The College of Medical and Dental Sciences (CMDS) is divided into the following Schools:

- Cancer Studies
- Clinical and Experimental Medicine (CEM)
- Dentistry
- Health and Population Sciences (HaPS)
- Immunity and Infection

Cardiovascular Sciences is represented in all five schools and in the Department of Biosciences in the College of Life and Environmental Sciences. The majority of researchers in cardiovascular sciences belong to CEM and HaPS. Research in cardiovascular in these Schools is lead by Profs Gerard Nash and David Fitzmaurice, respectively.

Research in Cardiovascular Sciences between Schools and Colleges is coordinated through the Centre for Cardiovascular Sciences which is chaired by Profs Steve Watson and Gregory Lip. The Centre for Cardiovascular Sciences runs an active seminar programme and various events throughout the calendar year including an introductory meeting for new PIs and workshops.

Cardiovascular sciences in Birmingham ranges from basic research, animal studies to clinical investigation in the hospital and community, and is subdivided into the following themes:

**CRIC (Cardiorespiratory Integration and Control)**

*Theme lead: Prem Kumar*

Research is aimed towards an understanding of the physiological and pathological processes underlying systemic cardiovascular and respiratory homeostasis in health and disease. The group consists of basic scientists and clinicians studying the impact of acute and chronic disturbances of oxygen delivery and utilisation in human and animal models. A variety of approaches, from sub-cellular to clinical, are utilized, but the group is particularly distinguished by its use of *in vivo* techniques and its emphasis on systemic integration. Present studies include elucidation of: blood flow regulatory mechanisms in skeletal and cardiac muscle in models of ischaemia; hypoxia transduction mechanisms in health and diseases pertaining to chronic or intermittent hypoxaemia, e.g. COPD and obstructive sleep apnoea; cardiorespiratory function in diseases of metabolism including diabetes and metabolic syndrome; the impact upon cardiovascular regulation of alterations in thermoregulatory set point; potential in clinical intervention.
Clinical Cardiovascular Science

**Theme lead: Gregory Lip and John Townend**

Key areas of study are the pathophysiology of heart failure, novel techniques for cardio-protection during surgery and following ischemic reperfusion injury, thrombosis and haemostasis in atrial fibrillation, the molecular basis of sudden-death syndrome and new approaches to management of life-threatening cardiac arrhythmias. Novel transgenic mouse models of atrial fibrillation are used to model the disease process and identify novel sites of intervention.

Primary Care and Population Cardiovascular Sciences

**Theme lead: David Fitzmaurice**

This covers a mature and expanding programme encompassing several large longstanding research groups investigating cardiovascular risk factors, health service implementation and behaviour modification for prevention at a population and primary care level. The areas of research include primary prevention, cardiovascular risk screening and treatment of heart failure, atrial fibrillation, anticoagulation and stroke.

VITA (Vascular Inflammation, Thrombosis and Angiogenesis)

**Theme lead: Steve Watson**

The overall aim of the VITA research theme is to understand the events that underlie the interactions of circulating blood cells with cells of the vessel wall and matrix proteins, and how these change in cardiovascular disorders such as atherosclerosis, arterial thrombosis, cancer growth and metastasis, ischaemia-reperfusion injury and chronic vascular inflammation. Key areas of research are platelet function and platelet bleeding disorders, physiological and cancer-regulated angiogenesis, leukocyte-endothelial cell interactions under flow, lymphangiogenesis and stem-cell homing in transgenic mice models.

The College of Medical and Dental Sciences returned 25 principal investigators under unit of assessment 1: Cardiovascular Sciences in the RAE. 50% of the research outputs scored 3 or 4 (internationally excellent / world-leading) with the remainder scoring 2 (internationally important). Features of the return included the high proportion of early career researchers (~35%) and NHS-funded investigators (~30%) with over 50% of the remaining PIs having held programme grants during the consensus period. A significant number of cardiovascular researchers were returned under UoA:8 ‘Primary care and other community based clinical subjects’, which was the strongest return in the College (35% of the return was graded 4). Several scientists with major interests in cardiovascular sciences were returned under other units of assessment.

Research in cardiovascular sciences is funded by the British Heart Foundation, Wellcome Trust, MRC, BBSRC, NIHR and the pharmaceutical industry.
Links:
- Birmingham Platelet Group
  http://www.platelet.bham.ac.uk/
- Centre for Cardiovascular Sciences
  http://www.clinexpmed.bham.ac.uk/research/cardio.shtml
- College of Medical and Dental Sciences
  http://www.about.bham.ac.uk/colleges/mds/
- Centre for Cardiovascular Sciences at City Hospital

If you would like further information on the researchers in this booklet, please click on their names and it will take you to their individual web profile pages.

Special thanks to Gayle Halford (g.m.halford@bham.ac.uk) who has put this booklet together and who coordinates the seminar programme in cardiovascular sciences.
By motorway

For sat nav users enter postcode B15 2SG which will direct you to the College of Medical and Dental Sciences on Vincent Drive.

Approaching from the north west or south east along the M6:
- Leave at Junction 6 (signposted Birmingham Central) to join the A38(M)
- At the end of the motorway, keep to the right, go over a flyover, then through some underpasses to join the A38 Bristol Road
- The University is on your right, two and a half miles from the city centre

Approaching from the M42:
- Leave at Junction 8 to join the M6 northbound and follow the instructions above
- Approaching from the south west:
- Leave the M5 at Junction 4 signposted Birmingham SW) to join the A38
- The University is approximately eight miles from the motorway

Approaching from the M40:

It is advised to turn south on the M42 and leave at Junction 1, heading north on the A38 Bristol Road. The University is approximately eight miles from the motorway.

By air

**Birmingham International Airport** has direct flights from locations in the UK, as well as from the USA, Canada, Europe and the Middle East.

The journey by taxi from the airport to the University takes approximately half an hour. Alternatively, Air-Rail Link provides a free, fast connection between the airport terminals and Birmingham International railway station. Air-Rail Link operates every two minutes (journey time 90 seconds). Birmingham International railway station has frequent services to New Street Station in the city centre (journey time around 15 minutes).

If you are arriving at London, there is a frequent train service from London Euston railway station to New Street Station (journey time around 1 hour 30 minutes).
From Heathrow Airport. Take the Heathrow Express train to Paddington Station and then the Underground or a taxi to Euston Station. Alternatively, an Airbus runs from Heathrow Airport direct to Euston Station.

From Gatwick Airport. Take the Airport Express train to Victoria Station and then the Underground or a taxi to Euston Station.

By rail

Most cross-country services to Birmingham arrive at New Street Station. Up to six trains an hour depart from New Street Station for the University on the cross-city line (final destination Longbridge or Redditch). The Medical School is a 100 metre walk from University Station.

