of England NHS Genomic Medicine Centre (WEGMC).

Opened in February '16, the centre is part of a three year project to transform diagnosis and treatment for patients with cancer and rare diseases. This involves collecting and decoding 100,000 human genomes that will enable researchers to understand more about specific conditions and could allow personalisation of drugs and other treatments to specific genetic variants.

Eligible patients will take part in a test to be processed at Southmead before being sent nationally for sequencing. Some patients could benefit from a quicker conclusive diagnosis for a rare and inherited disease or cancer because treatment may be targeted at a particular genetic change.

Prof Ruth Newbury-Ecob is a leading member of the partnership, based in the Clinical Genetics Service at University Hospitals Bristol, specialising in rare diseases including inherited cardiac conditions; she is working to develop new genetic testing, translating research findings into NHS services for patients across the UK.

Appointments to the Research Councils 2016

The Research Councils fund research, research facilities and postgraduate training. The Appointments Panels for four of the Research Councils are seeking applications from suitably qualified academics or experienced individuals from the industrial/business/financial/government/voluntary sectors, to fill a number of vacancies on their governing Councils, including some with Audit Committee responsibilities. These vacancies are for part-time, fixed term membership which are expected to arise during 2016:

⇒ Economic and Social Research Council—four vacancies (3 academic and 1 private sector)
⇒ Engineering and Physical Sciences Research Council—two vacancies (1 academic and 1 non-academic)
⇒ Medical Research Council—four vacancies (1 industry, 1 lay, 2 scientific)
⇒ Science and Technology Facilities Council— one vacancy (academic)

The closing date for the receipt of applications is Tuesday 05 July 2016.

Further information, application forms and interview dates can be found on the respective websites linked within the text.
**Translational Biomedical Research Centre**

The TBRC is a new national centre unique in Europe. On 9 June 2016 the £6.2M Centre, funded by UoB, MRC and BHF, was opened by MRC Chief Science Officer Dr Declan Mulkeen and BHF Medical Director Prof Peter Weissberg.

Translational medicine takes *in vitro* lab science and aims to prove it has positive effects on a whole organism. Prior to human trials, new discoveries are tested in animals to ensure safety and beneficial health outcomes, e.g. to test new medical devices such as heart valves, vascular stents, joint replacement prostheses, instrumentation used for key-hole surgery, devices to deliver new drugs in patients or to test novel drugs and stem cells.

TBRC will use experimental models highly relevant to human disease and anatomy to test approaches, devices or therapies in a state-of-the-art animal hospital theatre operating at NHS standards. Results of any interventions will be tracked in living animals using scanners, which will allow researchers to develop new treatments and interventions whilst reducing the number of animals needed as they are able to monitor animals over time. During and after treatments animals will be treated by specialists who will ensure the highest standards of animal welfare and reproducibility of the procedures.

The centre will also have a bio-bank on site which will reduce the future need for animal tissue samples.

TBRC will operate under the One Health concept that recognises the health of humans is connected to the health of animals and the environment, meaning that some research could benefit animals in equal measure. Veterinary clinicians will develop new methods to treat new medical devices such as heart valves, vascular stents, joint replacement prostheses, instrumentation used for key-hole surgery, devices to deliver new drugs in patients or to test novel drugs and stem cells.

For further information, a meeting or a tour of the facility, contact tbrc@bristol.ac.uk

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**Clinical Primer Award**

Offered by the Elizabeth Blackwell Institute for Health Research, Clinical primers are aimed at Medical & Veterinary clinical graduates and are designed to give outstanding early career clinicians the chance to experience a world-class research environment for the first time.

Five primers were awarded in 2016, including one to Georgina Newman (pictured right) from the School of Clinical Sciences, to pursue research into *Diabetic Nephropathy*. 
Funding Successes

Prof Moin Saleem has received £1.4M industry investment for Comprehensive Nephrotic Syndrome Cohort/ National UK Research Translational Enterprise alongside five pharmacological partners.

This is a partnership investment from four industry collaborators to establish a national network of renal research nurses, project managers and high quality biobanking (at the UK Biobank, Milton Keynes). The initial investment will be used to set up two specific patient cohorts, with an infrastructure in place to add more cohorts, either for industry or academic projects.

Dr Giovanni Biglino, Lecturer in Cardiovascular Bioinformatics & Medical Statistics based at the Bristol Heart Institute, recently received a Wellcome Trust Society Award to support his project The Heart of the Matter that he will co-lead with artist Sofie Layton. The project is an interdisciplinary exploration of the human heart, with a strong participatory component, and will culminate in 2018 with a multimedia exhibition travelling London, Bristol and Newcastle.

Bio-ink for 3D Printing with Stem Cells

A new stem cell-containing bio ink allows 3D printing of living tissue, known as bio-printing. The bio-ink contains two different polymer components: a natural polymer extracted from seaweed, and a sacrificial synthetic polymer used in the medical industry. The synthetic polymer causes the bio-ink to change from liquid to solid when the temperature is raised, and the seaweed polymer provides structural support when the cell nutrients are introduced.

