The BCV brings together internationally respected experts from many disciplines of cardiovascular science and disease, and as such we are an internationally recognised centre of excellence for performing interdisciplinary cardiovascular research that takes basic science discoveries into the clinic.

As well as improving collaboration between scientists and clinicians, undertaking cutting-edge science research, and improving medical treatment of cardiovascular disease, we are also committed to engaging with the public in our research through public lectures and other activities.
After attending a recent BCV careers event, I became aware of how few people I knew in the Bristol Cardiovascular community. I struck up a conversation with Dario, a PhD student manning the poster next to me, and it turned out that we work on the same floor in the Medical Sciences building, but we had never spoken before! We both thought this was a bit of a shame and came up with a plan to start a really informal monthly meeting where people with a shared interest in cardiovascular science could meet up over tea and cake and talk about any problems they might be having with experiments, discuss some ideas about papers or grants, get some advice on a paper they have been asked to review, or present a talk they might be giving at a conference. The idea was for a very casual rendez-vous to help people get to know each other better, expand the cardiovascular theme socially as well as academically, and to set up a support network for early career researchers and postgrad students – they say that a problem shared is a problem halved, after all!

Unfortunately there was pretty much zero interest in this as an idea, but I think that is because people are already swamped with work and seminars and meetings that they can’t spare the time. I understand this of course, but it does seem a shame to not give it a try. It has become very clear to me that advancement and success is often down to who you know, and not what you know. Networking can be exhausting and a pain, but it can also be very rewarding and can open doors and present new and exciting opportunities. Myself and Dario are quite keen to move this forward and promote more integration amongst the cardiovascular community here at Bristol University. If there is sufficient interest we will set up monthly meetings that are aimed at serving your needs as an ECR. The senior BCV members have been very supportive and would like to help this go forward so please get in touch if you have any ideas or requests and we will try to work it into the meetings.

**Carmen Coxon**, Research Assistant  
carmen.coxon@bristol.ac.uk

P.S. platelets are better than cardiac myocytes!
**MicroRNA-24 Regulates Macrophage Behavior and Retards Atherosclerosis**

K. Di Gregoli, N. Jenkins, R. Salter, S. White, A. C. Newby & J. L. Johnson


New research has found that when the protein matrix metalloproteinase-14 (MMP-14) is reduced or lost, white blood cells become good and could prevent hardening of the arteries, rupture and sudden death. The study, led by Dr. Jason Johnson, was funded by the British Heart Foundation (BHF).

Macrophages play an important part in atherosclerosis. Within the arteries leading to the heart the atherosclerotic lesions become weakened and crack, resulting in the formation of a blood clot and commonly a heart attack. The researchers found that macrophages can be bad when they express the protein matrix metalloproteinase-14 (MMP-14). However, when MMP-14 is reduced or lost the macrophages become good and might prevent atherosclerosis progression. In addition, the team has discovered that the nature of macrophages is dictated by a growth factor called granulocyte/macrophage colony stimulating factor (GM-CSF), which consecutively controls...
microRNA-24 that determines how much MMP-14 macrophages express. Using a microRNA-24 inhibitor in vivo, the researchers have shown that this novel node of macrophage signalling encourages atherosclerosis and their susceptibility to crack.

Compared with macrophage CSF–differentiated macrophages, granulocyte/macrophage CSF–matured macrophages exhibited reduced MMP-14 mRNA levels but increased protein expression and activity, which resulted in heightened macrophage invasion. MicroRNA-24, identified to target MMP-14, was accordingly increased in macrophage CSF compared with granulocyte/macrophage CSF macrophages. Silencing microRNA-24 in macrophage CSF macrophages significantly increased MMP-14 expression and enhanced their invasive capacity, mimicking granulocyte/macrophage CSF macrophages, and suggesting that granulocyte/macrophage CSF modulates MMP-14 protein expression and subsequent macrophage invasion in a microRNA-24–dependent manner. In human coronary atherosclerotic plaques, increased MMP-14 protein expression in foam cell macrophages was associated with lesions exhibiting histological characteristics associated with an unstable phenotype. Furthermore, microRNA-24 expression in these atherosclerotic plaques was inversely related to MMP-14 protein expression. Moreover, stable plaques contained higher microRNA-24 levels than unstable plaques, and microRNA-24 colocalized with foam cell macrophages that exhibited low MMP-14 protein expression. Finally, in atherosclerotic mice (apolipoprotein E-deficient), microRNA-24 inhibition increased plaque size and macrophage MMP-14 expression.