By taxi

There are taxi ranks at New Street Station and throughout the city centre. The journey to the University takes about ten minutes from New Street station. T.O.A. Taxis (black cabs) telephone number: 0121 427 8888.
Career History

1981  MA (Chemistry), University of Oxford
1984  D.Phil, Sir William Dunn School of Pathology, University of Oxford
1985  NATO Postdoctoral Fellow, Harvard Medical School
1988  Instructor in Biological Chemistry, Harvard Medical School
1989  PI ICRF Angiogenesis Group, Institute of Molecular Medicine, University of Oxford
2004  Professor of Cancer Cell Biology, University of Oxford
2005  Professor of Functional Genomics, University of Birmingham

Research Summary

Our group is interested in the identification of novel endothelial genes and in exploring the functional activities of such genes and their potential as therapeutic targets. We employ functional genomic technologies such as high throughput sequencing and microchip expression arrays combined with bioinformatics datamining using search algorithms to identify putative endothelial gene candidates. Over the years we have identified several such genes including delta like4, Robo4, EndoPDI and ECSCR (endothelial cell specific chemokine regulator, previously ECSM2). We use a combination of molecular cell biology and in vivo models to study the function of these genes. These include in vitro assays with isolated endothelium to zebrafish developmental models and mouse transgenesis.

Recent Publications


Career History

1983  BA (Open)
1987  MSc (Birmingham)
1995  PhD (Manchester)
1997  Lecturer, University of Birmingham, and Principle Clinical Scientist, City Hospital
1998  MRCPath (Haematology)
2001  Senior Lecturer, University of Birmingham
2001  Fellow of the Royal Statistics Society, London
2003  Consultant Clinical Scientist, City Hospital
2004  FRCPath (Haematology)
2009  SWBH Trust Statistician

Research Summary

Interest in Clinical Research include thrombosis, haemostasis, angiogenesis and vascular biology. Tools include flow cytometry, ELISA, tissue culture. Current diseases processes being studied include cardiovascular disease (acute coronary syndromes, its risk factors and consequences), connective tissue disease (rheumatoid arthritis) and cancer (colorectal, prostate). Research hypotheses generally tested in subjects recruited at Sandwell and West Birmingham NH Trust, and elsewhere.

Recent Publications


Sampson Gamgee Professor of Vascular Surgery
College Head of Quality Assurance and Enhancement

Andrew W Bradbury
a.w.bradbury@bham.ac.uk
Tel: 07858-430403

Career History

1983 BSc. Bacteriology, First Class, Edinburgh University
1985 MB. ChB. with Honours, Edinburgh University
1992 Fellow, Royal College of Surgeons of Edinburgh (FRCSEd)
1992 MD, Edinburgh University,
1996 - 2000 Senior Lecturer and Honorary Consultant in Vascular Surgery; Edinburgh University
2000 Sampson Gamgee Professor of Vascular Surgery, Birmingham University
2000 Consultant Vascular and Endovascular Surgeon, Heart of England NHS Foundation Trust (HEFT)
2002 - 2006 R&D Director, Heart of England NHS Foundation Trust (HEFT)
2005 MBA Distinction, Birmingham Business School
2005 - 2008 Chair, Curriculum Development Implementation Committee, Birmingham University
2006 - 2008 Education Dean, Medical School, University of Birmingham
2008 Head of Quality Assurance and Enhancement, College of MDS, Birmingham University

Research Summary

Research areas include:
1. Bypass versus Angioplasty in Severe Ischaemia of the Leg (BASIL) Trial (PI: Prof Bradbury)
2. Ultrasound guided foam sclerotherapy for chronic venous insufficiency (CVI)
3. CVI and thrombophilia
4. Screening for MRSA in surgical patients and the effect on clinical outcomes
5. Coagulation, fibrinolysis and myocardial injury in patients undergoing vascular interventions
6. Arterial wall compliance and the development and progression of arterial disease
7. Epidemiology of arterial and venous disease with a special interest in ethnicity

Recent Selected Publications


Career History

1985  BA Natural Sciences (Biochemistry) with supplementary subject Chemical Pharmacology, University of Oxford
1990  MB BS, University of London
1991  FMGEAMS Diploma (Basic/Clinical science)
1991  Senior House Officer in Rheumatology and Neurology, Hammersmith Hospital, London
1992  Senior House Officer in Cardiology, Royal Brompton National Heartand Lung Hospital.
1993  MRCP (UK) Royal College of Physicians
1993  Senior House Officer, Central Oxford Hospitals, Oxford.
1993  Wellcome Trust Research Training Fellow, Oxford. (Dr. David Simmons)
1996  D Phil University of Oxford
1996  Wellcome Trust Clinician Scientist, Honorary Clinical Lecturer, Birmingham
2000  CCST Rheumatology
2001  MRC Senior Clinical Fellow, Birmingham
2002  arc Professor of Rheumatology, Birmingham

Research Summary

During immune responses, peripheral blood leukocyte numbers are tightly regulated. However little is known about how leukocyte and stromal cell numbers are regulated during inflammatory responses within tissues. Although there is considerable evidence that preferential recruitment of cells to inflammatory lesions occurs during the initial stages of an inflammatory response, the mechanisms regulating their accumulation in inflamed tissue remain largely unexplored. Our research programme has focussed on the molecular basis of leukocyte accumulation at sites of chronic inflammation; in particular within the inflamed synovium. These studies are particularly aimed at:

1. Defining the adhesive mechanisms involved in selective transendothelial migration.
2. The role of adhesion dependent signals in modifying leukocyte migration and behavior.
3. Adhesive mechanisms regulating leukocyte retention within the chronically inflamed synovium.
4. Molecular analysis of leukocyte accumulation and retention in chronic inflammation.

Recent Publications


**Career History**

- **2007** Professor and Chair, Department of Oral Surgery, The School of Dentistry
- **2007** Associate Professor of Health Policy and Health Services Research, Boston University
- **2003** Assistant Professor of Health Policy and Health Services Research, Boston University
- **2003** Doctor medicinae (Dr. med.) Humboldt University of Berlin, Berlin, Germany
- **2002** MPH Harvard University, Cambridge, MA, USA
- **2001** MD Humboldt University of Berlin, Berlin, Germany
- **1997** Doctor medicinae dentariae (Dr. med. dent.), Free University of Berlin, Germany
- **1996** Assistant Professor, Departments of Oral Surgery and Periodontology, Charite, Berlin
- **1995** DMD Humboldt University of Berlin, Berlin, Germany

**Research Summary**

My research focus is on clinical and epidemiologic research on determinants of oral diseases and oral health outcomes and their interactions with systemic disease, in particular cardiovascular and rheumatic diseases.

**Selected publications**

Clinical Lecturer in Cardiovascular Medicine

Nicola Edwards

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Tel: +44 7811466603

Career History

1997  B.Med.Sci, University of Nottingham
1999  B.M.B.S, University of Nottingham
2003  Membership of Royal College of Physicians (London)
2005  Clinical Research Fellow. University of Birmingham
2008  Specialist trainee in Cardiology. West Midlands
2010  Clinical Fellow in Cardiac Radiology. Auckland. New Zealand
2011  PhD, School of Clinical and Experimental Medicine. University of Birmingham
2012  Clinical Lecturer in Cardiovascular Medicine. University of Birmingham

Research Summary

My primary research interest centres around the use of non-invasive imaging modalities to examine cardiac structure, function and fibrosis which have a role in promoting the development of heart failure.