Lead researcher Dr Adam Perriman explained the challenges in designing the bio-ink, which went through several iterations before being finalised:

You need a material that is printable, strong enough to maintain its shape when immersed in nutrients, and that is not harmful to the cells. The special bio-ink formulation was extruded from a retrofitted benchtop 3D printer, as a liquid that transformed to a gel at 37°C, which allowed construction of complex living 3D architectures.

The team were able to differentiate the stem cells into osteoblasts and chondrocytes to engineer 3D printed tissue structures over five weeks, including a full-size tracheal cartilage ring.

What was really astonishing was when the cell nutrients were introduced, the synthetic polymer was completely expelled from the 3D structure, leaving only the stem cells and the natural seaweed polymer. This, in turn, created microscopic pores in the structure, which provided more effective nutrient access for the stem cells.

**ELIZABETH BLACKWELL FUNDING OPPORTUNITIES**

**EBI Workshops Funding**
Support for interdisciplinary workshops in health research at a new or emerging interface between two or more disciplines. Applications are reviewed on a rolling basis.

**EBI Catalyst Fund**
Pump priming awards can support the most promising and ambitious ideas across the widest interdisciplinary boundaries. These projects will be identified largely through the running of workshops to explore new possibilities and identify the big questions. Applications are reviewed on a rolling basis.

**Returning Carers Scheme**
UoB has introduced a Returning Carers’ Scheme (RCS) to support academic staff across all faculties in re-establishing their independent research careers on return from extended leave (16 weeks or more) for reasons connected to caring - such as maternity leave, adoption leave, additional paternity leave or leave to care for a dependent.

Deadline for applications is 30 April and 31 October each year.

**FUNDING OPPORTUNITIES**

A calendar of potential funding opportunities for cardiovascular sciences has been set up via Research Professional (RP). Subscribing to a calendar will place the entries in your own calendar, which will update automatically according to pre-specified search criteria. Staff and students have FREE access to Research Professional online from all computers on the University network. You can create your own personalised funding opportunity e-mail alerts by registering with RP. Find out all about it on the RED website.
**British Heart Foundation**

**Strategic appointment grants**

Closing Date: none  
Award amount: £3M

Aim to help universities recruit a high-calibre overseas scientist for a BHF chair. Full applications will not be considered without prior approval to submit. The award is intended to cover the professor’s salary and that of their immediate support staff as well as a programme of research for five years.

**British Heart Foundation**

**Immediate postdoctoral basic science research fellowship**

Closing Date: none  
Award amount: unspecified

Enable newly qualified postdoctoral researchers to make an early start in developing their independent cardiovascular research careers. Candidates should be in the final year of their PhD studies or have no more than one year of postdoctoral research experience from the date of their PhD viva. The fellowship should not be held in the institution where the PhD was carried out. The fellowship is awarded for a duration of three years with the possibility of a one-year extension. The award may include the applicant’s salary, research consumables and small items of equipment. The foundation encourages fellows to spend up to 18 months overseas or at a second UK institution. The award may also include travel costs, subsistence and contributions to healthcare insurance.

**British Heart Foundation**

**Intermediate basic science research fellowships**

Closing Date: none  
Award amount: unspecified

Enable postdoctoral researchers in the field of cardiovascular research to become research leaders in established research institutions in the UK. Applicants must have at least three to six years of postdoctoral experience with a track record of high-impact research papers. Residency requirements to not apply. Fellowships normally last five years, with a two-year extension possible. Part of the award may be spent overseas. Funding may be used to cover the salary of the applicant, the salary of a technician or a research assistant, research consumables and essential equipment. For overseas visits, funding may be available for return travel for the fellow and immediate family, subsistence, a healthcare contribution and a £3,000 housing contribution.

**British Heart Foundation**

**Strategic capital grants**

Closing Date: none  
Award amount: unspecified

Support major research institutions with large capital needs for their cardiovascular research
strategy. Applications will not be considered without prior approval to submit. It is unlikely that more than one such award will be made to any institution in a five-year period.

**British Heart Foundation**

**Advanced training awards**

Closing Date: none  
Award amount: £30,000

Enable researchers to retrain and gain additional expertise in an established research institution in the UK. Researchers must be moving into a different field of science, for example from cell biology to bioinformatics or entering cardiovascular science from a different discipline. Applications may include basic or applied clinical research relevant to the cardiovascular system. Collaborative research between clinicians and basic scientists is encouraged.

**British Heart Foundation**

**Clinical research training fellowships**

Closing Date: none  
Award amount: £10,000

Enable medically qualified graduates to undertake research training in established research institutions in the UK. The primary supervisor must devote at least 10 per cent of their time to supervising the student, and a second supervisor should also be identified. Students should have completed foundation year 2, but should not yet have obtained their certificate of completion of training. Fellowships may last two or three years to allow for the completion of either a PhD or an MD or equivalent.

**British Heart Foundation**

**Translational awards**

Closing Date: none  
Award amount: £250,000

This award will help to bridge the funding gap between promising innovations and the clinic with the aim of accelerating advances in cardiovascular science for patient benefit. Proposed technologies may include therapeutics; devices; diagnostics; imaging technologies; algorithms and computer modelling.