EVENTS

**Translational research in medical sciences: How to get support, advice and funding**
4 March 2015, 14:00, G13/G14 Life Sciences Building

**Cardiac repolarization disorders and making drugs safe**
9 March 2015, 13:00, Jules Hancox, C42, Medical Sciences Building

**RED Medical lunchtime surgery series - Impact: engaging with policy makers**
16 March 2015, 13:00, Room OS6, Oakfield House

**Julia Dickinson: How to get an MRC Fellowship**
19 March 2015, 13:00, AIMS Centre (Chemistry Building), Room SR2a/b

**Women in STEM**
20 March 2015, 9:30, 6th Floor, Rolle Building, Plymouth University

**RED Medical lunchtime surgery series - How best to respond to reviewers comments**
26 March 2015, 13:00, Medical Sciences Building, room C4
**BioDynamics Workshop**
15 April 2015, 9:00, John McIntyre Conference Centre, The University of Edinburgh

**23rd Northern Cardiovascular Research Group Meeting**
21 April 2015, 9:30, Keynote: Morten Høydal (Norwegian University of Science and Technology), Copthorne Hotel Newcastle

**One Health Bristol Conference**
25 April 2105, Langford

**Festival of Postgraduate Research**
30 April, 14:30, Anson Rooms, Richmond Building

**MRC Integrative Epidemiology Unit: Mendelian Randomization Conference**
22 June 2015, 9:00, Victoria Rooms, Bristol

**Professor Andrew Halestrap: Advances in the Biochemistry of Ischaemia and Hypoxia**
15 July 2015, 9:00, Wills Hall. A special symposium to celebrate Andrew’s many important scientific contributions.

**Next steps for improving cardiovascular disease outcomes**
16 July 2015, 9:00, central London

**Health Services Research Network Symposium**
1-2 July 2015, Nottingham

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**NEWS**

* Professor [Russ Jago](#) alongside colleagues at Bristol and Birmingham have been awarded £538,000 from the BHF to proceed to the following stage of the B-Proact1v programme, initially established in 2012. The project collected data from 1,456 Year 1 children (5-6 years) and their parents in Bristol, Bath and North Somerset. Analysis showed that many children spend too much time being sedentary and viewing screens (watching TV, playing games consoles, surfing the internet) for healthy development. By identifying the things that parents use to get their children more physically active, it is hoped to develop strategies that enable parents to encourage their children to be as active as possible.
A newly funded project, led by the University’s Bristol Heart Institute together with partners Toshiba Medical Systems, Bristol’s Clinical Research and Imaging Centre (CRICBristol), the University of Exeter’s Children’s Health and Exercise Research Centre and Manchester United, will identify the healthy limits and the wider benefits of exercise for young elite athletes, normal healthy children and children with congenital heart defects. The partnership will investigate the fitness levels of 300 children while exercising, of which: 100 children born with heart conditions, 100 healthy children and adolescents and 100 elite junior athletes from the Manchester United Academy. The research, supported by the National Institute for Health Research (NIHR), will help to identify heart performance of the different groups under stress, to help with better identification of abnormalities, which sometimes do not present themselves at rest. The overall aim of the project is to more precisely identify the safe levels of exercise for children with congenital heart disease, as well as to clearly define the positive benefits that regular exercise delivers to normal healthy children over time. Dr Guido Pieles, NIHR-Clinical Lecturer in Paediatric Cardiology at the University of Bristol and Bristol Congenital Heart Centre, is leading the research project, aided by Dr Graham Stuart, Senior Consultant and Sports Cardiologist at the Congenital Heart Unit in Bristol. The project has been partly funded by two local Bristol charities - the David Telling Trust and Above and Beyond.