1. In my PhD thesis I used advanced echocardiographic and cardiac magnetic resonance imaging to characterise the earliest cardiac abnormalities in early stage chronic kidney disease.
2. I also explored the hypothesis that treatment with spironolactone would be an effective strategy at reducing arterial stiffness and left ventricular mass in patients with early chronic kidney disease (CKD). Our data have confirmed that spironolactone is both safe and effective on major end-points which are predictors of mortality in CKD and thus has important implications for early preventative treatment in CKD.
3. We are now using advanced contrast enhanced cardiovascular magnetic resonance imaging (CMR) techniques known as T1-mapping, which have been validated against the current gold standard of cardiac biopsy to quantify diffuse myocardial fibrosis in patients with ventricular hypertrophy and valvular heart disease.
4. We are also examining in-vitro animal and in-vivo human cardiomyocytes to determine the signaling pathways involved in promoting ventricular hypertrophy and fibrosis

Recent Publications


Career History

1977  BSc (Hons) Zoology, University of Wales, Bangor
1982  PhD, Department of Physiology, University of St Andrews
1983  NERC Postdoctoral Research Fellow, University of Maine
1985  Wellcome Trust Research Fellow, Department of Physiology, University of Birmingham
1989  Lecturer, Department of Physiology, University of Birmingham
1995  Senior Lecturer, Department of Physiology, University of Birmingham
2000  Reader, Department of Physiology, University of Birmingham

Research Summary

The Angiogenesis Research Group studies the mechanisms underlying growth of blood vessels in skeletal and cardiac muscle, with a particular emphasis on how haemodynamic forces (the local physical environment of endothelial cells) may initiate and control the proliferation of capillaries. For example, increased blood flow (elevated shear stress) and imposed stretch (higher wall tension) lead to different patterns of growth originating at the luminal and abluminal surfaces, respectively. Chronic reduction in blood flow or increased activity are used to identify the range of strategies available to balance oxygen supply and demand. Our multidisciplinary approach ranges from cell & molecular assays to in vivo, integrative physiology in a range of animal species and man examining adaptations to myopathic and training responses, steroid and overload hypertrophy, muscle stimulation and ischaemia, hypothermia and hypoxia. We are currently exploring the potential for stem cell therapy in these conditions. Cardiovascular responses to hypothermia has major implications for morbidity and mortality. We compare the strategies adopted by hibernators with the more limited tolerance of other mammals, examining angiogenic potential, vascular reactivity and cardiac autonomic control mechanisms. Ectotherms from different thermal extremes provide insights into the physiological limit to life on the edge.

Recent publications


Senior Clinical Lecturer in Acute Medicine

Larissa Fabritz
L.Fabritz@bham.ac.uk
Tel: +44 121 414 8259 / 6938

Career History

1993  Research year, Departments of Pharmacology and Cardiology, Georgetown University, Washington DC, USA
1997  Graduation from medical school at WWU Münster, Germany
1997  Residency, Department of Paediatrics, University Hospital Münster, Germany
1998  Thesis (Dr. med.) “summa cum laude” on “Myocardial Vulnerability by T Wave Shocks: Role of Dispersion of Repolarisation and Effect of d-Sotalol”
2000  Residency, Medicine and Cardiovascular Research, University Hospital Münster, Germany
2008  DFG funded independent Clinician Scientist
2010  Board certification in Medicine
2011  Senior Clinical Lecturer, University of Birmingham, Consultant SWB H NHS Trust

Research Summary

We study novel mechanisms of heart disease and perform translational research towards mechanism-based therapies of cardiovascular diseases. Using genetically altered cardiovascular disease models, we observe how cardiovascular diseases develop over time and how environmental factors, behaviour as well as targeted therapy can modify them. We investigate interactions between heart rhythm and cardiac structure and have a special interest in atrial and right ventricular pathologies.

In collaborations with the University of Muenster, Germany, we continue research on molecular cardiovascular imaging as well as molecular mechanisms of cardiomyopathies and arrhythmias.

Recent Publications


Research Summary

Professor Fitzmaurice is Clinical Lead for Primary Care Clinical Sciences. He leads the Primary Care Cardiovascular Research Team which is concerned with all Cardiovascular disease within a primary care context. His personal interest lies in atrial fibrillation and heart failure, with a particular emphasis on the management of antithrombotic agents. He was PI on the key studies BAFTA and SAFE. Both of these studies have had a major impact on clinical management for patients with atrial fibrillation and have been incorporated into national and international treatment guidelines. He has also led the development of service delivery for patients receiving anticoagulant therapy, initially demonstrating the utility of primary care models of oral anticoagulation management (the Birmingham Model) and developing this into patient self-management utilising near-patient INR testing. Latterly he has obtained NIHR funding to improve the diagnosis and treatment of patients with venous thromboembolism. This includes developing a clinical prediction rule to establish cohorts at high or low risk of recurrence following a first episode of venous thromboembolism. This will utilise clinical data and laboratory biomarkers. He is also clinical lead of the evidence synthesis group which has developed expertise in undertaking systematic reviews, particularly around controversial areas in cardiovascular medicine such as aspirin resistance. He is a board member of the Society for Academic Primary Care (SAPC), the Primary Care Cardiovascular Society (PCCS), for which he chairs the Anticoagulation Working Group. He sits on the editorial board of the British Medical Journal, is a member of the Advisory Group of the UK Medical Research Council, and was formerly the primary care editor for the PROMOAT website. He has published extensively in the field of primary care cardiovascular research and was co-author of the UK self-management for oral anticoagulation guidelines.

Recent Publications


Fitzmaurice DA. Is there a role for cardioversion in the management of atrial fibrillation? Therapy 2010;7:159-162


Deborah McCahon; Ellen T Murray; Kathryn Murray; Roger L Holder; David A Fitzmaurice. Does self-management of oral anticoagulation therapy improve quality of life and anxiety? Family Practice 2010; doi: 10.1093/fampra/cmq089

Fitzmaurice DA. What is the real role of anticoagulants in atrial fibrillation and stroke. Primary Care Cardiovascular Journal 2010;S18-S21.
Research Summary

Transcriptional regulation of blood cell development and differentiation

Our group is interested in how transcriptional regulation of gene expression controls blood cell production. Throughout development and adult life, haemopoiesis begins with self-renewing stem cells that are able to commit to differentiation along one of eight discrete lineages that ultimately give rise to the mature cells in the circulation and lymphoid tissues. We investigate how transcriptional regulation is instrumental in: i) directing the decision of a particular blood progenitor cell to differentiate along one of two or more alternative pathways, and ii) establishing lineage-specific gene expression. In investigating the first aim, we concentrate on the c-Myb transcription factor, which is essential for both the generation and maintenance of haemopoiesis, particularly at the level of the stem cells and immature progenitors. Using genetic strategies and a range of cell and molecular biological approaches, we alter c-Myb expression and assess the consequences. We are particularly interested in using microarray screening to identify the gene targets of c-Myb. In addressing our second aim, we focus on megakaryocytic differentiation, which ultimately results in the production of platelets. Again, c-Myb appears to play a role, but in addition we are examining the involvement of its homologue B-Myb and transcription factors belonging to the Ets family. We are investigating how c-Myb, B-Myb and Ets protein expression affects key processes during megakaryocyte differentiation such as polyploidisation, platelet production and the regulation of genes encoding key functional proteins.

Selected Publications


Dr Paramjit Gill is an academic GP, University of Birmingham and works in a diverse inner city practice in Birmingham. His research interests are addressing inequalities in health and health care particularly amongst migrant populations and evidence-based health care and its application to health care delivery. He is the chief investigator of a landmark study (E-ECHOES) examining the prevalence of heart failure amongst minority ethnic groups in the UK funded by the BHF and the Heart of Birmingham Teaching PCT. This is the largest heart failure screening study in the world that has phenotyped over 5,408 South Asian and African-Caribbean subjects. This large study provides a platform for further work - including establishment of minority ethnic cohort study.