**British Heart Foundation**

**Clinical research leave fellowships**

Closing Date: none  
Award amount: unspecified

Enable NHS staff to undertake dedicated PAs in research in a recognised UK centre of excellence in cardiovascular medicine. Clinical studies may also be supported. NHS consultants with recent research records may apply. Awards may be for up to one year full time or up to three years part time. They include reimbursement of reasonable costs to cover relinquished PAs.
and research consumables.

**British Heart Foundation**  
**Project grants**

Closing Date: none  
Award amount: £299,999

Support short-term research projects lasting up to three years. Grants may cover salaries, research consumables and equipment.

**British Heart Foundation**  
**Career re-entry research fellowships**

Closing Date: none  
Award amount: unspecified

Enable postdoctoral researchers to re-establish their careers in cardiovascular science in an established UK research institution following a break. Successful postdoctoral researchers who have taken a career break of one year or more are eligible to apply. Fellowships normally last for four years with the possibility of a one-year extension. Awards may include salaries, research consumables and equipment.

**British Heart Foundation**  
**Non-clinical PhD studentships**

Closing Date: none  
Award amount: £30,000

Enable graduates to acquire foundation training in cardiovascular research in order to proceed to a PhD degree at a university in the UK. Each application must be made by an established investigator who will act as the supervisor for a named or unnamed student. The supervisor must devote at least 10 per cent of their time to supervising, and a second supervisor should also be identified. Students should have a 1st class or high upper 2nd class BSc degree, or MSc with merit or distinction. Residency requirements do not apply. Studentships are awarded for three years and may include a stipend, tuition fees and research consumables.

**British Heart Foundation**  
**Senior basic science research fellowships**

Closing Date: none  
Award amount: unspecified

Enable a senior researcher to undertake basic or clinical research relevant to the cardiovascular system at an established research institution in the UK. Applicants should be individuals who are expected to reach readership or chair-level within five years. They should usually have at least six to 10 years of successful postdoctoral work with an established track record of research leadership. Residency requirements to not apply.
The fellowship period is five years, with an option to spend part of the award overseas. Funding may be used to cover the salary of the applicant, the salary of a technician or a research assistant, research consumables, essential equipment and travel to present or attend scientific conferences. For overseas visits, funding may be available for return travel for the fellow and immediate family, subsistence, a healthcare contribution and a £3,000 housing contribution.

**British Heart Foundation**

Senior clinical research fellowships

Closing Date: none  
Award amount: unspecified

Provide a career opportunity in an established research institution in the UK for outstanding individuals who are expected to reach readership or chair level within 10 years in the field of cardiovascular research. Applicants should have three to six years of postdoctoral experience and have obtained their certificate of completion of training. They may have previously held a clinical lectureship or intermediate fellowship.

The fellowship period is five years, with an option to spend part of the award overseas. Funding may be used to cover the salary of the applicant, the salary of a technician or a research assistant, research consumables, essential equipment and travel to present or attend scientific conferences. For overseas visits, funding may be available for return travel for the fellow and immediate family, subsistence, a healthcare contribution and a £3,000 housing contribution.

**British Heart Foundation**

Travel fellowships

Closing Date: none  
Award amount: unspecified

Enable postdoctoral researchers to visit laboratories abroad either for a short period to acquire specialist knowledge or expertise, or for a longer period to carry out a research project that cannot be done in the UK. Applicants should be individuals with three or more years of postdoctoral experience. They should hold a post in the UK and a guaranteed post to return to after the fellowship.

Fellowship periods range between one month and one year. Funding may be used to cover return travel for fellows and their immediate family, subsistence, replacement salary, a healthcare contribution and a £3,000 housing contribution.

**British Heart Foundation**

Clinical study grants

Closing Date: none  
Award amount: >£300,000

Support clinical trials and other clinical studies costing more than £300,000 or lasting longer than three years. The PI must be a senior researcher with a strong track record of grant sup-
port and an internationally recognised research profile. Any multicentre interventional clinical trial should be managed by a registered clinical trials unit, and should include a member of the clinical trials unit as a co-applicant or principal investigator. Grants are available for a maximum duration of five years and may cover staff salaries, research consumables and essential research equipment.

**British Heart Foundation**

**Infrastructure grants**

Closing Date: none  Award amount: £1M

Aim to contribute towards the cost of providing essential infrastructure to support cardiovascular science in any academic institution. Funding can be used to support building refurbishment or to buy major pieces of equipment to support the activities of several cardiovascular scientists. Senior cardiovascular scientists may apply. Grants are worth up to £1 million, but cost-sharing is required. A significant proportion of the required funds, usually half, must be available locally.

**British Heart Foundation**

**Personal chairs**

Closing Date: none  Award amount: £450,000

Support individuals with outstanding cardiovascular research achievements and leadership qualities. The professors are expected to bring research leadership at an internationally competitive level and a commitment to training future cardiovascular scientists. They must support and enhance the overall cardiovascular research strategy of the university and the added value to the BHF of making the award and they must devote the majority of their time to the direction of research with limited administrative, clinical or teaching duties.

