

Molecular Biology in Cardiovascular Medicine

Course Venue

The University of Warwick ranks in the top six of the country's one hundred universities. The Department of Biological Sciences has achieved the coveted 'grade five' rating in all the official government assessment schemes in the last ten years. It has an international reputation in fundamental and strategic research. Housed on an integrated self-contained site the department has well-equipped research and teaching laboratories, support facilities, and modern teaching rooms.

The University is situated in a country setting 3 miles from Coventry on a large, scenic campus. There is easy access by road, rail (London - 75 minutes; Birmingham - 17 minutes) and air (Birmingham International Airport - 12 miles).

Teaching Faculty:

Lecturers and tutors will be drawn from the Department of Biological Sciences, Warwick University and from nationally recognised cardiology departments including:

- Roger Foo, MD MRCP,** BHF Clinical Fellow and Hon Consultant Physician, Division of Cardiovascular Medicine, University of Cambridge, Addenbrooke's Hospital, Cambridge.
- Sanjay Sinha, PhD MRCP,** Wellcome Trust Fellow and Hon Consultant Cardiologist, Division of Cardiovascular Medicine, University of Cambridge, Addenbrooke's Hospital, Cambridge.
- Sarah George, PhD,** Reader in Vascular Biology, Bristol Heart Institute, Bristol Royal Infirmary, Bristol.
- Robin Choudhury, DM MRCP,** Wellcome Trust Clinical Fellow and Hon Consultant Cardiologist, University Department of Cardiovascular Medicine, John Radcliff Hospital, Oxford.
- Stuart Cook, PhD MRCP,** Clinical Senior Lecturer and Hon Consultant Cardiologist, Division of Clinical Sciences, Imperial College, London

Enquiries to:

Dr. Charlotte Moonan (Short Courses)
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It may be necessary for reasons beyond the control of the organisers to alter dates, timing, content of the programme, speakers or venue. The organisers regret that we cannot accept liability for losses incurred by delegates in these instances.

A Course for Cardiologists



course dates 14th - 17th April 2008

Molecular Biology in Cardiovascular Medicine

A newly developed four day course designed specifically for clinicians and basic scientists wishing to improve their understanding of the current advances and applications of molecular biology within Cardiovascular Medicine.

Developed in association with Dr Roger Foo, British Heart Foundation Clinical Fellow and Honorary Consultant, University of Cambridge and Addenbrooke's Hospital, Cambridge

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Who should attend?

- Junior to Intermediate level clinicians in or considering a career in Cardiovascular Research (e.g. ST 2-4)
- Established clinicians wishing to develop an understanding of molecular cardiology
- Post-doctoral fellows in Cardiovascular Research
- Clinical and Basic Science PhD students

Application Form: (Closing date for applications: 28th March 2008)

Molecular Biology in Cardiovascular Medicine. April 2008

I wish to reserve a place on the above course. The course fee is £595. This includes a course dinner on the evening of 16th April, lunches, refreshments and a comprehensive course manual.

Name:.....

Address:

.....

..... Post Code:

Work Tel / Fax / Email:

Institution:

Position Held:

To Register: Please return completed form with the full fee or a deposit of £150. Please send either a cheque made payable to "University of Warwick" or an order number and invoicing details. The balance of the course fee is required by 28th March 2008.

A list of local hotels can be provided on request.

Cancellation Charges: The £150 deposit for the course is non-refundable after 28th March 2008. A further cancellation charge of £50 will be levied for bookings withdrawn after this date.

Please return completed application form to:

Dr. Charlotte Moonan (Short Courses), Department of Biological Sciences,
The University of Warwick, Coventry CV4 7AL. UK. Email Charlotte.Moonan@warwick.ac.uk

Overview

This course aims to cover a broad range of the most recent areas of molecular cardiology research, and includes a hands-on programme dealing with techniques used in molecular biology relevant to cardiovascular research. Upon completion of this course, the participant should;

- Have knowledge of the current advances in Molecular Cardiology
- Have knowledge and experience of the important tools and techniques used in molecular cardiovascular research including animal models of cardiovascular disease and in vivo molecular imaging
- Have knowledge and experience of using bioinformatics for Cardiovascular Genomics

Course programme to include:

Structure and expression of genes

- the central dogma, control of gene expression

PCR, cDNA and genomic cloning

Molecular biology of the myocardium

- pathways in hypertrophy, cardiac contractility, myocyte cell loss
- pathways in ischaemic preconditioning and hibernation

Molecular biology of the vessel wall

- cell division, senescence, apoptosis: smooth muscle cell/macrophage
- telomeric attrition
- plaque biology, endothelial cell

Stem cells in cardiovascular medicine

- stem cell biology
- myocardial regeneration
- smooth muscle cell lineage

Animal models of cardiac disease

- generating mouse models
- models of vascular and myocardial disease
- models of arrhythmias

Molecular imaging in cardiology

- myocardial energetics, atherosclerotic plaques

Integrated genomic studies of complex traits

Monogenic cardiac disorder

- Brugada syndrome, HOCM & dilated cardiomyopathy

Case studies: recent discoveries

- miRNA, stem cell therapy

Practical Programme:

This supporting programme will focus on the practical aspects of recombinant DNA techniques. A series of small group tutorials will be conducted, using graphic displays, computer-based practical illustrations and experimental materials to illustrate:-

- Preparation of DNA & RNA
- Making and using probes
- Microarray technology
- Cell culture techniques
- Bioinformatics
- Expression of cDNA & knock-down

In addition, a laboratory programme will give participants 'hands on' experience of:

- isolation of plasmid DNA
- transformation of E.coli with plasmid DNA
- restriction digestion and agarose gel electrophoresis
- DNA amplification (PCR)