He has been involved with development of two NICE guidelines on ‘Prevention of Cardiovascular Disease in Different Populations’ and ‘Lipid Modification: Cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease’ and is a member of the MRC Strategic Skills Fellowship Panel and the NIHR Fellowship Scheme Postdoctoral Fellowships Panel. He works closely with colleagues within and outside the university on translational research and has collaborations, for example in India with the Public Health Foundation of India.

**Selected Publications**

Patel JV, Hughes EA, Lip GYH, Gill PS. (2011) Diabetes Health, Residence & Metabolism in Asians: the DHRMA study research into foods from the Indian subcontinent - a blinded, randomised, placebo controlled trial. BMC Cardiovascular Disorders, 11:70


Research Summary

Paulus has published original research in recognised journals including the Lancet, Circulation, the Journal of Experimental Medicine, Nature Methods, and the Journal of Clinical Investigation. He started his research career during a research year at Georgetown University, Washington DC, USA. At University of Münster, his translational cardiovascular research group studies molecular mechanisms of heart disease. In parallel, he has initiated investigator-initiated controlled clinical trials to translate pathophysiological insights into new therapies for heart disease. In Birmingham, he expects to continue the evaluation and improvement of clinical management of patients with heart disease, especially cardiomyopathies, heart failure, and arrhythmias. In parallel, he will continue to apply transgenic technology to characterize novel mechanisms of myocardial dysfunction and probe new "translational" therapies for heart disease.

His research is currently supported by several independent funding agencies, including Fondation Leducq within the European North-Atlantic Atrial Fibrillation Research Alliance (ENAFRA), the German Research Foundation (DFG) within the Collaborative Research Center "Molecular Cardiovascular Imaging" in Münster, and the European Union (FP7) through the European Network for Translational Research in Atrial Fibrillation (EUTRAF). He is currently building up a research group at University of Birmingham, so look out for job opportunities if you have an interest in the field!

Recent Publications


Lecturer in Cardiac Physiology

David Hauton
d.hauton@bham.ac.uk
Tel: +44 121 4146938

Career History

1988  BSc Biochemistry and Toxicology, University of Surrey
1992  PhD Toxicology, University of Surrey
1996  Scientific Officer DERA Haslar, Gosport, Hants
1998  Postdoctoral Research Fellowships, University of Oxford
2003  Lecturer in Nutritional Biochemistry, University of Nottingham
2004  Lecturer in Physiology, University of Birmingham

Research Summary

Cardiac failure affects one in five people and is characterised by poor mechanical performance and altered metabolism. We are currently investigating the contribution that lipids and their deposition within cardiac muscle makes to the poor performance of hypertrophied hearts and how structural alterations to the heart as a result of remodelling can perturb oxygen delivery to the myocardium. This can result in an imbalance between the use of fuel to produce energy the accumulation of unused lipids within the muscle and so lead to ‘lipotoxicity’. We are currently investigating the feedback control mechanisms that may regulate the intake of lipids into the heart.

Selected Publications


Hauton D. (2011) Does metformin increase cardiac lipoprotein lipase? Metabolism, Clinical and Experimental 60 p.32-42


Lecturer in Molecular Biology

Victoria Heath
v.heath@bham.ac.uk
Tel: +44 121 4158818

Career History

1994  BA in Natural Sciences, University of Cambridge
1997  DPhil in Immunology, Sir William Dunn School of Pathology, University of Oxford
1997  Post-doctoral research fellow, DNAX Research Institute, Palo Alto, California, USA
2000  Post-doctoral research fellow, Stanford University, Stanford, California, USA
2004  Beit Memorial Fellow, School of Biosciences, University of Birmingham
2006  Lecturer in Molecular Biology, College of Medical and Dental Sciences, University of Birmingham

Research Summary

Dr Heath is interested in determining the role of novel endothelial expressed genes in endothelial cell biology and angiogenesis. Angiogenesis, the development of new blood vessels, plays a critical role in tumour growth and metastasis as well as in diseases such as atherosclerosis. A current interest of our group is to determine the biological role of RhoJ, a small Rho GTPase, in endothelial cells. This gene, which is closely related to Cdc42, is highly and specifically expressed in endothelial cells and is involved in regulating endothelial cell movement and in vitro tube formation. We are currently defining its role in vivo and determining its interacting partners and the signalling pathways in which it is involved.

Selected Publications


Career History

1990  BSc (Hons) Applied Biology, UWIST, Cardiff
1994  PhD, CRC Gray Laboratory, University of London
1993  Research associate CRC Gray Laboratory
1994  Post doctoral research fellow University of Nottingham
2001  Post doctoral research fellow University of Birmingham
2001  Lecturer, University of Birmingham

Research Summary

My research interests encompass various aspects of the molecular regulation of the vascular endothelial growth factors (VEGF), angiopoietins and cognate receptors, which play key roles in both angiogenesis and lymphangiogenesis. In particular, placenta growth factor (PIGF) and its receptor Flt-1, which are associated with poor outcome in pathologies such as atherosclerosis, diabetes, and cancer making them targets for therapy. Current studies are focused on the autocrine function of VEGFs in the endothelium; identification of pathways controlling growth factor and receptor expression following insults such as hyperglycaemia / oxidative stress and the transcriptional regulation of these genes. We are also investigating anti-gene approaches targeted at key regulatory sites to modulate the expression of endothelial receptors.

Recent publications


Career History

1985  BSc Hons (Biochemistry), RHC, London University
1989  PhD, (Biochemistry), University of Birmingham
1989  Postdoctoral Researcher, Marie Curie Research Institute, UK
1993  Career Break
1996  MRC Research Fellow, Department of Biochemistry, University of Bristol
2006  Senior Research Fellow, Roberts Research Fellow, University of Birmingham

Research Summary

My research interests focus on the role of the PRH/HHex transcription factor in the regulation of haematopoiesis and angiogenesis and the mechanisms used by this protein in the regulation of cell proliferation and differentiation. We use multidisciplinary approaches that range from in vitro functional and biochemical and biophysical assays on the PRH protein, to cell biology based studies on immortalised and primary cell lines. Our current research examines regulation of the genes in the VEGF signalling pathway by PRH and the outcome of this regulation for haematopoietic and vascular smooth muscle cell growth.

Recent Publications


Career History

1986  MBChB, University of Bristol, UK
1990  Member of the Royal College of General Practitioners
1992  MSc (Public Health), London School of Hygiene and Tropical Medicine
1998  Membership of the Faculty of Public Health Medicine (UK)
1999  Lecturer in Public Health and Epidemiology, University of Birmingham
2004  Senior Lecturer in Public Health & Epidemiology, University of Birmingham
2008  PhD, University of Birmingham

Research Summary

My research interests span prevention of cardiovascular disease from primary prevention by population-based behaviour change to cardiac rehabilitation and secondary prevention. In the field of population-based behaviour change I have led recent RCTs evaluating the effectiveness of a range of commercial and NHS provided weight management programmes for people in primary care (Lighten Up) and an evaluation of a self-determination theory approach to an exercise referral programme (EMPOWER) in collaboration with colleagues from Sport and Exercise Science. As part of the Birmingham and Black Country CLAHRC, I am evaluating a chronic disease education programme for people from a multi-ethnic population. I have led two large trials in the field of cardiac rehabilitation: the Birmingham rehabilitation Uptake Maximisation Study (BRUM) compared the outcomes of home-based and centre-based cardiac rehabilitation and BRUM-CHF was an RCT evaluating a home-based exercise programme for patients with heart failure. I am interested in developing work on rehabilitation for patients with heart failure with preserved ejection fraction.

