

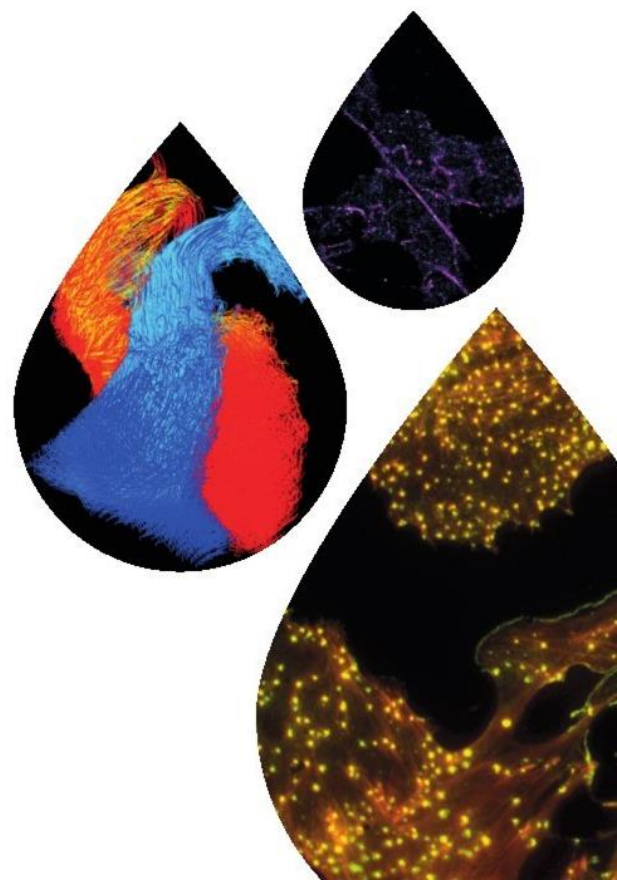
UNIVERSITY OF
BIRMINGHAM



BHF Accelerator Award

BHF ACCELERATOR AWARD OPENING

MONDAY 28TH OCTOBER 2019



ACKNOWLEDGEMENTS

We would like to say a special “thank you!” to the following:

All of the applicants who submitted disruptive idea projects.

The Accelerator award committee members, who include Professor Roy Bicknell, Dr Larissa Fabritz, Dr Kayleigh Griffiths, Professor Paulus Kirchhof, Professor Ed Rainger, Laura Sommerfeld, Dr Mark Thomas and Professor Steve Watson.

Cheryl Needham, Olivia Jones, Christine Lloyd, Helen Matthews and Donna Wiles whose hard work and dedication helped to pull this event together.

Finally to the College parent and carer fund, who supported this event, more information about the organisation can be found below:

<https://intranet.birmingham.ac.uk/mds/college-services/EDI/MDS-parents-and-carers-fund.aspx>



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THE BHF ACCELERATOR AWARD

The University of Birmingham received a BHF Accelerator Award in recognition of its emerging excellence in cardiovascular research – in particular, atrial fibrillation and heart failure, thrombo-inflammation and vascular biology.

The BHF Accelerator award will create a collaborative research pipeline from discovery science to health services research, including the provision of integrated training for scientists and clinical academics. Researchers will also have greater access to super-resolution imaging, complex disease models, clinical research infrastructure and, crucially, large datasets – all of which will help advance their research from bench to bedside.



“This award recognises that we have a strong cohort of emerging leaders and upcoming researchers, whose work will be supported by this vital funding. This investment will greatly accelerate translation of new scientific discoveries to develop new treatments for patients in the city and beyond.”

*Professor Paulus Kirchhof, Director,
Institute of Cardiovascular Sciences*

“These awards seek to encourage world-leading institutions in cardiovascular research to strengthen their areas, promote inter-disciplinary research and support the next generation of scientists.”

*Professor Sir Nilesh Samani,
Medical Director of the British Heart Foundation*



OUR RESEARCH

Atrial Fibrillation and Heart Failure

Our research cluster is a strong team of experienced clinical and non-clinical academics with multidisciplinary expertise in epidemiological research, data analysis, clinical trials, and translational (laboratory and clinical) science. Together, we develop approaches for integrated models of care and precision medicine for patients with heart failure, atrial fibrillation, and sudden death.

