



THE UNIVERSITY OF  
SYDNEY



University  
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THE UNIVERSITY OF  
SYDNEY  
Cardiovascular  
Initiative



## University of Glasgow - University of Sydney Cardiovascular Partnership Seminar Series

### Seminar Two - Inflammation and Oxidative Stress in CVD

Cardiovascular Disease (CVD) is the leading cause of death in Australia, Scotland and globally. Jointly organised by the University of Glasgow and the University of Sydney Cardiovascular Initiative, this virtual seminar brings together researchers across institutions and borders to showcase their most recent research and explore opportunities for future joint collaborations to target CVD.

Following on from the successful Sex Differences and Pregnancy in Cardiovascular disease (CVD) seminar, the second seminar in the series will focus on Inflammation and Oxidative Stress in CVD. The seminar aims to strengthen the strategic partnership between the two universities and promote international collaborations.

The seminar will be beneficial to academics and industry partners, we welcome the participation of all students and staff alike.

**Date:** Tuesday 24<sup>th</sup> August 2021.

**Time:** 8:00 – 10:00 am **BST**

5.00 – 7.00pm **AEST**

**Link to Registration:**

<https://www.eventbrite.co.uk/e/inflammation-and-oxidative-stress-in-cvd-tickets-167061757213>

**Zoom Link:**

<https://uofglasgow.zoom.us/j/97999161387?pwd=YVlaMGtmN0Y1RXp0WXBDOXpCYIV3Zz09>

**Check Date/Time:** [Seminar Time Line](#)

**Tuesday 24th August 2021**

<b>5:00 – 5:10 pm AEST</b> <b>8:00 – 8:10 am BST</b>	<b>Welcome Address and Overview</b> <b>Prof Gerard Graham</b> , Dean of Research for the College of Medical, Veterinary and Life Sciences, University of Glasgow <b>Prof Kathy Belov</b> , Pro-Vice-Chancellor Global Engagement, Professor of Comparative Genomics School of Life and Environmental Sciences, University of Sydney	
<b>Session 1</b>		
<b>Chairpersons:</b> <b>Prof Pasquale Maffia</b> , Professor of Cardiovascular Immunology, University of Glasgow <b>Prof Roland Stocker</b> , Head, Arterial Inflammation and Redox Group at the Heart Research Institute, University of Sydney		
<b>Speaker One</b>		
<b>5:10 – 5:20 pm AEST</b> <b>8:10 – 8:20 am BST</b>	<b>Prof Tom Guzik</b> , Regius Chair of Physiology/Cardiovascular Pathobiology, University of Glasgow <b><i>Approaches to understanding the immune-inflammatory nature of cardiovascular disease</i></b>	
<b>Speaker Two</b>		
<b>5:20 – 5:30 pm AEST</b> <b>8:20 – 8:30 am BST</b>	<b>Prof Gemma Figtree</b> Professor in Medicine, University of Sydney, Chair of the University of Sydney's multi-disciplinary Cardiovascular Initiative <b><i>Using CRISPR engineering to examine the in vivo significance of Na<sup>+</sup>K<sup>+</sup> pump's oxidative inhibition in cardiovascular pathophysiology</i></b>	
<b>Speaker Three</b>		
<b>5:30 – 5:40 pm AEST</b> <b>8:30 – 8:40 am BST</b>	<b>Dr Anita Ayer</b> , Senior Research Scientist at the Heart Research Institute and Research Affiliate, The University of Sydney. <b><i>New insights into arterial redox signalling in inflammation</i></b>	
<b>Speaker Four</b>		
<b>5:40 - 5:50 pm AEST</b> <b>8:40 – 8:50 am BST</b>	<b>Lucy McShane</b> , Research Assistant, Immunology, University of Glasgow <b><i>Axl in the regulation of atherosclerosis</i></b>	
<b>5:50 - 5:55 pm AEST</b> <b>8:50 - 8:55 am BST</b>		<b>Comfort break</b>
<b>Session 2</b>		
<b>Chairpersons:</b> <b>Prof Carl Goodyear</b> , Professor of Translational Immunology, University of Glasgow <b>Prof Leonard Kritharides</b> , Head of the Department of Cardiology at Concord Repatriation General Hospital, Conjoint Professor in Medicine, University of Sydney		
<b>Speaker Five</b>		
<b>5:55 – 6:05 pm AEST</b> <b>8:55 – 9:05 am BST</b>	<b>Dr Paul Welsh</b> , Reader, Institute of Cardiovascular & Medical Sciences, University of Glasgow <b><i>Inflammatory determinants of cardiovascular risk</i></b>	
<b>Speaker Six</b>		
<b>6:05 – 6:15 pm AEST</b> <b>9:05 – 9:15 am BST</b>	<b>Associate Prof Sanjay Patel</b> , Interventional Cardiologist and Director of the Cardiac Catheterisation Laboratory, Royal Prince Alfred Hospital, Associate Professor at the Sydney Medical School, University of Sydney <b><i>Colchicine and vascular inflammation</i></b>	