Recent Publications


Senior Lecturer in Cardiovascular Sciences  
(Microcirculation Research Group)

Neena Kalia  
n.kalia@bham.ac.uk  
Tel: +44 (0)121 415 8818

Career History

1993  BSc Hons, Biomedical Sciences, Sheffield University  
1997  PhD, Surgical and Anaesthetic Sciences, Sheffield University  
1997  Postdoctoral Researcher (Welcome Trust, BRET & NHS Trustees), Sheffield University  
2004  Research Fellow (MRC Co-operative), University of Birmingham  
2006  Non-Clinical Lecturer (HEFCE), University of Birmingham  
2010  Senior Lecturer (HEFCE), University of Birmingham

Research Summary

I head a Microcirculation Research group which visualises the microcirculation in vivo using state-of-the-art confocal based intravital microscopy which allows real-time and dynamic microcirculatory images to be captured in vivo. This technique allows numerous microcirculatory disturbances to be quantitated including the various events of the adhesion cascade (rolling/adhesion/transmigration) and also changes in vascular integrity. This methodology is used to underpin the two main areas of my research. Firstly, we aim to identify the pathophysiological mechanisms underlying acute (eg. ischemia-reperfusion injury) and chronic (eg. colitis) inflammatory disorders, particularly the contributory role of neutrophils, platelets and lymphocytes. More specifically, we are interested in determining how heterotypic interactions and cross-talk between these circulating cells influence their recruitment. Secondly, my group has gained expertise in elucidating the molecular adhesive mechanisms and the environmental cues governing the homing of different stem cell (SC) populations to similar sites of injury. Specifically, we are interested in determining these mechanisms for adult bone marrow derived hematopoietic and (HSC) mesenchymal stem cells (MSC). We have adopted a multi-tissue approach (liver, kidney, small intestine, colon, muscle, skull), allowing critical site-specific strategies to be developed that either inhibit or encourage cell recruitment.

Recent Publications

Kavanagh DPJ, Durant LE, Crosby HA, Lalor PF, Frampton J, Adams DH, Kalia N. Haematopoietic stem cell recruitment to the hepatic microcirculation following murine ischemia-reperfusion injury is dependent on an α4β1 integrin interaction (2010). Gut 59:79-87.  
Career History

1982  BSc (Physiology), Leeds University
1985  PhD, University Laboratory of Physiology, Oxford University
1986  Postdoctoral Researcher, Dept Biochemistry and Physiology, University of Reading
1989  Lecturer, Department of Physiology, University of Birmingham
1995  Lister Institute Research Fellow (Senior Lecturer), University of Birmingham
1997  Reader, Department of Physiology, University of Birmingham

Research Summary

My research interests are in the area of cardiorespiratory physiology with a particular emphasis on chemotransduction mechanisms and the postnatal development of chemoreceptor sensitivity. The general approach I have adopted in the laboratory is to utilise a number of models ranging from in vivo to molecular-based from which hypotheses can be tested through various levels of organisation. Major research presently undertaken involves:

1. Role of AMPK in chemoreception (collaboration with colleagues in Edinburgh, Leeds and Dundee)
2. Glucose/metabolic sensing by the carotid body
3. Role of ATP in mediating vasomotion
5. Influence of diabetes on ventilation (in collaboration with Dr Hauton)
6. Obstructive sleep apnoea and cardiorespiratory control ((in collaboration with Drs Balanos and Ray)
7. COPD, chronic hypoxia and inflammation (with Drs Turner and Egginton)

Recent Publications


Deirdre A Lane
d.a.lane@bham.ac.uk
Tel: +44 121 5075080

Career History

1995  BSc Psychology (Hons), University of Liverpool
2000  PhD, University of Birmingham
2000  Postdoctoral Research Fellow, University Department of Medicine, City Hospital, Birmingham
2003  Academic Fellow and Honorary Non-Clinical Lecturer in Medicine, University Department of Medicine, City Hospital, Birmingham
2010  Lecturer in Cardiovascular Health, Centre for Cardiovascular Sciences

Research Summary

Atrial fibrillation; Quality of life; Health psychology; Epidemiology of cardiovascular diseases; Cardiac rehabilitation

Dr Lane's main research interest is atrial fibrillation (AF), particularly how AF affects quality of life and psychological well-being, and patient perceptions' of the condition. She is currently the principal investigator for a randomised controlled trial [TREAT: ISCRN93952605] comparing intensive education with usual care in AF patients newly referred for oral anticoagulation, to examine the impact of education on patients’ knowledge and perceptions of AF and its treatment, and INR control. She is also the principal investigator for an NIHR Health Technology Assessment systematic review of the effects of combination antithrombotic therapy on vascular events in high-risk (post acute coronary syndromes and/or stent implantation) AF patients. In addition, she is involved in refining the risk stratification of patients requiring oral anticoagulation based on their bleeding risk, in addition to their stroke risk profile. Her background is in health psychology and cardiovascular epidemiology and other research interests include hypertension, heart failure, and ethnic differences in cardiovascular disease.

Selected Publications


Smith DE, Borg-Xuereb C, Pattison HM, Lip GYH, Lane DA. Trial of an educational intervention on patients’ knowledge of atrial fibrillation and anticoagulation therapy, INR control, and outcomes of treatment with warfarin (TREAT). BMC Cardiovascular Disorders 2010;10:21.


Research Summary

Professor GYH Lip MD FRCP FACC FESC has research interests in atrial fibrillation, hypertension, heart failure, thrombosis and antithrombotic therapy, and ethnic differences in vascular disease. In addition, he has a major interest into the psychophysiology and understanding of the disease process in cardiovascular disease (including atrial fibrillation), as well as physician and patient perceptions of antithrombotic management strategies. Finally, he leads a laboratory-based research group into thrombosis and vascular biology in cardiovascular disease and stroke.

Professor Lip has a national and international profile in atrial fibrillation, thrombosis and antithrombotic therapy.

Professor Lip has served on many clinical trial steering committees – being involved in study design, organisation and conduct - as well as trial Data Safety Monitoring Boards. He is currently the lead for the cardiovascular research programme for Sandwell and West Birmingham NHS Hospitals NHS Trust, as well as Clinical Lead for the Birmingham and Black Country Cardiovascular Clinical Comprehensive Local Research Network.

Professor Lip has been involved in local epidemiological surveys of thromboprophylaxis for atrial fibrillation, and formulation of regional/national antithrombotic therapy guidelines for atrial fibrillation. He has published and lectured extensively on the clinical epidemiology of atrial fibrillation and hypertension, as well as on the pathophysiology of thrombosis in cardiovascular disease.