Thrombo-inflammation

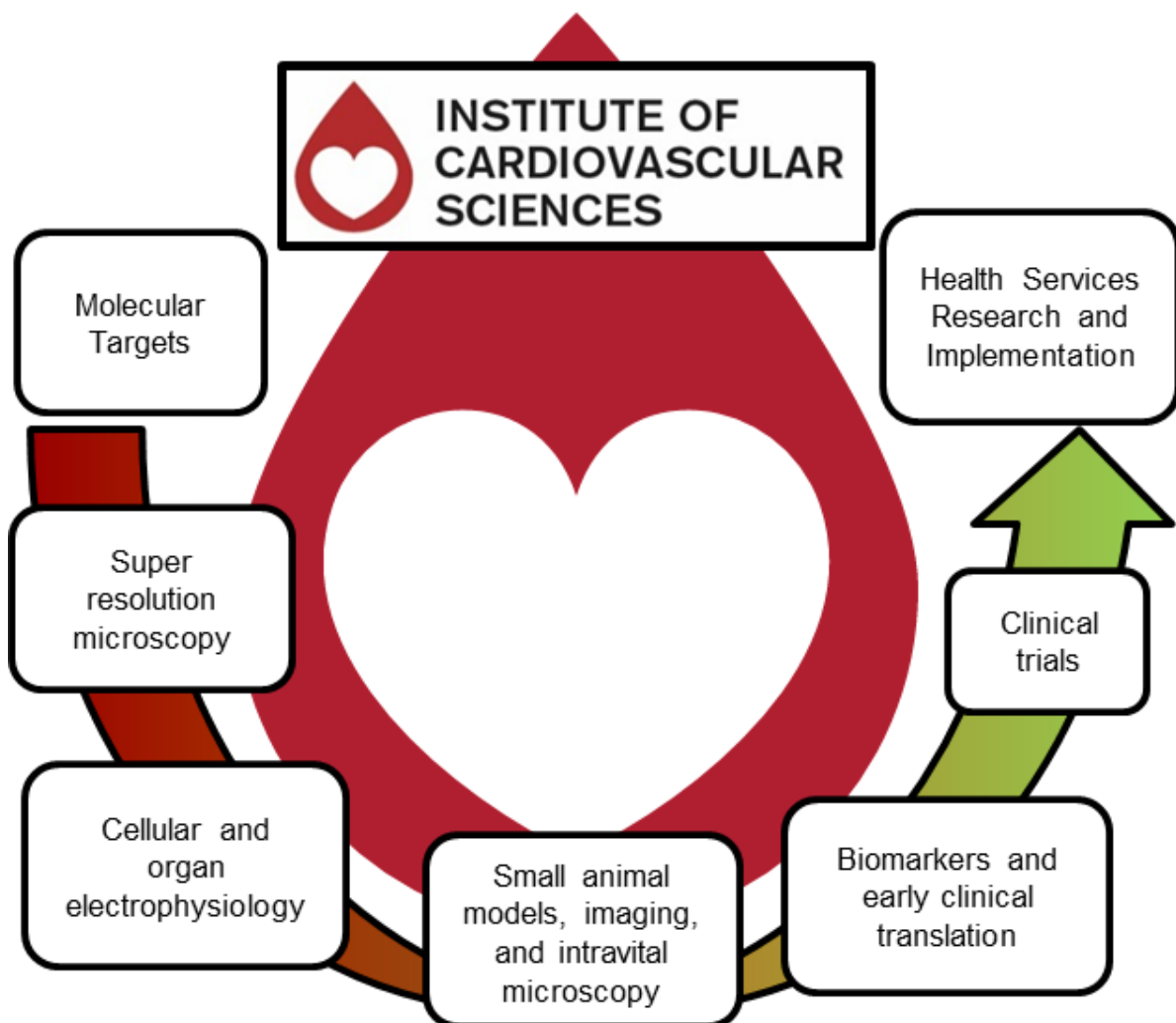
Our expertise in inflammation biology, in platelet function and in thrombotic disease means that we are ideally placed to provide new opportunities for therapeutic intervention in arterial thrombosis and thrombo-inflammatory driven pathology, whether this be in the field of chronic inflammatory vascular diseases or the thrombotic complications associated with these diseases.

