

FRONTIERS IN CARDIOVASCULAR BIOLOGY

Second Meeting of the ESC Council on Basic Cardiovascular Science

Advance Programme



www.escardio.org/FCVB

LONDON

30 MARCH - 1 APRIL

2012

FCVB

ESC Working Groups on: Atherosclerosis and Vascular Biology - Cardiac Cellular Electrophysiology - Cardiovascular Pharmacology and Drug Therapy - Cellular Biology of the Heart - Coronary Pathophysiology and Microcirculation - Development, Anatomy and Pathology - Myocardial Function - Thrombosis
Sister Societies: European Vascular Biology Organisation - International Society for Heart Research European Section - European Council for Cardiovascular Research - European Society for Microcirculation - European Atherosclerosis Society - Association for European Cardiovascular Pathology



Welcome Address

FCVB London 2012 - a scientific Olympics!

Our second Frontiers in CardioVascular Biology meeting is taking shape for London 2012, with a Programme designed by a unique federation of 14 European basic science societies and supported by the European Society of Cardiology (ESC). We aim to continue the ideals of the first meeting, in Berlin 2010, to bring the best and newest science to the cardiovascular arena.



Within a wide-ranging programme, themes of Bioimaging, Degeneration and Regeneration, and Inflammation will be highlighted. Invited speaker presentations will be mixed with shorter talks selected from submitted abstracts, ensuring both the most recent data and strong involvement of younger speakers. Poster sessions will be central in both position and timing. With travel bursaries and low early career registration fees, this will be a meeting ideal for students and trainees.

The venue, Imperial College, is set within the famous "Albertopolis" area of West London, encompassing the Albert Hall, the Victoria and Albert, Natural History and Science Museums, and the lovely Hyde Park. Many of the societies will increase the productivity of the event by holding their business sections and satellites around the same time, and we aim to accommodate those who wish to hold Leducq or FP7 meetings within the campus. Imperial College is easily reached from London's Heathrow airport and a wide range of housing will be available, including reasonably priced accommodation.

I look forward to welcoming both society members and new recruits to this rich and integrated cardiovascular science experience.

Professor Sian Harding
FCVB 2012 Chairperson

FCVB Committees

Core Scientific Committee

Prof. Sian Harding FESC (GB) - Chairperson
Prof. Axel Pries FESC (DE)
Prof. Barbara Casadei FESC (GB)
Prof. Raffaele De Caterina FESC (IT)
Prof. Lina Badimon FESC (ES)
Prof. Jeremy Pearson (GB)
Prof. Andrew Newby FESC (GB)

Programme Committee

WG Atherosclerosis and Vascular Biology - Prof. R. Krams (GB)
WG Cardiac Cellular Electrophysiology - Prof. E. Cerbai FESC (IT)
WG Cardiovascular Pharmacology and Drug Therapy - Ass. Prof. K.P. Kjeldsen (DK)
WG Cellular Biology of the Heart - Dr. M. Ruiz-Meana (ES)
WG Coronary Pathophysiology and Microcirculation - Prof. C. De Wit (DE)
WG Development, Anatomy and Pathology - Prof. D.J. Henderson (GB)
WG Myocardial Function - Prof. J.L. Balligand FESC (BE)
WG Thrombosis - Prof. A. Siegbahn FESC (SE)
Association for European Cardiovascular Pathology (AECVP)
Ass. Prof. A. Angelini FESC (IT)
European Atherosclerosis Society (EAS) - Prof. P. Kovanen (FI)
European Council for Cardiovascular Research (ECCR) - Prof. M.J. Mulvany (DK)
European Society for Microcirculation (ESM) - Prof. A. Shore (GB)
European Vascular Biology Organisation (EVBO) - Prof. I. Fleming (DE); Prof. S. George (GB)
International Society for Heart Research European Section (ISHR)
Prof. T. Eschenhagen FESC (DE)

Scientific Advisory Committee

Prof. T. Aitman (GB)
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Dr. J. Lepore (US)
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Local Organising Committee

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Prof. B. Casadei FESC
Prof. D.A. Eisner
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Prof. M. Mayr
Prof. A. Newby FESC
Prof. D.E. Newby FESC
Prof. S. Nourshargh
Prof. J. Pearson
Dr. A. Williams
Prof. I. Zachary

Scientific Programme

Our Programme is designed to be cross-disciplinary, both between and within sessions, to emphasise underlying scientific developments important to cardiovascular biology. The 14 societies have worked together to showcase their most exciting findings and to highlight interconnections with new areas of research.