Selected Publications


Melanie Madhani
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Tel: +44 121 4144042

Career History

1998 BSc (Hons) Pharmacology, University of Wales College of Medicine, Cardiff
2002 PhD, Department of Cardiology, University of Wales College of Medicine and Dartmouth Ivy
League Medical School, USA
2002 BHF Postdoctoral Research Fellow, University College London
2003 Bogue Fellowship, University of California, Los Angeles, USA
2005 BHF Postdoctoral Research Fellow, King’s College London
2009 Lecturer in Cardiovascular Medicine, University of Birmingham

Research Summary

My research interests involve understanding the mechanisms of myocardial injury during ischaemia and reperfusion. Of particular interest is to understand the physiological and pathological actions of nitric oxide-cGMP pathway on the cardiovascular system. These processes are interrogated with a range of murine in-vitro and in-vivo myocardial infarction models.

Recent Publications


Career History

1970  BSc (Zoology & Comparative Physiology) University of Birmingham
1973  PhD Department of Physiology, University of Birmingham.
1973  Research Fellow, Department of Physiology, University of Birmingham.
1974  Research Fellow, MRC Programme Grant: PIs- Profs SM Hilton and KMSpyer, Department of Physiology, University of Birmingham.
1978  Lecturer, Department of Physiology, University of Birmingham.
1988  Senior Lecturer, Department of Physiology, University of Birmingham.
1992  Reader, Department of Physiology, University of Birmingham.
1995  Chair of Cardiovascular Science
1996  Elected Fellow, Institute of Biology.
1999  Elected Fellow, Academy of Medical Sciences.
2002  Head: Division of Medical Sciences, School of Medicine, University of Birmingham.
2008  Director of Education, College of Medical & Dental Sciences

Research Summary

For many years our research has centred on the cardiovascular effects of acute and chronic systemic hypoxia. We have focussed on the regulation of blood flow and oxygen delivery to skeletal muscle, particularly on the local mediators adenosine, nitric oxide, prostanoids and reactive oxygen species and how they modulate the effects of increased sympathetic nerve activity. We are now extending this work to find out how chronic hypoxia in utero may induce fetal programming and promote cardiovascular disease in adult life. In parallel, we are investigating the local factors that regulate muscle blood flow in exercise in health and disease and that distort normal regulation of peripheral blood flow in Primary Raynaud’s Disease.

Recent Publications


**Career History**

1992  MSc. Health Economics (distinction), University of York.
1994  Membership of Royal College of General Practitioners
1995  MSc. Public Health, London School of Hygiene & Tropical Medicine
1997  Membership of the Faculty of Public Health Medicine (UK).
1999  Lecturer in Public Health, University of Birmingham
2004  Senior Lecturer in Public Health, University of Birmingham
2005  Fellowship of the Faculty of Public Health (UK)
2005  PhD, University of Birmingham.

**Research Summary**

My main areas of interest are the prevention of cardiovascular disease prevention in primary care and the use of routine data to identify individuals likely to have chronic disease: including cardiovascular disease, colorectal cancer and heart failure. My particular interest is in investigating strategies for implementation of prevention. My doctoral thesis was an economic model of the costs and benefits of strategies for the prevention of cardiovascular disease in primary care and I have pioneered the use of electronic primary care records to target cardiovascular disease prevention efforts in primary care. I currently lead the Cardiovascular Prevention theme of the NIHR funded Birmingham and Black Country Collaboration for Leadership in Applied Health Research and Care (CLAHRC) and I am evaluating targeted case finding for prevention of cardiovascular disease in primary care.

**Selected Recent Publications**


Career History

2001  BSc (Biochemistry), University of Lancaster
2002  MSc. (Immunology), MRC Centre for Immune Regulation, University of Birmingham
2006  PhD. (Medical Sciences), Centre for Cardiovascular Sciences, University of Birmingham
2006  Postdoctoral Researcher, Centre for Cardiovascular Sciences, University of Birmingham
2011  University Fellow in Inflammation Biology, Systems Science for Health, University of Birmingham
2012  AR UK Career Development Fellow, University of Birmingham

Research Summary

Using novel in vitro, multi-cellular, multi-layered static and flow-based culture systems, we examine the processes by which tissue resident cells influence leukocyte adhesion and migration during inflammation. In particular, we concentrate on the concept that the state of the local tissue (stromal) microenvironment defines the responsiveness of endothelial cells, and also the subsequent fate of recruited leukocytes. The work is divided into 3 main themes:

1. The molecular mechanisms regulating leukocyte migration away from the vasculature.
2. Influence of normal and diseased synovial fibroblasts on endothelial recruitment of leukocytes, along with their onward migration into 3D tissue constructs.
3. Crosstalk between vascular and lymphatic endothelium in the regulation of leukocyte exit from tissue during protective inflammation.

Recent publications


Career History

1990-1994 BSc (Hons) Applied Biochemistry, Liverpool John Moores University
1994-2000 Research Assistant, GKT School of Medicine, Guy's Hospital
2000-2001 Research Associate, Department of Medical Genetics, University of Leicester
2001-2010 Research Fellow, Medical and Molecular Genetics, University of Birmingham
2005 PhD in Molecular Genetics, University of Birmingham
2011 Lecturer in Cardiovascular Genetics, University of Birmingham

Research Summary

A major aim of my research at the University of Birmingham has been to identify novel genes for autosomal recessive inherited diseases to allow improved genetic diagnosis and gain important insights into the pathogenesis of the disorder and the function of the disease gene. More recently I have established a cohort of consanguineous families with various forms of immunodeficiency and identified a novel immunodeficiency disorder associated with a mutation in the T Cell Receptor alpha subunit constant gene. My future research will focus on the molecular genetics of patients with platelet bleeding disorders and low platelet counts (thrombocytopenia). The identification of novel gene defects provides clues to genes and proteins involved in normal platelet physiology and ultimately may lead to devising new treatment strategies to minimise the risk of bleeding in such patients.

Recent publications


Career History

1975  BSc (Physics), University of Manchester
1979  PhD (Biophysics), University of London
1979  Post-Doctoral Research Assistant, Guy's Hospital Medical School
1981  American Heart Association Research Fellow, Univ. of Southern California School of Medicine
1983  Assistant Professor of Research, Univ. of Southern California School of Medicine
1985  Research Fellow, St. George's Hospital Medical School
1989  Senior Lecturer, Department of Haematology, The University of Birmingham
1997  Reader in Cardiovascular Rheology, Department of Physiology, The University of Birmingham
2001  Professor of Cardiovascular Rheology, The University of Birmingham

Research Summary

Our research focuses on the mechanisms which regulate the circulation of leukocytes, their adhesion to the vessel wall and their migration into tissue. The work revolves around in vitro models of ‘vessels’ in which endothelial cells are cultured, and through which blood or isolated blood cells can be perfused. We have pioneered use of such flow models for studying leukocyte recruitment in the UK. With my colleagues Dr. Ed Rainger and Prof. Chris Buckley, we have developed unique systems for culturing endothelial cells in different flow environments and with stromal cells such as smooth muscle cells and fibroblasts.

The main questions we are asking are:

1. How do haematological, rheological and fluid dynamic factors modulate interaction between leukocytes, platelets and endothelium in simple laminar and recirculating flow?
2. How are the functional responses of endothelium modified by their environment (stromal cells, substrate and flow) and how does this influence the recruitment of leukocytes?
3. How do leukocytes evolve their functional responses as they migrate into tissue, and how are these functions modified by the recruitment process itself?
4. Can inflammatory vascular disorders be explained in terms of disrupted leukocyte circulation, adhesion and migration, and if so, can we suggest and evaluate novel interventions?