- Prof Clive Orchard was successful in his application to the British Heart Foundation for a project grant entitled Role of cardiac T-tubules in Ca regulation and arrhythmogenesis. This three-year project has been funded by up to £155,799.
- Professor Julian Paton and Dr Ana Abdala with Dr Karla Sampiao at the University of Espirito Santos, Vitoria, Brazil, have been awarded a collaborative grant from Newton Fund RCUK-CONFAP Research Partnerships Call entitled Temporal profiling of cardiac autonomic changes following organophosphorus poisoning. The award provides £100k of funding for one year.
- Professor Julian Paton has been invited to give the 2015 Nick Standen Lecture at the University of Leicester.
- A poster authored by S. L. Hulin-Curtis, Graciela Sala-Newby, G., H. Williams & Sarah George was presented at Autumn Meeting of the British Atherosclerosis Society held on 25 and 26 September 2014 entitled Wnt-mediated induction of apoptosis: potential for gene therapy in late vein graft disease.
Bristol CardioVascular are inviting members of the community to submit an individually designed logo to the **BCV LOGO COMPETITION**

This logo will be used internally by members of the group in an effort to forge a defined BCV identity. The logo must contain the acronym BCV, and/or the words Bristol CardioVascular. A small prize will be offered to the winner! Submissions via email as high-resolution image files only (no pdfs!!)

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**ELIZABETH BLACKWELL INSTITUTE FUNDING SCHEMES**

**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.

**EBI Senior Fellowships**
To enable University of Bristol academic staff to work on a new or emerging activity at the interface between two or more disciplines and which addresses innovations in health research. Closing date: 20 March 2015.

**EBI Bridging Funds for Senior Fellows**
To support a small number of academic staff at UoB who currently hold an externally funded research fellowship. Closing date for nominations: 7 April 2015. Application deadline: 5 May 2015.
**EBI Identifying Candidates for Wellcome Trust Investigator Awards**

To support a small number of permanent academic staff at UoB within the first five years of their appointment, who are planning to apply for an Investigator Award from the Wellcome Trust. Closing date for nominations: 7 April 2015. Application deadline: 27 April 2015.

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**FUNDING OPPORTUNITIES**

A **calendar** of potential **funding opportunities** for CardioVascular Science has been set up via Research Professional. This calendar, which will automatically update with new opportunities as they arise, specifies title, submission deadline and links for each opportunity. This calendar is accessible via their **website** and will be updated automatically according to specified search criteria (cardiology, cardiovascular disease, myocardial infarction). Other subjects can be added by request- please email the theme with suggestions and/or comments.

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**British Heart Foundation**

**Senior Clinical Research Fellowships**

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. Fellowships include salaries, research consumables and equipment. They initially last for five years with a renewal possible for a further five years. Up to one year of the award may be spent overseas.

**Award amount:** unspecified  
**Deadline:** none
British Heart Foundation
Career re-entry research fellowships
Enable postdoctoral researchers to re-establish their careers in cardiovascular science in an established UK research institution, following a break of more than two years. Fellowships normally last for three years with the possibility of a one-year extension. Awards may include salaries, research consumables and equipment.

Award amount: unspecified   Deadline: none

British Heart Foundation
Clinical Leave Research Fellowships
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 are eligible to 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.

Award amount: unspecified   Deadline: none

British Heart Foundation
Intermediate Clinical Research Fellowships
To provide a career opportunity in an established research institution in the UK for individuals with an established research record who intend to become leaders in academic medical research.

Award amount: unspecified   Deadline: none

British Heart Foundation
MBPhD studentships
Enable medical students to complete a PhD in cardiovascular science before completion of their medical degree. Studentships last two to three years according to the university's scheme. They cover a stipend, tuition fees and costs for research consumables, usually less than £10,000 per year.

Award amount: unspecified   Deadline: none

British Heart Foundation
Project grants
Support short-term research projects lasting up to three years and costing less than £300,000. Grants may cover salaries, research consumables and equipment.

Award amount: £299,999   Deadline: none

British Heart Foundation
Advanced Training Awards
To provide researchers within one to three years of submitting a PhD with an opportunity to re-train and gain additional expertise in an established research institution in the UK.
Award amount: £30,000    Deadline: none

**British Heart Foundation**

**Senior Basic Science Research Fellowship**

To 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 five years.

Award amount: unspecified    Deadline: none

**European Society of Cardiology**

**EACVI research grants**

Support specialised research in the field of non-invasive modalities in order to help young candidates obtain research experience in a high standard academic centre in an ESC member country other than their own.