Cutting-edge research

Most recent findings in cardiovascular science will be covered in symposia and plenary presentations by leading scientists and in oral and poster communications. Fundamental mechanisms in cardiac and vascular biology will be addressed in integrative sessions, investigating the scientific foundations of cardiovascular disease and treatment options. Particular themes of the meeting will be Bioimaging; Degeneration and Regeneration; and Inflammation.

Scope

The meeting targets researchers in cardiovascular science while the translational components render the programme of great interest for clinicians in the field.

Learning

Outstanding experts will cover topics which are central for the most significant and fast-moving research areas. Special emphasis will be placed upon the participation of young investigators, who will present oral communications within expert symposia. Poster communications will be centrally placed and given generous protected time for extensive showcasing of young investigator studies.

Main topics developed at FCVB 2012

- Cardiac turnover and regeneration
- Molecular imaging in atherosclerosis
- Developmental and stem cell biology
- Genetics, epigenetics and genomics
- Vascular remodelling in ageing and disease
- Therapeutic targets in cardiac calcium handling
- Lipids, atherosclerosis and microcirculation
- Novel bioimaging methods in cardiac and vascular tissues
- Subcellular events in arrhythmia genesis
- Mitochondrial biogenesis and cellular energy sensors
- Cytoskeleton, extracellular matrix and mechanosensing
- The immune system and atherosclerosis

Keynote Lectures

Lessons in Science: competition in scientific research.

Sir Prof. Salvador Moncada (London, GB)

Friday 30 March 2012 - 10:15-11:00 - Great Hall

Transdifferentiation of somatic cells into cardiomyocytes.

Prof. Deepak Srivastava (San Francisco, US)

Saturday 31 March 2012 - 10:45-11:30 - Great Hall

Gene regulation and blood flow.

Prof. Peter Francis Davies (Philadelphia, US)

Saturday 31 March 2012 - 17:15-18:00 - Great Hall

Molecular imaging of the heart.

Prof. Ron Heeren (Amsterdam, NL)

Sunday 1 April 2012 - 10:45-11:30 - Great Hall

Maturation of new blood vessels.

Prof. Peter Carmeliet (Leuven, BE)

Sunday 1 April 2012 - 16:45-17:30 - Great Hall

Industry Partners

The healthcare sector is strategic in basic and translational science for cardiovascular research and medicine. Many of the findings and advances by basic scientists are researched and applied by the industry for significant improvements in cardiovascular medicine. We welcome the support and presence of many industry partners to this congress and invite you to contact them for information on their research, products and solutions.

Sponsors

AstraZeneca, Aurora Scientific Inc, Boehringer Ingelheim, DSI, IonOptix Ltd, Seahorse Bioscience, SERVIER, Wisepress

Acknowledgement

The Council on Basic Cardiovascular Science of the European Society of Cardiology wishes to express its sincere appreciation to the British Heart Foundation for its contribution to Frontiers in CardioVascular Biology 2012.