Senior research leaders in clinical or basic cardiovascular science with an established international reputation, substantial output of high impact research papers and a long-term track record of attracting significant peer-reviewed research grant income as principal investigator are invited to apply. Applicants are normally less than 55 years old at the time of appointment. Professorships are awarded in partnership with universities that can demonstrate a strong commitment to cardiovascular research. An outline case should first be made by the Head of School or Faculty to the BHF Medical Director.

**Vascular Anaesthesia Society of Great Britain and Ireland**

**Departmental awards**

Closing Date: none  Award amount: £10,000

Support research and audit projects in the field of vascular anaesthesia undertaken by anaesthetic trainees. The purpose is to advance both the care of patients undergoing vascular procedures and the training and development of the vascular anaesthetics of the future. The lead applicant must be a member of the VASGBI and hold a substantive consultant or equivalent. The research project must be undertaken by trainees and fellows not holding a substantive or locum consultant post.
British Society of Echocardiography
Travel bursaries

Closing Date: none  Award amount: 75% of incurred costs

Enable members to attend echo meetings. Each applicant must be a current BSE member working in a public hospital in the UK or Ireland. Priority is given to physiologists over medics. No more than one award will be given to a single institution in the travel bursary year.

European Research Council
Starting Grants

Internal closing date: 12-Jul-16  Award amount: €1.5M

Intended to enable exceptional researchers between 2 and 7 years from PhD completion to become independent research leaders and strengthen their own research team or programme. All research fields are supported.

Proposals will be handled though the University's major bids process.

William Harvey International Translational Research Academy
Fellowships

Closing date: 12-Jul-16  Award amount: €37,250 per year for up to 2 years

Supports international mobility and career development of researchers in healthcare and life sciences by funding multidisciplinary projects abroad. The research can consider one or several of the following research areas:

- molecular and structural biology and biochemistry
- physiology and pathophysiology, including cardiovascular diseases and endocrinology
- genetics, genomics, bioinformatics and systems biology
- cellular and developmental biology
- neurosciences and neural disorders
- immunity and infection
- diagnostic tools, therapies and public health

Two types of fellowships are offered this round, incoming for non-residents of the host country and reintegration for only EU member state or associated country nationals who have carried out research in a third country at least three years. Applicants must have a PhD or have at least four years equivalent research experience.

EPSRC via the University of Bristol
Impact Acceleration Funding
Closing date: 22-Jul-16  
Award amount: £20,000

Funds must be spent by 31 March 2017 and are available to any researcher with prior funding from EPSRC (including PhD studentships). The fund is administered by RED and the following streams are available:

- Knowledge Transfer Secondments - Up to £20k for secondments to/from the University, part-time or full-time for any researcher, academic or industry collaborator. Secondment awards are strongly encouraged.
- Proof of Principle awards - Up to £15k for projects that develop the commercial potential of research.
- Public Engagement - Up to £5k (£10k in exceptional circumstances) as part of KTS/PoP, or as a standalone activity.

**European Society of Cardiology**  
Proctor Programme

Closing date: 29-Jul-16  
Award amount: €8,200

Enables cardiologists to learn specific techniques and procedures in the fields of arrhythmias and cardiac pacing and to further the career of former EHRA fellows on their return to their home country. Applicants must be members of EHRA and be citizens or permanent residents of a regular ESC member country.

**European Society of Cardiology**  
Young thrombosis researchers exchange grant

Closing Date: 30-Jul-16  
Award amount: 12 months’ salary

Enables young investigators to perform basic or clinical research on thrombosis at a host institution in another society member country or affiliated country. Applicants must be members of the Young Thrombosis Researchers Group who are aged 35 or less and citizens of an ESC member or affiliated country. Applicants must not have yet attained a permanent academic or clinical position. Proposals for 10-month projects are considered for applications involving host institutions in Scandinavia, the Benelux countries, Switzerland or the UK.

**European Hematology Association**  
Research grants

Closing Date: 01-Aug-16  
Award amount: €160,000

Support any aspect of the study of haematology in its broadest sense, including molecular biology and biochemistry, virology, immunology, cell biology, epidemiology and diagnostic and therapeutic strategies. The following awards are available:
• clinical fellowships – applicants must be medical doctors who have research experience and a medial PhD, or medical doctors who have obtained their medical degree less than 12 months prior to the application
• non-clinical advanced fellowships – applicants must be non-medical scientists within eight years of receiving their PhD, or medical doctors who have obtained their medical degree less than 12 months prior to the application
• non-clinical junior fellowships – applicants must be non-medical scientists within four years of receiving their PhD

Applicants must be members or guests of the society at the time of application.

**European Society for Vascular Surgery**

**Educational travel grants**

Closing Date: 01-Aug-16 and 01-Feb-17

Award amount: unspecified

Allow recipients, over a short period of time, to look at a particular technique or research project in a European institution. Each applicant must be European and either a trainee member of the society or a full member no older than 40 years of age on 31 December of the preceding year.

**International Society for Heart and Lung Transplantation**

**International travelling scholarship**

Closing Date: 01-Aug-16

Award amount: US $6,000

Facilitates the exchange of knowledge and techniques regarding heart and lung transplantation and the treatment of end-stage heart and lung failure, and building relationships between individuals, institutions and countries. The scholarship may be used to learn new techniques in the clinic, operating room or laboratory. All members of the society in any country are eligible. Priority will be given to transnational and international exchange. Visits should last 2 weeks to one month, and funding may be used for travel, accommodation and subsistence.