Recent Publications


Career History

1989  BSc, (Marine Biology), Newcastle University
1992  PhD, Comparative Immunology, University of Wales
1993  Postdoctoral Researcher, Dept Physiology, University of Birmingham.
1997  British Heart Foundation Lecturer
2002  British Heart Foundation Senior Lecturer
2007  Reader in Chronic Inflammation

Research Summary

We use multicellular co-culture models and animal models to investigate the recruitment and fate of leukocytes and platelets during acute inflammation and in chronic inflammatory diseases. Currently we have a number of active research ‘themes’

1. The ability of smooth muscle cells to regulate the recruitment of leukocytes and platelets using in vitro and in vivo models of atherosclerosis.
2. The role of CD31 (PECAM-1) in the development of atherosclerosis in the ApoE knock out mouse.
3. The ability of mesenchymal stem cells to modulate leukocyte recruitment and retention in chronic diseases, with special emphasis on rheumatoid arthritis
4. Stromal derived signals that promote the migration of T-lymphocytes across lymphatic endothelial cells.
5. The role of omega-3-polyunsaturated fatty acids in regulating acute and chronic inflammatory responses.

Recent Publications


Career History

1997  BA, Biology, Brown University, USA
2000  MPhi, Mount Sinai Graduate School of Biological Sciences, USA
2002  PhD, Mount Sinai Graduate School of Biological Sciences, USA
2002  Postdoctoral Fellow, The Rockefeller University, USA
2007  Research Associate, The Rockefeller University, USA
2007  Lecturer, University of Birmingham, UK

Research Summary

My research interests focus upon the roles of vesicle trafficking in cell motility. Cell motility occurs in development, wound healing, cancer metastasis, and the immune system. A role for vesicle trafficking has been long suggested, possibly through polarised recycling of cell adhesion molecules. However, understanding the pathways involved in trafficking membrane proteins remains elusive. Through analysis of epithelial wound healing as well as cancer cell metastasis, we are elucidating how trafficking pathways regulate both the initial polarisation of a cell into the migratory phenotype, as well as the steady state rate of migration. This work is being carried out through a systematic identification of which pathways are involved, as well as a mechanistic investigation into how vesicle trafficking regulates cell motility. We are conducting screens of dominant negative mutants known to selectively and potently inhibit trafficking through individual pathways. Additionally, we are conducting live-cell TIR-FM imaging studies to evaluate the potential for polarised trafficking during the different phases of cell motility. Finally, we are analysing the trafficking of growth factor receptors (e.g. EGFR) and cell adhesion molecules (e.g. integrins), both cargo known to be involved in regulating cell motility.

Selected Publications


Clare J Ray
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Tel: +44 121 4146930

2000 BMedSc (Hons) Medical Science, University of Birmingham
2004 PhD, Department of Physiology, University of Birmingham
2004 BHF Postdoctoral Research Fellow, University of Birmingham
2010 Lecturer in Cardiovascular and Respiratory Science, University of Birmingham

Research Summary

The main themes of my research are the regulation of blood flow and the integration of the cardiovascular and respiratory systems. My focus has been on the role of the local mediators adenosine and nitric oxide in matching oxygen delivery to oxygen consumption during hypoxia when oxygen delivery is compromised and during exercise when oxygen consumption is increased. I have also been interested in the role of reactive oxygen species (ROS) in the vasodilator responses of skeletal muscle and the influence of adaptive and maladaptive changes induced by chronic hypoxia. I have recently developed an acute model of obstructive sleep apnoea (OSA) and have been investigating the potential role of ROS in the cardiovascular and respiratory dysfunction seen in OSA patients. Alongside my continuing research interests I develop and undertake undergraduate physiology teaching on the MBChB, BDS and BMedSc courses with a focus on cardiovascular and respiratory physiology.

Recent Publications


Professor of Physiotherapy Research Primary Clinical Sciences

Catherine Sackley
c.m.sackley@bham.ac.uk
Tel: +44 121 414 4148

Career History

1982  Member of the Chartered Society of Physiotherapy No. B41205
1985  DHS National Remedial Research Fellowship, University of Southampton
1986  MSc Rehabilitation Studies Faculty of Medicine, University of Southampton
1991  PhD Faculty of Medicine, University of Nottingham
1997  NHSE Health Services Research Training Fellowship, University of Nottingham
1999  NHS R&D National Primary Care Research Development Award, University of Oxford
2002  NHS R&D National Primary Care Career Scientist Award, University of Oxford
2003  Professor of Physiotherapy Research, University of Birmingham
2006  Board Member of NIHR HTA Clinical Trials & Evaluations
2008  NIHR Senior Investigator
2008  Fellowship of the College of Occupational Therapy, FCOT
2009  Visiting Professor, Chief Scientist Office Scotland & Stirling University NMAHP Unit
2009  Board Member NIHR SDO

Research Summary

Our research has focussed on patient outcomes following stroke and TIA and the effectiveness of rehabilitation interventions in improving function and quality of life. Working closely with stroke survivors and their families we have conducted investigations that have contributed to clinical guidelines and national service frameworks and implementation strategies. A recently funded HTA trial, OTCH (£2,000,000) will definitively address the question of efficacy and cost effectiveness of rehabilitation of stroke survivors in a care home setting.

Recent publications


BHF Intermediate Research Fellow

Yotis Senis
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Career History

1993  BSc (Hons) Life Sciences, Queen's University, Canada
1996  MSc, Department of Pathology, Queen's University, Canada
2002  PhD, Department of Pathology, Queen's University, Canada
2002  BHF Postdoctoral Research Fellow, University of Oxford
2004  BHF Research Fellow, University of Birmingham
2009  BHF Intermediate Basic Science Research Fellow, University of Birmingham

Research Summary

The primary focus of our research is the regulation of platelet activation and thrombosis by protein tyrosine phosphatases (PTPs). PTPs are a family of enzymes that work in conjunction with protein tyrosine kinases (PTKs) to regulate protein phosphorylation. Phosphorylation regulates protein activity, compartmentalization and interactions with other molecules. We employ a combination of classical and modern biochemical, proteomics techniques, and ex vivo and in vivo platelet functional assays to explore the functional roles of PTPs in platelets. We are specifically interested in understanding how these enzymes regulate signalling from platelet surface receptors, including the collagen activation receptor GPVI, the fibrinogen integrin αIIb-β3 and the G protein-coupled thrombin receptors PAR1 and PAR4.

The major PTPs of interest are CD148 (Dep1), PTB1B, SHP1 and SHP2.

Recent Publications


Career History

1999  Ph.D.  Medicine and Therapeutics, The Chinese University of Hong Kong.
2002  Research Assistant Professor, Community Medicine, The University of Hong Kong
2005  Assistant Professor, Community Medicine, University of Hong Kong, Hong Kong.
2004  Hon. Senior Research Fellow, Public Health and Epidemiology, University of Birmingham
2007  Hon. Associate Professor, Community Medicine, University of Hong Kong
2007  Reader in Epidemiology, Public Health, Epidemiology and Biostatistics, University of Birmingham
2010  Director, Master of Public Heath Programme, University of Birmingham
2011  Deputy Director, Master of Public Heath Programme, University of Birmingham
2011  Regional Director, West Midlands NIHR Research Design Service

Research Summary

There are two main components to my research. Firstly, epidemiological studies which are designed to investigate a common research theme namely the investigation of anthropometric, biochemical and genetic markers contributing possible underlying pathogenic mechanisms of the metabolic syndrome disease clustering of Type 2 diabetes, obesity, hypertension and dyslipidaemia and the development of associated complications. The greater appreciation of the pathogenesis of these diseases should help to result in more effective therapeutic interventions, which can be used aggressively in those determined to be at greatest risk. In this manner the application of our scientific research can be used to reduce morbidity and mortality in patients with these conditions. As such, secondly, I am also interested in the treatment and prevention of this disease cluster using pharmacological agents and lifestyle modifications.