| | Great Hall | Lecture Theatre 311 | Clore Lecture Theatre | | |
|---------------|--|---|--|---|---|
| 10:00 - 10:15 | Opening Address | | | | |
| 10:15 - 11:00 | Lessons in Science: competition in scientific research. Keynote Lecture by Salvador Moncada (London, GB) | | | | |
| 11:15 - 12:45 | The sarcoplasmic reticulum as a therapeutic target. <i>Showcase: WG Myocardial Function</i> <ul style="list-style-type: none"> • SERCA2a over-expression as a treatment for the failing in human heart failure. • Remodelling of the SR and t-tubules following conditional SERCA knockout. • Calcium stabilisation of SR release. | Transient Receptor Potential channels in vascular biology. <ul style="list-style-type: none"> • TRP channels in cardiopulmonary vasculature. • TRPC channel lipid specificity and mechanisms of lipid regulation. • TRP channels and vasodilation. • TRP channels: novel cardiovascular players. | Inflammation in atherosclerosis. <i>Showcase: WG Atherosclerosis and Vascular Biology</i> <ul style="list-style-type: none"> • What becomes of different monocyte subsets? • Mast cells in cardiovascular disease. • MMPs and macrophage phenotype. | P | E |
| 12:45 - 14:30 | Lunch and Poster Viewing | | | O | X |
| 14:30 - 16:00 | Mitochondria structural determinants of function. <i>Showcase: International Society for Heart Research - European Section</i> <ul style="list-style-type: none"> • Mitochondrial dynamics in cardiovascular physiology and disease. • Monoamino oxidases and mitochondrial oxidative stress in cardiac diseases. • Mitochondria sarcoplasmic reticulum interaction in cardiac failure. | The role of AMPK in cardiovascular homeostasis. <ul style="list-style-type: none"> • The AMPK and vascular function. • Regulation of AMPK activity. • Novel biological roles for AMPK. | Atherosclerosis and the immune system - Expanding beyond inflammation. <i>Showcase: European Council for Cardiovascular Research</i> <ul style="list-style-type: none"> • Vaccination against atherosclerosis. • Toll-like receptors: therapeutic targets in cardiovascular disease? • The complement system in atherosclerosis: friend or foe? | S | H |
| 16:00 - 16:30 | Coffee Break | | | E | |
| 16:30 - 18:00 | Frontiers in heart development. <i>Showcase: WG Development, Anatomy and Pathology</i> <ul style="list-style-type: none"> • Novel molecules modulating cardiac differentiation. • Genomics and congenital heart defects. • Cardiac progenitor cell lineages in the early embryo. | MicroRNAs regulating cardiovascular function. <ul style="list-style-type: none"> • MicroRNAs controlling myocardial function. • MicroRNAs in the ischemic myocardium. • MicroRNAs in vascular complications of diabetes. | Innate immunity and cardiovascular disease. <ul style="list-style-type: none"> • Innate immunity and adipocyte function. • Immune mechanisms in heart failure. • Induction of immune tolerance. | R | I |
| 18:00 - 18:30 | Opening Ceremony | | | S | B |
| 18:30 - 19:30 | Welcome Reception | | | E | I |

Valid at the date of publishing: 21 November 2011.

| | Great Hall | Lecture Theatre 311 | Clore Lecture Theatre |
|---------------|--|---|---|
| 09:00 - 10:30 | Cardiac turnover and regeneration. <ul style="list-style-type: none"> • Cardiomyocyte renewal in humans. • Cardiopoietic factors regulating cardiomyocyte differentiation. • Epicardial derived stem cells and neovascularisation of the heart. | Systems biology in cardiovascular disease. <ul style="list-style-type: none"> • Systems biology of mechanotransduction. • Systems biology of the vessel wall: proteomics and lipidomics. • Systems biology of lipids. | New insights in mechanosensing. <i>Showcase: WG Cellular Biology of the Heart</i> <ul style="list-style-type: none"> • Caveolae disassembly in response to mechanical stress. • Vascular mechanosensing. • The sarcomeric cytoskeleton and mechanosensing. |
| 10:45 - 11:30 | Transdifferentiation of somatic cells into cardiomyocytes. Keynote Lecture by Deepak Srivastava (San Francisco, US) | | |
| 11:30 - 13:30 | Lunch and Poster Viewing | | |
| 13:30 - 15:00 | Disease in a dish: pluripotent stem cells as model systems for cardiac research. <ul style="list-style-type: none"> • Modelling long QT syndrome using iPS cells. • Proarrhythmic modelling in pluripotent stem cell-derived cardiomyocytes. • iPC-derived cardiomyocytes from Duchenne muscular dystrophy patients. | Oral abstract session | Chronic coronary artery stenosis and the coronary microcirculation. <i>Showcase: WG Coronary Pathophysiology and Microcirculation</i> <ul style="list-style-type: none"> • Functional and structural adaptations of coronary microvessels distal to a chronic coronary artery stenosis. • Successful stent operation, yet failure to improve coronary blood flow; potential pathomechanisms. • Cardiac PET imaging for the detection and monitoring of coronary artery disease and microvascular health. |
| 15:00 - 15:30 | Coffee Break | | |
| 15:30 - 17:00 | Signaling control of myocardial survival. <ul style="list-style-type: none"> • The link between calcium, excitation-contraction coupling and survival in cardiac myocytes. • Chemotherapeutic cardiotoxicity - A stem cell disease. • New approaches to identify genes involved in cardiomyocyte survival. | Macrophages under stress. <ul style="list-style-type: none"> • The phenotype of human atherosclerotic plaque alternative macrophages. • Macrophage hypoxia. • Resolution of macrophage mediated inflammation. | Young Investigators Competition. <i>Supported by: European Council for Cardiovascular Research</i> |
| 17:15 - 18:00 | Gene regulation and blood flow. Keynote Lecture by Peter Francis Davies (Philadelphia, US) | | |