**British Cardiovascular Society**

**Travel bursaries**

Closing Date: 01-Aug-16

Award amount: £1,000

Assist members in attending certain international conferences, including the American College of Cardiology conference, the BCS conference and the European Society of Cardiology conference. Applicants must be consultants and other members presenting at ACC or ESC; trainees at ST3 level or above, presenting at any of the conferences; allied professionals, including non-consultant members, attending the BCS annual conference. Bursaries are worth £1,000 for the ACC conference, £500 for the ESC conference and £250 for the BCS conference.
European Association for Cardio-Thoracic Surgery
Techno-college innovation award

Closing Date: 16-Aug-16                Award amount: €5,000

Recognises technological breakthroughs in all areas related to thoracic and cardiovascular research, particularly for new surgical methods or devices. Innovations can be in the form of patents, inventions, new products, ideas or services. Surgeons, engineers, innovators, researchers and scientists in the field of thoracic and cardiovascular surgery may apply.

Bayer
Grants4Targets– novel targets for drug development

Closing date: 31-Aug-16                Award amount: €125,000

Aims to encourage research on novel targets and disease-related biomarkers in the fields of oncology, gynaecology, cardiology, haematology and ophthalmology.

The following different types of grants, depending on the specifics of the target and its development phase will be awarded:

• support grants worth between €5,000 and €10,000 to advance research on targets that are at a very early stage of discovery
• focus grants worth between €10,000 and €125,000 for more mature ideas, such as addressing specific aspects of a target as a first step towards transferring it to the drug discovery process.

NIHR CLAHRC West
Training bursary scheme

Closing date: 01-Feb, 01-Jun, 01-Sep annual                Award amount: £600

Gives staff from the local NHS, health and social care sector the opportunity to attend high quality research and evaluation training at half the price. Bursaries are available for 50 per cent of the course fees; the applicant or their employer is expected to fund the remaining 50 per cent. The bursary aims to promote wider engagement and improve skills in research and evidence in the CLAHRC West patch, particularly for those who have not previously had opportunities for this type of training.

You can apply for bursary support towards any course relevant to research and evaluation in health and social care. This includes study days, workshops and short courses (including individual modules) but not MSc or PhD tuition fees.

European Molecular Biology Laboratory
EI3POD postdoctoral fellowship programme

Closing Date: 05-Sep-16                Award amount: unspecified
Enables researchers to take part in international and interinstitutional collaborations, or an intersectional experience, whilst carrying out interdisciplinary research. Applicants should propose their own research projects, and choose one of the three available specialisation pathways:

- *interdisciplinary EIPOD*, aimed at an academic career path and involving an interdisciplinary research project which includes one coordinating group leader and one partner laboratory both from EMBL faculty
- *international or inter-institutional EIPOD*, including an interdisciplinary research project that should involve EMBL supervisors, and one external academic partner
- *intersectorial EIPOD*, involving an interdisciplinary research project that is designed to foster exposure to the applied or commercial side of science, and involves EMBL supervisors and either one industry partner from a group from the EMBL network of institutionalised partnerships or collaborations, or an active involvement of an EIPOD in intellectual property generation, out-licensing and, if applicable, in the first steps towards a spin-off activity

The programme includes mandatory training modules in intellectual property, entrepreneurship in life sciences, research ethics, career development, gender dimension in science and outreach, public management and dissemination of knowledge on scientific progress.

Applicants of any nationality who hold a PhD or have four years of full-time equivalent research experience may apply. Approximately 20 three-year fellowships are available, with funding for cross-disciplinary projects, and healthcare benefits and pension access.

**Leducq Foundation – Fondation Leducq**

*Transatlantic networks of excellence*

Closing Date: 06-Sep-16  
Award amount: US $6M

Supports collaborative basic science and clinical research coordinated by centres in North America and Europe in the fields of cardiovascular and neurovascular disease. Projects may be in basic or clinical science including translational science and collaborative bench to bedside and back programmes. Each application must involve a North America-based and a Europe-based coordinator. A network should have a minimum of three institutional members and a maximum of six.

**Medical Research Council**

*Clinical research training fellowship*

Closing Date: 08-Sep-16  
Award amount: salary, research expenses, travel costs

Enables clinically qualified, active professionals to undertake specialised or further research training in the biomedical sciences within the UK. Applications from basic studies to translational and developmental clinical research are welcome. The fellowship supports clinicians to undertake a higher research degree, while medically qualified applicants with a PhD can under-
take early postdoctoral training enabling them to be competitive at the clinician scientist fellow-
ship level.

Veterinarians may apply if they have equivalent qualifications. Postdoctoral applicants may apply
if they are clinically qualified individuals who received their PhD five or more years ago and have
not been active in academic research since. Fellowships are for a period of two to three years,
or four years for patient-oriented clinical research.