Vascular Biology, Inflammation and Angiogenesis

Our world leading research into acute physiological inflammation and chronic inflammatory diseases has changed the way we understand the inflammatory process. It has also led to the discovery of novel tumour endothelial targets.

CONTINUATION

Over the past 5 years the University of Birmingham has held 9 cardiovascular related fellowships and received > £8M in funding from the BHF alone, with a similar amount of additional external funding (e.g. Wellcome Trust, MRC, NIHR, EU, Royal Society, or Leducq Foundation) to support cardiovascular research. The University also invested into important infrastructure, including the Centre of Membrane Proteins and Receptors (COMPARE), the intravital imaging suite, advanced electrophysiology equipment, Birmingham Health Partners, the Birmingham Human Biorepository Centre, and others. Integrated into the University and the Birmingham Health Care environment, we can deliver translational research from discovery of molecular targets to health services research and implementation.



WHAT'S NEXT...

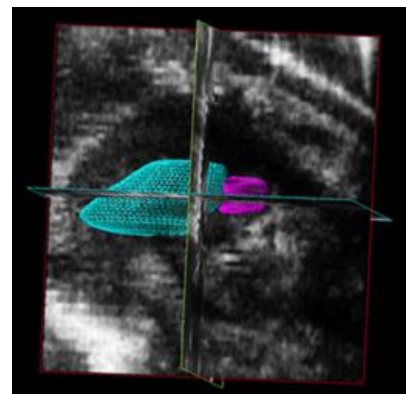
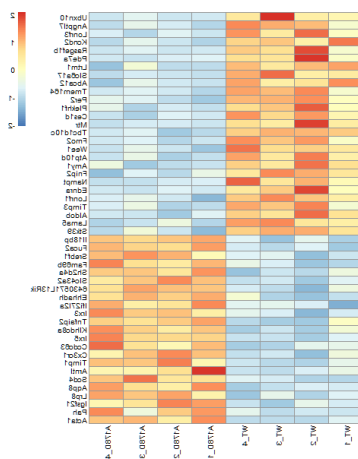
The BHF Accelerator Award will fund a number of new positions that will help to integrate research excellence, including new research nurse capacity in local hospitals, data scientists working within the Midlands Health Data Research UK (HDR-UK) and fundamental researchers embedded into the Institute of Cardiovascular Sciences (ICVS) and the Centre of Membrane Proteins and Receptors (COMPARE). A strong emphasis will be on supporting professional development of early career researchers.

Co-Funding of Staff

Dr Amanda Dalby is funded by the British Heart Foundation's Research Accelerator Award and COMPARE, and is supporting projects that use fluorescent microscopy in the cardiovascular system.

Another strategic recruitment will support our research through **Big Data analysis**, funded in partnership with The Health Data Research Midlands Site (HDR-UK).

The third recruitment will be a **small animal imaging position**, in partnership with the College of Medical and Dental Sciences.



DISRUPTIVE IDEA AWARD

The BHF Accelerator 'Disruptive Idea' award brings novelty to an area of cardiovascular research. Applications are submitted from across the University with priority given to young investigators, and to interdisciplinary projects, with a strong expectation that the award will pump-prime a Fellowship or major grant submission

Here we have the first round of successful awardees. There will be multiple rounds over the next 5 years.



Dr Abdullah Khan: collaboration with 3D Printing

Engineering a 3D printed artificial bone marrow organoid for the study of megakaryocyte and platelet biology

Christopher O'Shea: collaboration with Physics and Computer Sciences

Development of novel artificial intelligence-driven computational approaches for automated analysis of cardiac electrophysiological mapping data



Dr Jasmeet Reyat and Dr Katja Gehmlich: collaboration with Chemistry

Use of engineered substrates to promote stem cell cardiac differentiation: A model to study cardiac diseases

Dr Mark Thomas: joint award with Sandwell and West Birmingham NHS Trust

Does the factor Xa inhibitor rivaroxaban inhibit the procoagulant activity of platelets when used at very low doses in patients with stable coronary artery disease?