<b>Speaker Seven</b>	
<b>6:15 - 6:25 pm AEST</b> <b>9:15 – 9:25 am BST</b>	<b>Prof. James Leiper</b> , Professor, Institute of Cardiovascular & Medical Sciences, University of Glasgow <i>Crossroads of nitrosative/oxidation and inflammation in sepsis</i>
<b>Speaker Eight</b>	
<b>6:25 – 6:35 pm AEST</b> <b>9:25 – 9:35 am BST</b>	<b>Dr James Nadel</b> , Cardiologist & Cardiovascular Researcher, University of Sydney <i>Myeloperoxidase in the detection, surveillance, and treatment of vulnerable plaque</i>
<b>Panel discussion</b>	
<b>6:35 – 6:55 pm AEST</b> <b>9:35 – 9:55 am BST</b>	<b>Led by all four Chairpersons:</b> <b>Prof Pasquale Maffia</b> , Professor of Cardiovascular Immunology, University of Glasgow <b>Prof Roland Stocker</b> , Head, Arterial Inflammation and Redox Group at the Heart Research Institute. <b>Prof Carl Goodyear</b> , Professor of Translational Immunology, University of Glasgow <b>Prof Leonard Kritharides</b> , Head of the Department of Cardiology at Concord Repatriation General Hospital, Conjoint Professor in Medicine, University of Sydney
<b>Closing Remarks</b>	
<b>6:55 - 7:00 pm AEST</b> <b>9:55 - 10:00 am BST</b>	<b>Prof Tom Guzik</b> , Regius Chair of Physiology/Cardiovascular Pathobiology, University of Glasgow <b>Prof Leonard Kritharides</b> , Head of the Department of Cardiology at Concord Repatriation General Hospital, Conjoint Professor in Medicine, University of Sydney

## University of Sydney Participant Biographies



**Prof Katherine Belov AO BSc(Hons) PhD**, Pro-Vice-Chancellor Global Engagement  
Professor of Comparative Genomics, School of Life and Environmental Sciences

Professor Kathy Belov is the Pro-Vice-Chancellor (Global Engagement) at the University of Sydney. In this position, she takes responsibility for managing the development and execution of the University's global engagement strategy. Key priorities are the development of the capacity of academic and professional staff to support international student learning and international research collaborations and to achieve educational excellence in the international arena. She also promotes the University's position in the international academic and research community and identifies and enables strategic opportunities for partnership and collaboration in research and education. Kathy's research is based in the School of Life and Environmental Sciences (SOLES) and her focus is on comparative genomics and immunogenetics of Australian wildlife. Her team study Tasmanian devils, koalas, wallabies, platypus, and many other species. Kathy has received two Eureka awards, the Crozier medal, the Fenner medal and the MJD White medal for her research.



**Professor Leonard Kritharides**, Head of the Department of Cardiology at Concord Repatriation General Hospital, Conjoint Professor in Medicine, University of Sydney

Professor Leonard Kritharides is an Interventional and Consultant Cardiologist. He is Senior staff Specialist and Head of the Department Cardiology at Concord Repatriation General Hospital, Conjoint Professor in Medicine at the University of Sydney, Head of the Atherosclerosis and Vascular Biology Research Laboratories at the ANZAC Research Institute and Clinical Director of the Cardiovascular Stream of the Sydney Local Health District. He has long standing clinical and basic research interests relating to atherosclerosis and cardiovascular disease. These include studying the function of high-density lipoprotein (HDL), and the regulation of platelet activation in patients with coronary disease.