| | Great Hall | Lecture Theatre 311 | Clore Lecture Theatre |
|---------------|--|--|---|
| 09:00 - 10:30 | <p>New ways of imaging the cardiac myocyte.</p> <ul style="list-style-type: none"> • Non-optical topographical imaging for the cardiac myocyte. • Live imaging of transverse tubules in ventricular myocytes by STED based super-resolution microscopy. • Ultrafast microscope and novel voltage-sensitive dyes for simultaneous recordings at surface and T-tubular membrane. | <p>Effects of aging on vascular cells.</p> <p><i>Showcase: Association for European Cardiovascular Pathology</i></p> <ul style="list-style-type: none"> • Vascular ageing. • Ageing and microvasculature. • Ageing and vascular remodelling. | <p>Role of the extracellular matrix in myocardial remodeling.</p> <ul style="list-style-type: none"> • SPARC and extracellular matrix remodeling. • New molecular control of fibrosis by AMPK. • Myocardial fibrosis as early manifestation of hypertrophic cardiomyopathy: towards new molecular markers. |
| 10:45 - 11:30 | <p>Molecular imaging of the heart. Keynote Lecture by Ron Heeren (Amsterdam, NL)</p> | | |
| 11:30 - 13:30 | <p>Lunch and Poster Viewing</p> | | |
| 13:30 - 15:00 | <p>Molecular imaging in atherosclerosis.</p> <p><i>Showcase: European Vascular Biology Organisation</i></p> <ul style="list-style-type: none"> • (current state of the art in) Imaging of plaque phenotype in atherosclerotic lesions. • The use of nanotechnology for vascular imaging in atherosclerosis. • Molecular imaging techniques for the visualization of inflammatory cells in atherosclerotic lesions. | <p>Cardiovascular genetics: from animal models to man and back again.</p> <ul style="list-style-type: none"> • Genetics of outflow tract malformations. • A systems biology approach to cardiac development. • Fishing for novel mutations in congenital heart disease. | <p>Determinants of ventricular arrhythmias.</p> <p><i>Showcase: WG Cardiac Cellular Electrophysiology</i></p> <ul style="list-style-type: none"> • Mechanisms of early and delayed afterdepolarisations. • Sodium channel abnormalities and cardiac conduction diseases. • Sparks - The path to arrhythmia. |
| 15:00 - 15:30 | <p>Coffee Break</p> | | |
| 15:30 - 16:30 | <p>In vivo imaging techniques.</p> <p><i>Showcase: European Society for Microcirculation</i></p> <ul style="list-style-type: none"> • Intravital multiphoton microscopy for dynamic visualisation of thromopoiesis. • Molecular imaging of the atherosclerotic plaque. • In vivo high-resolution structural imaging two-photon laser scanning microscopy. | <p>Tissue factor in atherothrombosis - New aspects.</p> <p><i>Showcase: WG Thrombosis</i></p> <ul style="list-style-type: none"> • Tissue factor in atherosclerotic lesion remodeling. • Tissue factor / factor VIIa non-coagulant signaling couples coagulation and inflammation. • Protein disulfide isomerase in the regulation of TF activity. | <p>Hypertrophic cardiomyopathy: from myofilament (dys)function to risk stratification.</p> <ul style="list-style-type: none"> • Changes in sarcomere kinetics in HCM. • Ubiquitin-proteasome system in HCM. • Alterations in calcium homeostasis in the progression of HCM. |
| 16:45 - 17:30 | <p>Maturation of new blood vessels. Keynote Lecture by Peter Carmeliet (Leuven, BE)</p> | | |
| 17:30 - 18:00 | <p>Closing Ceremony and Awards</p> | | |

Registration

The registration fees below entitle delegates to the following:

- Entry to all Scientific Sessions, Poster Area and Exhibition Area
- The Abstract Book and Final Programme
- Opening Ceremony and Welcome Reception on Friday 30 March
- Lunches and coffee breaks

| Registration Fees In Euro (incl. 20% VAT) | Until 23 January 2012 | Until 27 February 2012 | On-Site Fee |
|--|-----------------------|------------------------|-------------|
| Scientist | €375 | €425 | €480 |
| Student* | €160 | €195 | €240 |
| Day Tickets available on-site only | | | |
| Day Ticket | N/A | N/A | €160 |

* Student status to be confirmed with copy of Student Card & a letter from the Head of Department

Payment of fees

Payment can be made in Euro by credit card, bank transfer or cheque.

Cash payments in Euro and British Pounds will be accepted on-site.

Online registration via “My ESC” is available on the FCVB Web Site: www.escardio.org/FCVB

| Registration Opening hours: | |
|-----------------------------|---------------|
| Friday 30 March | 07:30 - 18:00 |
| Saturday 31 March | 07:30 - 18:00 |
| Sunday 1 April | 07:30 - 18:00 |

For further information please contact the ESC Registration Department: FCVBregistration@escardio.org

Hotels

The ESC is working in collaboration with the Imperial College London Hotel Reservation Department. The Imperial College has a number of selected partner hotels in various categories at negotiated rates. You may book your accommodation at preferential rates directly through them. A list of hotels and access to the online hotel booking form of Imperial College is available on the FCVB Web Site www.escardio.org/FCVB

Please make sure you select “**FCVB 2012 Website**” from the dropdown list in the booking process (last question of the form).

CME Accreditation



Frontiers in CardioVascular Biology 2012 is accredited by the European Board for Accreditation in Cardiology (EBAC) for **18 hours** of external CME credits. Each participants should claim only those hours of credit that have actually been spent in the educational activity. EBAC works according to the quality standards of the European Accreditation Council for Continuing Medical Education (EACCME), which is an institution of the European Union of Medical Specialists (UEMS).

FCVB Networking & Get Together Evening

Join us in a friendly and relaxed atmosphere on Saturday 31 March at the Metric Club on the Imperial College Campus. Mingle with colleagues, friends and peers on a “typical London night out”.

Registration is €25 per person (including food and beverages). Tickets are limited and can be purchased together with registration on the FCVB Web Site www.escardio.org/FCVB

London

The largest metropolitan area in the United Kingdom

Easy to meet in and impossible to forget, London is cosmopolitan, trendy and exciting: a truly wonderful place to visit thanks to its vibrant and multi-cultural atmosphere.

Many of London's museums and activities are free, which means that delegates don't have to spend money to have a great day out in London. In fact, 17 of London's biggest art galleries are free to visit, including globally renowned spaces such as The British Museum, The National Gallery, Tate Modern, Tate Britain, the Science Museum and the Victoria and Albert Museum.

London also has a vast range of food, antiques and clothing markets that are famous around the world. Food markets such as Borough Market and Covent Garden showcase London's diverse cuisine. If you prefer clothes to cooking, then markets such as Old Spitalfields Market highlight London's chic fashion focus with new and vintage clothes on offer. There are also famous antiques and crafts markets, including Greenwich Market and Portobello Road, where visitors from all over the world come to hunt for treasures.



Imperial College

Consistently rated amongst the world's best universities, Imperial College London is a science-based institution with a reputation for excellence in teaching and research that attracts 14,000 students and 6,000 staff of the highest international quality. Innovative research at the College explores the interface between science, medicine, engineering and business, delivering practical solutions that improve quality of life and the environment - underpinned by a dynamic enterprise culture.

Since its foundation in 1907, Imperial contributions to society have included the discovery of penicillin, the development of holography and the foundations of fibre optics. This commitment to the application of research for the benefit of all continues today. With current focuses including interdisciplinary collaborations to improve global health, tackle climate change, develop sustainable sources of energy and address security challenges.

Imperial's main campus is located in South Kensington and is supported by several campuses around West London.

VENUE

Imperial College London
South Kensington Campus
Exhibition Road
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www3.imperial.ac.uk

FCVB SECRETARIAT

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Imperial College
London

ESC Council on
Basic Cardiovascular Science



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