NEW RECRUITS AND RECENT FELLOWSHIP AWARDS

The Institute of Cardiovascular Sciences (ICVS) comprises of 26 Principal Investigators, including 6 fellowship holders, who hold fellowships from The British Heart Foundation, Royal Society and National Institute for Health Research. In addition, the ICVS has 45 post-doctoral researchers and 75 post graduate students. Two of the most recently recruited Principal Investigators are:



Professor Dirk-Peter Herten joined the Institute in August 2019, he will be working jointly with the Institute of Cardiovascular Sciences and the School of Chemistry. Professor Herten's interdisciplinary research spans from microscopy techniques over switchable fluorescent probes to biological applications.

"I became interested in the University because there is currently a strong move to form an interdisciplinary research focus on advanced microscopy techniques embracing fellow researchers from the medical department, the departments of biology and chemistry initiated by COMPARE."

Dr. Katja Gehmlich joined the Institute in July of 2019 in the role of Senior Lecturer. Dr Gehmlich holds a British Heart Foundation Intermediate Basic Science Research Fellowship and will be carrying out her research in the cardiac system with focus on inherited cardiac conditions (cardiomyopathies) and bio-mechanical stress signalling.



"I'm amazed by the size and the spirit of the University and its positive energy. I like the fact that it is one big campus, making collaborations outside my Institute easy. Close proximity to hospitals is great for translational aspects of my work."

The most recent new fellowship holder is



Dr Alexander Brill, who was a Birmingham Fellow and now holds a British Heart Foundation Senior Basic Science Research Fellowship. His main research interests are deep vein thrombosis and stroke, and how to identify new targets for their prevention and treatment.

OPENING EVENT PROGRAMME

14.00 – 14.10 **Welcome** by Prof Paulus Kirchhof

14.10 - 15.15 **Short talks – a showcase of research at the Institute**

Dr Myriam Chimen:

A novel pathway controlling T-cell trafficking during inflammation is dysregulated in chronic inflammatory diseases and ageing

Dr Alex Brill:

Deciphering the role of mast cells in venous thrombosis

Dr Neena Kalia:

Imaging the coronary microcirculation in vivo

Dr Julie Rayes:

Platelet ITAM receptors in inflammation, tissue repair and haemolysis

Dr Winnie Chua:

No smoke without fire – Biomarkers for AF

Prof Tom Marshall:

The Polypill for Cardiovascular Prevention

Dr Dipak Kotecha:

Data science reimaged to improve cardiovascular health

15.15 – 15.40 **Disruptive Idea Awards 2019**

Dr Kayleigh Griffiths: *Introduction*

Christopher O'Shea:

Development of novel artificial intelligence-driven computational approaches for automated analysis of cardiac electrophysiological mapping data

Dr Abdullah Khan:

Engineering a novel bone marrow organoid using human stem cells and 3D bioprinting

Dr Jasmeet Reyat:

Use of engineered substrates to promote stem cell cardiac differentiation: A model to study cardiac diseases

Dr Mark Thomas:

Does the factor Xa inhibitor rivaroxaban inhibit the procoagulant activity of platelets when used at very low doses in patients with stable coronary artery disease?

15.40 – 16.00 Why I came to Birmingham

Laura Sommerfeld: *Introduction*

Dr Katja Gehmlich – Senior Lecturer

Dr Asif Iqbal – Birmingham Fellow

Prof Dirk-Peter Herten – Chair in Cell Biology of Membrane Proteins

16.00 – 17.00 Poster session (and judging) + coffee

17.00 – 18.00 Official Opening of the BHF Accelerator

Professor Sir David Eastwood, Vice-Chancellor of the University of Birmingham

Professor Sir Nilesh Samani, Medical Director of the British Heart Foundation

Simon Gillespie, OBE, Chief Executive of the British Heart Foundation

Professor David Adams, Pro-Vice-Chancellor, Head of College of Medical and Dental Sciences of the University of Birmingham

Professor Paulus Kirchhof, Director of the BHF Accelerator Award, Director, Institute of Cardiovascular Sciences

18.00 – 19.00 Reception

OUR PARTNERS

This award would not be possible without the support and collaboration of our partners, all of which we have built strong working relationships with and together enhance the quality of research produced.

Birmingham Health Partners



British Heart Foundation



Centre of Membrane Proteins and Receptors (COMPARE)



Health and Data Research UK (HDRUK) Midlands



Sandwell and West Birmingham NHS Trust



University Hospitals Birmingham NHS Foundation Trust