**Prof Roland Stocker**, Head, Arterial Inflammation and Redox Group, Heart Research Institute

Professor Roland Stocker leads the Arterial Inflammation and Redox Group at the Heart Research Institute. He originally trained as a biochemist at the ETH Zürich (Switzerland) and completed his PhD at the Australian National University in Canberra, Australia. He has held appointments at the University of California (Berkeley, USA) and the University of Berne (Switzerland) and led research teams at the University of NSW, The University of Sydney, and the Victor Chang Cardiac Research Institute, as well as a previous team at the Heart Research Institute. Roland has been an NHMRC Research Fellow since 1994, and a Senior Principal Research Fellow since 2001. He has received numerous awards, including the inaugural Simon Wolff Contrarian Award for work on vitamin E, the Paul Nestel Lecturer of the Australian Atherosclerosis Society, the Lifetime Achievement Award from the Society of Free Radical Research (Australasia), and is recognised as Redox Pioneer by the journal Antioxidant Redox Signalling. He was elected as a member of the Australian Academy of Health and Medical Sciences, and the Swiss Academy of Medical Sciences. Roland is recognised internationally for his research on the roles of redox processes in atherosclerotic vascular disease. His work on vitamin E, which led to a change in how parenteral nutrition is handled in NICUs in Australia and New Zealand, provided a scientific rationale for why vitamin E supplements do not positively impact cardiovascular disease outcome. Most recently, Roland's team discovered a novel redox signalling pathway in the control of vascular tone in inflammation, as well as the role of myeloperoxidase as a diagnostic and therapeutic target to identify high-risk atherosclerotic plaques.



**Professor Gemma Figtree**, Professor in Medicine, University of Sydney  
Chair of the University of Sydney's multi-disciplinary Cardiovascular Initiative

Professor Gemma Figtree is a Professor in Medicine at the University of Sydney. She co-leads the Cardiovascular Theme for Sydney Health Partners, a NHMRC Advanced Health Research and Translation Centre and is the Chair of the University of Sydney's multi-disciplinary Cardiovascular Initiative. Gemma completed her DPhil at Oxford University in 2002 supported by a Rhodes Scholarship making fundamental discoveries regarding estrogen's actions and factors regulating NO/redox balance in the cardiovascular system. She is committed to improving the care for heart attack patients- using her knowledge of molecular and cellular biology to develop methods of identifying those at highest risk of adverse outcome and discovering novel therapies to prevent and treat events. Discoveries in her Laboratory have been published in leading journals with ~9250 citations. Gemma is a principal investigator on grants >\$18.0 mill. She is CIA of an NHMRC Centres of Research Excellence and Partnership grant, bringing together multi-disciplinary leaders from across the world. She is also CIA on a MRFF Frontier Health and Medical Research Initiative, which provides Stage 1 support and opportunity to prepare a bid for \$40-50 Mill Stage 2 funding to develop new diagnostic and therapeutic approaches for coronary artery disease with a strong commercialisation and translation pipeline. She was awarded a National Health and Medical Research Council (NHMRC) Excellence Award for Top Ranked Practitioner Fellow (Australia), commencing in 2018. In 2019 she received the prestigious NSW Ministerial Award for Cardiovascular Research Excellence. Gemma serves as a member of the Editorial Board of leading international cardiovascular journals *Circulation* and *Cardiovascular Research*, as well as being a founding editorial board member for *Redox Biology*, and an Associate Editor for *Heart*, *Lung and Circulation*. Her research, clinical perspective and leadership are recognised by her membership of the Scientific Board of Cardiac Society of Australia and New Zealand, and her appointment to the Expert Advisory Panel for NHMRC Structural Review of Grants Program (2016-17), and as well as the Clinical Committee of the Heart Foundation. She is committed to the promotion and advocacy of cardiovascular research, working as President of the Australian Cardiovascular Alliance with a national team to secure \$220 Million Federal funding for the Mission for Cardiovascular Health, as well as a member of the NSW CVD Advisory Committee. She now chairs the Mission (CV) Expert Advisory Panel. She is a graduate of the Australian Institute of Company Directors and serves/has served as a non-executive Director on multiple community Boards