Award amount: €25,000    OPENS: 31-Mar-15

**International Society for Heart Research**

**Research Fellowship**

Designed to foster European cardiovascular research integration. The fellowship supports a research project with a European research group for a period of up to one year. Applicants must be ISHR-ES members and under 35 years of age on 1 July 2015. They must have completed their doctoral thesis before the ISHR-ES annual meeting.

Award amount: €20,000    Deadline: 31-Mar-15

**Bayer**

**Grants for Targets**

Aims to encourage research on novel targets and disease-related biomarkers in the fields of, amongst others, cardiology. Different types of grants are awarded depending on the specifics of the target and its development phase: support grants between €5,000 and €10,000 to advance research on targets that are at a very early stage of discovery; focus grants 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.

Award amount: €125,000    Deadline: 31-Mar-15
Laerdal Foundation for Acute Medicine
Centre Support
Aims to support a three year research centre in practically-oriented research and development in acute medicine. Research proposals should be of particular value of strengthening at least one of the factors in Utstein's formula of survival.

Award amount: NOK3,000,000   Deadline: 01-Apr-15

Chest, Heart and Stroke, Scotland
Action Research Awards
Support qualitative and non-traditional studies in areas of particular interest to CHSS as a service provider. Applications must be able to demonstrate potential immediate benefit in terms of diagnosis, treatment, long-term care and support or public health. Research topics and methodology may vary and include qualitative studies, service evaluation, evaluations of innovative therapies and technologies. Priority is given to applications from non-medical health professionals and those operating outside recognised research centres.

Award amount: £40,000   Deadline: 07-Apr-15, 1-Jun-15

European Association for Cardio-Thoracic Surgery
Young investigator awards
Aim to stimulate research on topics of clinical or experimental research in the fields of thoracic surgery, cardiac surgery and congenital heart disease that are presented by young investigators at the association’s annual meeting.

Award amount: €3,000      Deadline: 30-Apr-15

Medical Research Council
Population and Systems Medicine
Suitable for focused research projects that may be short- or long-term in nature. In addition, they can be used to support method development and continuation of research facilities and may involve more than one research group or institution.

Award amount: £1,000,000      Deadline: 27-May-15, 30 Sep-15

Medical Research Council
New Investigator Research Grant- Population and Systems Medicine
Provide support for clinical and non-clinical researchers while they are establishing themselves as independent principal investigators. For those who already have an institutional post, it provides funding and protected time with which to establish an independent research career. The grant is also a potential source of research funding for fellows whose awards only cover a personal salary or limited research funds.

Award amount: not specified      Deadline: 27-May-15, 30 Sep-15
**Medical Research Council**  
**Partnership Grant**  
Provides core funds to support partnerships between diverse groupings of researchers, and can be used for infrastructure support, platform activities and for bringing together managed consortia or multidisciplinary collaborations.

Award amount: not specified  
Deadline: 27-May-15, 30 Sep-15

**European Society for Vascular Surgery**  
**Research Grants**  
Enable young European vascular surgeons to conduct research projects. Applicants must be members of the society.

Award amount: not specified  
Deadline: 31-May-15

**Heart Research UK**  
**Translational research grants**  
Aim to support research which can improve the health and treatment of patients with cardiovascular disease by advancing current practice or enabling innovative discoveries to be efficiently transferred into practical tools to prevent, diagnose and treat human disease.

Award amount: £150,000  
Deadline: 01-Jun-15

**National Institute of Diabetes and Digestive and Kidney Diseases**  
**Lymphatics in health and disease in the digestive, urinary, cardiovascular and pulmonary systems (R01)**  
Supports research into aspects of lymphatic vessel physiology and pathophysiology related to health and disease of digestive system and urinary tract organs, and cardiovascular and pulmonary systems, in resolution of thromboembolic events and inflammation and immune responses as they relate to these diseases. Studies to understand the factors that control local lymphatic vessel functional anatomy and physiology during health or disease in these organs or systems, and the mechanisms by which alterations of lymphatic vessel function affect organ function are of interest. Studies with a major focus on immune mechanisms will not be considered responsive.