**European Society of Cardiology**

**Arrhythmias and cardiac pacing training fellowships**

Launching: Sept 2016  
Award amount: €25,000

Promote the development of academic medicine in the field of arrhythmias and cardiac pacing
with emphasis on implantable cardioverter defibrillators and cardiac resynchronisation therapy,
and aim to help young candidates to attain clinical competence and acquire high quality experi-
ence in electrophysiology practice.

Candidates can be both individuals and centres. Individuals must be no more than 40 years old
and have completed their cardiology training but not yet have obtained a consultant or equiva-
 lent permanent status. All applicants must be EHRA members and be citizens or permanent res-
idents of a regular ESC member country or an ESC affiliated national society. The fellowships
should be undertaken outside the applicant’s home country.

**European Society of Cardiology**

**Clinical electrophysiology training fellowships with emphasis on catheter ablation**

Launching: Sept 2016  
Award amount: €25,000

Aim to promote the development of academic medicine in the field of clinical electrophysiology
by providing physicians with an opportunity for clinical training in the field of arrhythmias and
cardiac pacing with emphasis on catheter ablation. One-year training fellowships are offered to
physicians with more extensive experience in electrophysiology and will deal with advanced
mapping diagnosis and ablation of complex substrates, amongst other topics.

Candidates can be both individuals and centres. Individuals must have completed parts of their
cardiology training but not have obtained a permanent, senior staff or consultant post. They
should preferably be less than 40 years of age. All applicants must be EHRA members and be
citizens or permanent residents of a regular ESC member country.

**Royal Society of Medicine**

**Cardiothoracic section case presentations**

Closing Date: 19-Sep-16  
Award amount: year’s membership
Recognise the best oral and poster presentations on cardiothoracic medicine, with preference given to topics related to the theme of evolution or revolution: survival of the cardiothoracic surgeon. All preclinical, clinical cardiothoracic students and trainees may apply.

**British Council – Newton Fund**  
**UK-China PhD Placement Programme**

Closing date: 20-Sep-16  
Award amount: unspecified

Offers sponsorships for UK and Chinese PhD students and their supervisors to spend a period of study of three to 12 months (for PhD students) and up to three months (for supervisors) at higher education institutions in China or the UK. Funding is provided by the UK on the basis that it will be used to fund programmes that will contribute to the UK’s **Official Development Assistance (ODA)** commitment.

The focus is on research areas that reflect the common interests and demands of both countries, including:

- health and life sciences  
- food and water security  
- environmental technologies  
- energy  
- urbanisation  
- education and creative economy for economic development and social welfare

**Medical Research Council**  
**Senior non-clinical fellowship – transition to leadership**

Closing Date: 21-Sep-16  
Award amount: unlimited

Provides non-clinical researchers with a track record of excellence in their scientific field with the opportunity to transition into research leaders. Proposals are encouraged across all areas of the research council’s remit, from basic studies with relevance to mechanisms of disease to translational and developmental clinical research.

Applicants should hold a PhD or equivalent who do not hold a tenured academic post. Applicants are encouraged to consider the opportunities to establish collaborative networks and for cross-sector development as the award will support a period of research overseas, at a second UK institution or within industry if appropriate.

**European Atherosclerosis Society**  
**Anitschkow prize**

Closing date: 25-Sep-16 (forecast)  
Award amount: €10,000
Recognises outstanding research in the field of atherosclerosis and linked metabolic disturbances. All candidates must be nominated by a member of the society. The candidate is required to be an active researcher with an excellent track record of publications in the atherosclerosis area.

**Heart Research UK**

**Novel and emerging technology grant**

Closing date: 01-Oct-16  
Award amount: £250,000

Supports research on novel and emerging technologies and new applications of existing technologies to diagnose, treat and prevent heart disease and related conditions. The grant may support approaches including tissue and bioengineering, development and evaluation of new diagnostic and therapeutic devices, bioimaging, nanotechnology, biomaterials, genomic and proteomic approaches, computational biology and bioinformatics. Emerging technologies or strategies in the management of risk factors, the evaluation of invasive cardiology procedures, the evaluation of new surgical approaches to cardiovascular disease, strategies aimed at improving the efficacy of ventricular assist and other devices, and the outcome of resuscitation after cardiac arrest may also be supported.

**European Respiratory Society**

**Pulmonary arterial hypertension short-term fellowship**

Closing date: 01-Oct-16  
Award amount: unspecified

Supports research projects in the broad field of pulmonary circulation, such as immunology, cardiology and vascular diseases. Applicants should be ERS members and must hold an MD, MSc, PhD or equivalent qualification in respiratory medicine or science, pulmonary arterial hypertension, immunology, biology, genetics, pharmacology, biophysics or chemistry. Qualified healthcare professionals who are non-MD working in the pulmonary arterial hypertension respiratory field may also apply. Support is given to basic science, clinical and translational research, with priority given to the latter two. Priority is also given to candidates in the early stages of their career. Fellowships are tenable for between one and three months and encompass a living stipend, child allowance and a travel grant of varying value depending on where the candidate is from and to which country they are going.