**Dr Anita Ayer**, Senior Research Scientist, Heart Research Institute and Research Affiliate, The University of Sydney.

Dr Anita Ayer is a senior research scientist at the Heart Research Institute and Research Affiliate at The University of Sydney. She completed her PhD in Biochemistry and Molecular Genetics in 2012 from the University of New South Wales studying the role of the antioxidants in cellular health using model systems. In 2013 Anita joined the laboratory of Professor Roland Stocker and merges her expertise in redox biology, biochemistry, and genome-wide screening to study the processes underlying metabolic and vascular diseases, in particular the role of redox signalling and mitochondrial lipid biology. Anita has published widely in the field of redox biology and her work has been recognised by multiple young investigator and presentation awards, and invitations to present her work in Australia and abroad.



**Associate Professor Sanjay Patel**, Staff Interventional Cardiologist & Director, Cardiac Catheterisation Laboratory, Royal Prince Alfred Hospital, Clinical Associate Professor at the Sydney Medical School, University of Sydney

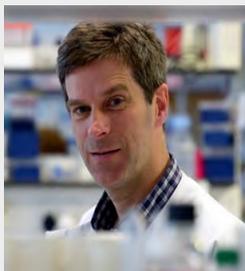
Associate Professor Sanjay Patel is a Staff Interventional Cardiologist and Director of the Cardiac Catheterisation Laboratory, Royal Prince Alfred Hospital, Group Leader at the Heart Research Institute, Sydney and Clinical Associate Professor at the Sydney Medical School. He was awarded his MBBS (Hons 1) from The University of Sydney in 2000; completed his advanced cardiology training at Royal Prince Alfred Hospital in 2006; his doctoral studies in 2009, supported by a NHF postgraduate research scholarship; and his postdoctoral studies at Stanford University, while simultaneously training in interventional cardiology at Stanford University Medical Centre (2009–2010), supported by an NHMRC CJ Martin Overseas Fellowship Grant



**Dr James Nadel**, Cardiologist & Cardiovascular Researcher, University of Sydney

Dr James Nadel is a cardiologist and cardiovascular researcher currently undertaking his PhD in arterial inflammation and atherosclerosis. Specifically, James’ research is looking at the role the enzyme myeloperoxidase plays in atherosclerosis and plaque destabilisation and how it may be targeted through the development and application of non-invasive imaging tools and pharmacotherapies. James completed his medical degree at the University of Notre Dame, before undertaking training in cardiology at St. Vincent’s Hospital. During this training he received the St Vincent’s Clinic Foundation award for clinical excellence and developed a clinical and research interest in non-invasive cardiac imaging and coronary artery disease, completing a Master of Medicine and finishing advanced training in cardiology in 2020. He has regularly published and presented work in national and international peer reviewed journals and conferences. James is supported by scholarships from the National Health and Medical Research Council, National Heart Foundation and University of New South Wales. Dr Nadel’s areas of interest include: General Cardiology, Atherosclerosis, Non-Invasive Cardiac Imaging, Cardiac Sarcoidosis, Heart Failure and HIV.

### University of Glasgow Participant Biographies



**Prof Gerard Graham**, Dean of Research for the College of Medical, Veterinary and Life Sciences, University of Glasgow

Gerry Graham is Gardiner Chair of Immunology and Head of the Chemokine Research Group ([www.chemokineresearchgroup.org](http://www.chemokineresearchgroup.org)) at the University of Glasgow and is also Dean of Research of Medical, Veterinary and Life Sciences. He has worked in the field of chemokine biology for over 30 years and has been responsible for many of the seminal discoveries in this area. He has two major interests in terms of chemokine research: firstly, his group are amongst the world leaders in the study of atypical chemokine receptors and their role in the regulation of chemokine function; secondly, he is using complex genomic approaches to try to understand, in more detail, the orchestration of the chemokine-driven inflammatory response. Work in Gerry’s lab is supported by a Medical Research Council Programme Grant and by a Wellcome Trust Senior Investigator Award. He is a recipient of a Wolfson Royal Society Merit Award and has been elected Fellow of the Royal Society of Edinburgh and the Academy of Medical Sciences. He has served on a number of grants panels, including the Leukaemia Research Fund Medical and Scientific Advisory Panel. He also spent over four years as a member of the Medical Research Council Infections and Immunity Board and is currently the Chair of the Wellcome Trust Expert Review Group in the Immune System in