Award amount: US$1,250,000  
Deadline: 05-Jun-15

**National Institute on Ageing**  
**Diabetes and cardiovascular disease in older adults (R01)**  
Encourages basic, clinical and epidemiological outcomes research on the impact of age on the development of, diagnosis and management of diabetes and CVD complications in older persons or animal models. Research supported by this initiative is expected to elucidate the role of ageing mechanisms that underlie the increased vulnerability of older adults to DM and its CVD complications and to provide evidence-based guidance to improve more appropriate diagnostic criteria, risk stratification and intervention recommendations to prevent the onset, or improve short- and long-term outcomes, of DM and CVD in older persons.
Circulation Foundation
President’s Early Career Award
Supports outstanding young clinician-researchers in developing their independent research careers in vascular health. Surgeons who are members of the Vascular Society and within five years of their first substantive consultant appointment or equivalent in the UK are eligible to apply.

European Society of Cardiology
Research Fellowships in Heart Failure
Aim to provide early career researchers with high quality experience that will enhance their future career and provide added value to their home institution or country. Applicants must be a citizen or a resident for at least three years in Europe or an EU associated country and be below 35 years of age. They must have provisional acceptance from the proposed training institution, but not be based there already. Clinical applicants must have completed a major part of specialist cardiological training but not yet have obtained a permanent or consultant post. Basic scientists applicants must have completed their PhD.

European Foundation for the Study of Diabetes
Research Programme in Microvascular Complications of Diabetes
Intended to stimulate and accelerate European basic and clinical research focusing on microvascular complications of diabetes.

Vasculitis Foundation
Research Programme
Aims to provide seed grants to support pilot studies that research the following areas: aetiology or pathogenesis, including a broad range of studies of immunity, inflammation or vascular biology; epidemiology, including genetics; diagnosis, including identification of disease subtypes; treatment and management, including therapeutics to treat vasculitis or prevent complications, biomarkers and psychosocial outcomes. The goal of the programme is to improve the quality of life for patients with vasculitis and find the case and cure for vasculitis.

Heart Research UK
Novel and Emerging Technologies Grant
Supports research on novel and emerging technologies and their application to cardiovascular disease prevention and treatment. The grant may support approaches including tissue and bioengineering, development of new therapeutic devices, bioimaging, nanotechnology, biomaterials, genomic and proteomic approaches, computational biology and bioinformatics. Emerging technologies or strategies in the management of risk factors or evaluation of invasive or surgical procedures or similar may also be supported.
Belgian Society of Cardiology

**Doctor Léon Dumont prize**

Recognises a European researcher in cardiovascular medicine. Applicants must be actively engaged in research and must be no more than 50 years old on 31 December 2015. The award money must be used to further the winner’s research programme.

Award amount: £250,000      Deadline: 01-Oct-15

Award amount: €40,000      Deadline: 11-Nov-15

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**PUBLICATIONS**


*Image caption: Effect of DZNep and hypoxia on EZH2 enrichment at eNOS and BDNF gene promoters.*

Image caption: VEGF-A_{165b} restores the glomerular endothelial glycocalyx in early STZ-induced diabetic nephropathy. Six weeks after STZ (or buffer) injections to induce diabetes (or normoglycemia) in DBA2J mice, mice received biweekly intraperitoneal injections of vehicle or rhVEGF-A_{165b} for 4 weeks.


Image caption: Signalling factors influencing VSMC migration with age. A culmination of data from multiple publications has elucidated a positive-feedback loop which modifies VSMC migration with age.


*Image caption: Structures of the VSD of membrane domains before MD in a POPC bilayer. The S2 (pink) and S4 (blue) helices of the VSD of the hERG model (A) and Kv1.2/2.1 chimera structure (B) are highlighted. (C) Sequence alignment of S2 and S4 among homologous voltage-sensitive K+ channels.*

Image caption: Proposed mechanism underlying cAMP-dependent regulation of CCN1 in VSMC. cAMP signalling rapidly inhibits the expression of CCN1 in VSMC. Elevation of cAMP inhibits CCN1 expression via inhibition of RhoA and hence disruption of the actin cytoskeleton. The resulting increase in monomeric actin leads to inhibition of MKL1-dependent SRF transcriptional activity and reduces CCN1. Reduced expression of CCN1 contributes towards inhibition of proliferation and migration.


Image caption: Current view of the representation of tenascins and fibronectin in extant chordates. The summary illustrates the probable relationships of the different groups of extant chordates and the presence or absence of fibronectin (FN), tenasin (TN), tenasin-C (TNC), tenasin-R (TNR), tenasin-W (TNW) or tenasin-X (TNX).