**Kay Kendall Leukaemia Fund**

**Junior research fellowships**

Closing Date: 21-Oct-16  
Award amount: unspecified salary + £18,000 equipment and travel

Support individuals wanting to pursue research into haematological malignancies. Non-medical scientists who will usually have one to four years postdoctoral experience may apply. Clinicians seeking funding for a PhD in the field of leukaemia research, usually at a UK centre, may apply.
for a clinical research fellowship. Applications will be considered on any aspect of the study of leukaemia interpreted in its broadest sense, including:

- molecular biology and biochemistry
- virology
- immunology
- cell biology
- epidemiology
- diagnostic and therapeutic strategies, including gene transfer

**Dowager Countess Eleanor Peel Trust**  
**Peel and Rothwell Jackson postgraduate travelling fellowships**

Closing Date: 04-Nov-16  
Award amount: £30,000

Enable researchers to spend up to one year at a centre of international excellence for the purpose of research, advanced study or the acquisition of a new clinical skill unlikely to be available in the UK. Candidates should be qualified and registered to practise in medicine, nursing or another health profession.

**Fulbright Commission**  
**British Heart Foundation scholar award**

Closing Date: 06-Nov-16  
Award amount: unspecified

Enables a UK academic or professional to pursue laboratory-based research into the biomedical or clinical aspects of cardiovascular disease at any accredited higher education institution in the US. Research projects must not involve direct clinical contact with patients.

Support includes travel expenses for one round trip economy flight and a salary grant towards institutional fees, accommodation and general maintenance costs while in the US. A number of benefits, sickness and accident benefit coverage and visa sponsorship are also included as well as reasonable healthcare insurance.

**Great Britain Sasakawa Foundation**  
**Butterfield awards**

Closing Date: 15 Dec 16  
Award amount: £15,000

Aim to encourage and facilitate exploratory exchanges and collaborations between qualified professionals in Japan and the UK, as well as investigation of scientific, clinical, social and economic aspects of medicine in which Japanese and British scientists, practitioners and policy makers may learn from each other. Applicants are normally expected to have an existing research record, but consideration will also be given to practitioners managers, carers or others in health-related fields. Preference will be given to those who have not previously been in-
volved in a UK-Japan collaborations, and applications from early-stage researchers are particularly welcome. Areas currently of interest include: health management; public health; health education; genetic aspects of ageing; palliative care; stem cell technology; patient and carer involvement; drug testing; cancer; voluntary sector development; architecture and design for healthcare.

Substantial funds are also available for support of conferences and publications bringing together UK and Japanese expertise.

**European Society of Hypertension**

*E SH*  
**Talal Zein research grant in hypertension**

Closing Date: 31 Jan 17  
Award amount: €30,000

Supports a young researcher’s work in the field of hypertension and cardiovascular prevention. Eligible applicants are PhDs or MDs who are under the age of 45.

**European Respiratory Society**

*ERS*  
**Long-Term Fellowships**

Closing date: 31-Jan-17  
Award amount: unspecified

Enable investigators and clinicians in the early stages of their career to carry out basic, translational or clinical research projects. Through this experience, young scientists learn and apply advanced research procedures and techniques not available at their home institute.

**Royal Society of Medicine**

*The Royal Society of Medicine*  
**Venous pump priming grant**

Closing Date: 09-Mar-17  
Award amount: unspecified

Applications should outline the research costs and aim of the potential benefit of the research to the phlebology and endovenous world. Trainee specialists under 40 years of age at the time of application may apply. Applicants must include a letter from their head of department, or senior colleague or specialist, supporting the application. The winner is expected to present their work in a 10-minute presentation at the society’s spring meeting.

**Royal Society of Medicine**

*The Royal Society of Medicine*  
**Venous spring meeting prize**

Closing Date: 09-Mar-17  
Award amount: £150-£250

Recognises the best posters or presentations on the subject of phlebology. Medical students and trainees may apply. The oral presentation prizes are worth £250, £200 and £150 for first,
second and third place respectively. The poster prize is worth £200. Candidates are expected to present their posters or oral presentations at the society’s annual spring meeting, and all accepted abstracts will be published in Phlebology.

**Royal Society of Medicine**  
**Venous travelling fellowship**

Closing Date: 09-Mar-17  
Award amount: £1,000

Enables candidates to pursue professional development in the field of phlebology. All trainees may apply. Applicants must include a letter from their head of department, or senior colleague or specialist, supporting the application and must show a letter of acceptance from the centre to be visited. The winner must attend the society’s spring meeting to present their work in a 10-minute presentation.
Prospects for Creation of Cardioprotective and Antiarrhythmic Drugs Based on Opioid Receptor Agonists


It has now been demonstrated that the μ, δ₁, δ₂, and κ₁ opioid receptor (OR) agonists represent the most promising group of opioids for the creation of drugs enhancing cardiac tolerance to the detrimental effects of ischemia/reperfusion (I/R). Opioids are able to prevent necrosis and apoptosis of cardiomyocytes during I/R and improve cardiac contractility in the reperfusion period. The OR agonists exert an infarct-reducing effect with prophylactic administration and prevent reperfusion-induced cardiomyocyte death when ischemic injury of heart has already occurred; that is, opioids can mimic preconditioning and postconditioning phenomena. Furthermore, opioids are also effective in preventing ischemia-induced arrhythmias.