Health and Disease. He publishes regularly in prominent international journals and is frequently invited to major international scientific meetings.



**Prof Pasquale Maffia**, Professor of Cardiovascular Immunology, University of Glasgow  
I am currently a Professor of Cardiovascular Immunology at the University of Glasgow (UK), at the Institute of Infection, Immunity and Inflammation and the BHF Glasgow Cardiovascular Research Centre. I am an elected fellow of the Royal Society of Biology, the British Pharmacological Society and the European Society of Cardiology.

I serve on the Executive Committee of the International Union of Basic and Clinical Pharmacology (IUPHAR) Immunopharmacology Section, as Vice Chair of the International Union of Immunological Societies (IUIS) Immunotherapy Committee, on the Engagement Committee of the British Pharmacological Society (BPS), on the Fellowship Committee of the British Heart Foundation (BHF) and as board member of the Heart Research UK (HRUK) Translational Research Medical Review Panel.

I am an Executive Deputy Editor of *Cardiovascular Research*, Associate Editor of *Pharmacological Research*, Editor in Chief (Human Health Section) of *Frontiers for Young Minds* and Editorial Board Member of the *British Journal of Pharmacology*, *Scientific Reports*, *Frontiers in Immunology* and *Frontiers in Pharmacology*.

I have a major interest in the immune response in cardiovascular disease. Current research activities address the study, imaging and targeting of cellular and molecular mechanisms involved in the pathophysiology of atherosclerosis and hypertension. I have authored over 100 scientific papers in peer-reviewed journals including *Nature Genetics*, *Nature Reviews Immunology*, *Immunity*, *European Heart Journal*, *Circulation*, *Circulation Research*, *Blood* and *PNAS*.



**Prof Tom Guzik**, Regius Chair of Physiology/Cardiovascular Pathobiology, University of Glasgow

Prof Tomasz Guzik MD Ph.D. FRCP, FACP is a Regius Chair of Physiology and Cardiovascular Pathobiology in the ICAMS of University of Glasgow and an Honorary Consultant Physician in Cardiology at the Queen Elizabeth University Hospital in Glasgow.

Prof. T Guzik's research is focused on vascular biology, hypertension, and clinical immunology and authored over 200 publications in leading journals including *Circulation*, *Circulation Research*, *J Clin Invest*, *J Exp Med*, *Eur Heart J*, *JACC*, *New Engl J. Med*, and *Lancet*, cited over 15,000 times (H index - 60). He published highly cited papers on oxidative stress in human vasculature and, more recently, identifying role of inflammation in hypertension. Prof Guzik is a specialist clinically trained in general medicine, allergic diseases, and clinical immunology. In recent years his work has focused on understanding the immune mechanisms of hypertension and translating this knowledge in humans. Mechanistically he focuses on an interplay between cardiovascular inflammation and oxidative stress in CVD.

Prof Guzik serves as an Editor-in-Chief of *Cardiovascular Research*, is highly involved in work for the European Society of Cardiology as a member of the Board (2018-2022) and Chair of the ESC Publications Committee. He is a member of the Executive Committee of the British Atherosclerosis Society and a Scientific Advisory Board of the DZHK, a funding agency of the German Ministry of Education and Research.

Prof. Guzik's work received international recognition through awards such as the Wellcome Trust Senior International Research Fellowship, European Molecular Biology Organization (EMBO), Marshall Prize in Research Excellence from the British Society for Cardiovascular Research, or Corcoran Lecture from the American Heart Association. His research is currently funded by the European Research Council (ERC), British Heart Foundation, European Commission.