Selected Publications

I have published 236 articles, including 180 in indexed, peer-reviewed journals

GN Thomas, Bó Hartaigh, J Bosch, S Pilz, A Loerbroks, ME Kleber, TB. Grammer, BO Böhm, W März Vitamin D levels predict all-cause and cardiovascular disease mortality in subjects with the metabolic syndrome: The Ludwigshafen Risk and Cardiovascular Health (LURIC) Study. Diabetes Care 2012


Career History

1997  BSc (Hons), Biological Sciences, University of Wolverhampton
2000  PhD, School of Applied Science, University of Wolverhampton
2000  Postdoctoral Research Fellow, Prof Jim Callow, University of Birmingham
2002  Postdoctoral Research Fellow, Prof Noni Franklin-Tong, University of Birmingham
2006  Postdoctoral Research Fellow, Profs Machesky and Watson, Univ of Birmingham
2008  BHF Research Fellow, University of Birmingham

Research Summary

The overall aim of our research is to investigate actin dynamics and the proteins that regulate these processes, in megakaryocytes and platelets. We use a variety of techniques to tackle these issues, with a focus on live cell imaging. We are applying widefield, confocal and TIRF (total internal reflection fluorescence) microscopy to enable us to image actin dynamics of megakaryocyte or platelets as they interact with matrix proteins. We are currently focusing on developing methods to incorporate labelled proteins into megakaryocytes and platelets, including use of RNAi, to dissect these events. Visualising the dynamics of proteins in live platelets will help us characterise the cytoskeleton in these cells in more detail. We also recently identified novel structures in platelets called actin nodules and are now investigating their mechanism of function.

Recent Publications


Career History

1991  BSc (Applied Biology), University of Bath
1995  DPhil, Sir William Dunn School of Pathology, University of Oxford
1996  Postdoctoral Researcher, DNAX Research Institute, Palo Alto, CA, USA
1999  Postdoctoral Researcher, University of California, San Francisco, CA, USA
2004  Postdoctoral Researcher, IBR, University of Birmingham
2005  MRC New Investigator Award Fellowship, IBR, University of Birmingham
2009  BHF Senior Research Fellowship, School of Biosciences, University of Birmingham

Research Summary

Regulation of platelet and endothelial cell surface receptors by tetraspanin microdomains

Platelets and endothelial cells play essential roles in vascular haemostasis, but can also give rise to the initiation and progression of atherosclerosis, leading to heart attack and stroke. These cells possess an array of receptors and adhesion molecules that regulate their functions in health and disease. Critical to the optimal function of cell surface proteins is their partitioning into membrane microdomains. We aim to understand such regulation by focusing on tetraspanin-enriched microdomains. The tetraspanins are a superfamily of transmembrane proteins that interact with and ‘organise’ other cell surface proteins into membrane microdomains in organisms as diverse as plants, fungi and animals. By identifying novel tetraspanin-associated proteins and characterizing their regulation within tetraspanin microdomains, we aim to identify new drug targets for the prevention and treatment of cardiovascular disease.

Selected Publications


Career History

1980  BSc (hons) 2.1 Physiology
1983  MB ChB
1986  MRCP (UK)
1990  BHF Junior Research fellow
1994  MD (Birm)
1997  Senior Lecturer, Dept of Cardiovascular Medicine, Birmingham
2001  Fellow of the European Society of Cardiology
2002  Consultant Cardiologist, Queen Elizabeth Hospital, Birmingham
2010  Hon Reader in Cardiology, School of Clinical & Experimental Medicine, University of Birmingham

Summary of Research

Dr Townend’s group have an established programme investigating the cardiovascular complications of chronic kidney disease (CKD), a highly prevalent and under recognised risk factor for stroke, sudden death, heart failure and myocardial infarction. Epidemiology shows that CKD is present in almost 1 in 6 of Western populations. It causes premature atherosclerosis and accelerated arterial stiffening and thus provides a model of arterial ageing. Arterial stiffness is measured by pulse wave velocity, pulse wave analysis and aortic distensibility (magnetic resonance imaging (MRI)). The consequences of arterial stiffening on the heart are determined by functional and structural techniques including measurement of mass and parameters of systolic and diastolic function using strain, strain rate and torsion by both echo speckle tracking and MRI 'tagging' techniques.

Current research involves:

1. Examining the impact of mineralocorticoid receptor blockers on arterial and left ventricular structure and function. Initial findings indicate powerful effects and further studies are underway.
2. Modulating phosphate exposure using novel phosphate binders to examine its impact on cardiovascular structure and function as well as on aspects of bone mineral metabolism.
3. Examining the impact of elective nephrectomy for kidney donation on cardiovascular structure and function.

We are working closely with other UK arterial stiffness groups within the UREKA (UK Research Alliance into Kidney Disease and Arterial Stiffness) collaborative and have developing links with CMR team in Auckland, New Zealand.

Selected Publications


Career History

1980  BSc (Pharmacology), Leeds University
1983  PhD, MRC Neurochemical Pharmacology Unit, Cambridge University
1983  Postdoctoral Researcher, Burroughs Wellcome, North Carolina, USA
1985  Departmental Demonstrator, Department of Pharmacology, University of Oxford
1988  Royal Society Research Fellow, Department of Pharmacology, University of Oxford
1998  BHF Senior Research Fellow, Department of Pharmacology, University of Oxford
2003  BHF Professor, University of Birmingham

Research Summary

We use a multidisciplinary approach that ranges from in vitro functional and biochemical assays, to cell biology based studies on immortalised and primary cell lines, and in vivo studies in mutant mice. The work is divided into five main themes:

- Signalling events that underlie platelet activation by glycoprotein receptors, with special emphasis on the collagen ITAM receptor, GPVI, the ITAM-like receptor, CLEC-2 and the major platelet integrin αIIbβ3.
- The regulation and role of actin polymerisation mediating thrombus formation and signalling by platelet glycoprotein receptors.
- The molecular basis of mild bleeding in patients with suspected defects in platelet function.
- The events that underlie megakaryocytopoiesis and platelet formation.
- The physiological and pathological role of platelets in a variety of cellular processes, including angiogenesis, cancer metastasis, inflammatory events, major organ dysfunction (kidney, liver and lung) and stem cell recruitment.

Selected Publications


Consultant in Haemostasis and Thrombosis, 
Director of the West Midlands Adult 
Comprehensive Care Haemophilia Centre 
Honorary Senior Lecturer

Jonathan Wilde
Jonathan.Wilde@uhb.nhs.uk
Tel +44 121 627 2470

Summary of Research

Dr Wilde has formed an important clinical / research interface with Professor Watson for the investigation of patients with hereditary platelet disorders.

Selected Publications