Proposed signalling scheme for the cardioprotective effect of opioids
**RECENT PUBLICATIONS**


**Image caption**: Expression of zonula occludens protein 2 (ZO-2) in acyanotic and cyanotic paediatric myocardium tissue. Immunohistochemical analysis of paraffin embedded heart tissue from an acyanotic and cyanotic patient using ZO-2 specific antibody. 3,3'-Diaminobenzidine (DAB) staining reveals expression of ZO-2 in both tissues when compared with controls, with a visible decrease in expression in cyanotic tissue compared with acyanotic. Magnification: x200.


Reeves B, Scott L, Taylor J et al. (in press). The Effectiveness of Community versus Hospital Eye Service follow-up for patients with neovascular age-related macular degeneration with quiescent disease (ECHoES): a virtual non-inferiority trial. *BMJ Open*.

Cheng H, Curtis AE, Fellingham C & Hancox JC (2016). Multiple ion channel block by the cation channel inhibitor SKF-96365 in myocytes from the rabbit atrioventricular node. *Physiological Reports*. 4(11), e12819


Gadeberg HC, Bond RC, Kong C, Chanoit G, Ascione R, Cannell

Image caption: T-tubules in fixed sections of pig atrial and ventricular tissue. Representative examples in the longitudinal plane. Pig atrial tissue without extensive t-tubules (A), pig atrial tissue with extensive t-tubules (B) and ventricular tissue (C) stained with Alexa Fluor-488 WGA (green; i) and Alexa Fluor-633 phalloidin (red; ii). Overlay shown in (iii). Inserts in (i) show detail at a higher magnification. DAPI staining shown in blue in all images. Scale bars represent 17 μm.


Image caption: Representative low energy score docking output for amiodarone in the MthK-based hERG pore homology model. (A) Amiodarone is shown in relation to the amino acid residues described in the text: blue: F656, pink: Y652; green: T623, S624, V625. These residues are also annotated in (B) which highlights the set of interactions between amiodarone and specific amino acid side chains including two pi-stacking interactions between F656 and amiodarone aromatic rings, and two cation–pi interactions and one hydrogen bond involving the protonated amino group and Y656 side chains. The location of the aliphatic amino group near the internal binding site for a K⁺ ion is indicated by the blue star. Stabilisation of the protonated amino group in this location may be enhanced by the hydroxyl side chain groups of S624.

Image caption: Network connectivity diagram for model of brainstem respiratory circuits. The bold excitatory pathways emphasise converging peripheral chemosensitive projections to the pre-I/I population. Populations that were not included in a previous model are marked with an asterisk.


Image caption: Effects of LVhKir2.1 on left ventricular wall thickness in SHR (on the left) compared to sham SHR rat (on the right).

Benedetto U, Gaudino M, Caputo M, Tranbaugh RF, Lau C, Di Franco A, Ng C, Girardi LN & Angelini GD (2016). Right internal thoracic artery versus radial artery as the second best arterial conduit. Insights from a meta-


*Image caption: Wnt2 promoted intimal thickening. Immunofluorescence for Wnt2 protein in carotid arteries 28 days after ligation and control unligated control arteries. A, Ligated left carotid artery with intimal thickening at 28 days after ligation. B, Unligated control carotid artery. C, Nonimmune IgG negative control (ligated artery). Wnt2 protein (green) and nuclei blue (DAPI). Red dotted line indicates the intimal:medial boundary. D, Intima area in wild-type (Wnt2+/+) and Wnt2 heterozygous knockout mice (Wnt2+/−), * indicates P<0.05, t test, n=14 per group. Images are EVG staining for elastin in longitudinal sections. Scale bar represents 50 μm in A, B, and C and 100 μm in D.*

Rodrigues JCL, Amadu AM, Dastidar AG et al. (2016). Comprehensive characterisation of hypertensive heart disease left ventricular phenotypes. *Heart.* Published online 3 June 2016.


*Image caption: Cartoon summarising the functions of cardiac pericytes in the physiological and pathologic ischemic heart.*


CONTACTS

Bristol CardioVascular is run by a Steering Group:

Chair: Robert Tulloh
Consultant Paediatric Cardiologist and Honorary Professor of Clinical Sciences

- Dr Chiara Bucciarelli-Ducci Imaging
- Prof Massimo Caputo Congenital Heart Surgery
- Professor Costanza Emanueli Cardiovascular Regeneration
- Professor Sarah George Cardiovascular Signalling
- Dr Emma Hart Autonomic Regulation & Dysfunction
- Dr Andrews James Cardiac Biology
- Dr Thomas Johnson Cardiology
- Dr Carl May Early Career Representative
- Dr Stuart Mundell Vascular Biology and atherothrombosis
- Prof Ruth Newbury-Ecob Clinical Genetics
- Dr Wioletta Pijacka Early Career Representative
- Dr Yan Qiu Early Career Representative
- Dr Simon Satchell Renal, Diabetic & Hypertensive Disease
- Megan Stevens Early Career Representative
- Professor Saadeh Suleiman Cardiac Biology
- Dr Nicholas Timpson Population Health and Epidemiology
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