**Ms Lucy McShane**, Research Assistant, Immunology, University of Glasgow  
I received my MSci (Hons) Molecular & Cellular Biology in 2016 and an MRes in Translational Medicine in 2017 before beginning my PhD in the same year, all at the University of Glasgow. I am about to submit my PhD thesis on the Role of TAM Receptor Axl in Atherosclerosis, supervised by Professor Pasquale Maffia in the Institute of Infection, Immunity and Inflammation and the BHF Centre of Excellence in Vascular Science and Medicine. We were recently awarded funding from the British Heart Foundation to continue our work on this project, with me as the named post-doc.



**Prof Carl Goodyear**, Professor of Translational Immunology, University of Glasgow  
Professor Carl Goodyear's research is currently focused on understanding immunopathogenesis of disease (i.e., Rheumatoid Arthritis, Psoriatic Arthritis & Osteoarthritis) and translating this knowledge into viable therapeutic agents for patients. He leads a Translational Immunology programme that provides the critical interface between clinical and basic science, with a specific focus on precision medicine. In parallel, he is also the Director of the GLAZgo Discovery Centre and the Glasgow-Lilly Centre, collaborations between the University of Glasgow and AstraZeneca, and Eli-Lilly respectively. Both of which are aimed at driving innovative academic/industry research. Professor Goodyear has published widely in the areas of immunobiology and rheumatology



**Dr Paul Welsh**, Reader, Institute of Cardiovascular & Medical Sciences, University of Glasgow  
After completing a BSc (Hons) in Immunology, Paul completed a PhD on inflammatory markers of cardiovascular disease at University of Glasgow in 2008, and subsequently completed an MSc in Epidemiology at London School of Hygiene and Tropical Medicine with distinction, winning the 150<sup>th</sup> Anniversary prize. He has held two British Heart Foundation Research Fellowships at the BHF Glasgow Cardiovascular Research Centre, University of Glasgow. He is an associate editor of Atherosclerosis, and an editorial advisor for BMC Medicine.  
Paul has a wide range of research interests encompassing biomarkers, observational epidemiology, and clinical research in the fields of cardiovascular disease, diabetes, metabolism, inflammation, and healthy ageing. His work includes data from clinical trials (including DiRECT, SUGAR-DM-HF, WOSCOPS, PROSPER, ASCOT, and ADVANCE) and large observational studies (such as UK Biobank, Generation Scotland, the British Regional Heart Study and MIDSPAN) and meta-analyses. He has a particular interest in cardiovascular disease risk stratification, and cardiac biomarkers. He has authored more than 200 peer-reviewed publications.



**Prof. James Leiper**, Professor, Institute of Cardiovascular & Medical Sciences, University of Glasgow

Work in my laboratory is focused on understanding the mechanisms that regulate nitric oxide (NO) signalling in health and disease. NO is a signalling molecule with protean functions in the cardiovascular, immune and central nervous systems. In the cardiovascular system dysregulated nitric oxide synthesis results in loss of cardiovascular homeostasis and contributes to a range of diseases including hypertension, atherosclerosis the cardiovascular collapse seen in septic shock. Therapeutic approaches to directly target NO have had limited success and therefore we have focused on endogenous regulatory pathways that might facilitate therapeutically appropriate regulation of NO production. In particular we have focused on understanding how endogenously produced inhibitors of NO synthesis might be harnessed therapeutically with a particular focus on septic shock.

We have identified enzymes responsible for metabolism of endogenous NOS inhibitors and demonstrated the physiological and pathophysiological impact of endogenous NOS inhibitors. We have invented selective inhibitors of the metabolism of endogenous NOS inhibitors and demonstrated their therapeutic potential in pre-clinical models of sepsis. We have also demonstrated that genetic polymorphisms in the genes encoding these enzymes are associated with mortality in patients with sepsis. Recently we established a new biotech company, Critical Pressure Ltd, to perform clinical trials of our drug candidates in patients with septic shock. Our future plans are focused on understanding mechanisms and identifying therapeutic targets for treatment of the sepsis survivors syndrome.

In addition to my academic activities, I am the Associate Medical Director of the British Heart Foundation with responsibility for Translational Research.