Report on the 37th Congress of the International Union of Physiological Sciences

David Eisner & Bridget Lumb
General report - overview

- 5 days duration
- 102 symposia
- ~700 speakers & organisers
- 6 lunch-time general interest sessions
- 3 commercial workshops
- 68 exhibitors
- 33 Prize & Keynote lectures
- 2220 abstracts submitted
- 1037 attendees for Welcome Reception
- 1027 attendees for Congress Dinner
Prize & Keynote lectures

Prize & keynote speakers gender

- Male (23)
- Female (10)
Prize & Keynote lectures

Physiology moves back onto centre stage: a new synthesis with evolutionary biology
Denis Noble, University of Oxford, UK

Pathological development of brain microvasculature
Elisabetta Dejana, University of Milan, Italy

3R's: Reproductive Regulation Revised
Iain Clarke, Monash University, Australia

Health-promoting effects of exercise in diabetes and obesity: from molecular mechanisms to clinical action
Juleen R Zierath, Karolinska Institutet, Sweden

Neuronal calcium channels and migraine
Daniela Pietrobon, University of Padova and CNR Institute of Neuroscience, Italy

Brown adipose tissue: the mammalian prerogative
Barbara Cannon, The Wenner-Gren Institute, Sweden
Prize & Keynote lectures

Teaching and research in physiology in Sub-Saharan Africa - achievements and challenges
Olusoga Sofola, University of Lagos, Nigeria

The Rhythms of Life – What your body clock means to you from eye disease to jet lag
Russell G Foster, University of Oxford, UK

Calcium signal mechanisms in secretory cells: physiology and pathology
Ole H Petersen, Cardiff University, UK

Stem cell biology for vascular medicine
Takayuki Asahara, Tokai University, Japan

Local protein synthesis
Erin Schuman, Max Planck Institute for Brain Research, Germany

Vascular metabolism: principles and strategies
Peter Carmeliet, VIB - KU Leuven, Belgium
Prize & Keynote lectures

Gastrointestinal hormones and the dialogue between gut and brain
Graham Dockray, University of Liverpool, UK

Stress, memory, and the amygdala
Sumantra Chattarji, Tata Institute of Fundamental Research, India

Physiological insights into the developmental origins of non-communicable disease
Mark Hanson, University of Southampton, UK

Mitochondrial superoxide flashes
Heping (Peace) Cheng, Peking University, China

T-type calcium channels, thalamic firing modes, and control of consciousness and cognition
Hee-Sup Shin, Institute for Basic Science, Daejeon, South Korea

Role of ATP - regulated potassium channels in pancreatic alpha- and beta-cells
Patrik Rorsman, University of Oxford, UK
Prize & Keynote lectures

Sifting circuits for motor control
Thomas M Jessell, Columbia University, USA

Structure and function of voltage-gated sodium channels at atomic resolution
William A Catterall, University of Washington, USA

New insights in the fetal origins of adult cardiometabolic disease
Sandra Davidge, University of Alberta, Canada

An overview of Physiome activities
Peter Hunter, University of Auckland, New Zealand

Integration and modulation of intercellular signalling underlying blood flow control
Steven S Segal, University of Missouri School of Medicine and Dalton Cardiovascular Research Center, USA

The renin-angiotensin system: new concepts and perspectives
Robson A Santos, Federal University of Minas Gerais, Brazil
Prize & Keynote lectures

TRPV1 channels: from molecules to physiology
Tamara Rosenbaum, Universidad Nacional Autónoma de México, Mexico

Purinergic signalling: the discovery and current developments
Geoffrey Burnstock, University College London, UK

The molecular mechanisms of signaling at chemical synapses
Eric Gouaux, Oregon Health & Science University, USA

How are memories represented and recollected by the human brain?
Eleanor A Maguire, University College London, UK

Rho proteins in cardiovascular physiology and diseases
Gervaise Loirand, Inserm UMR_S1087, France

Sensing, signaling and sorting pathways in kidney epithelial cells
Dennis Brown, Massachusetts General Hospital and Harvard University Medical School, USA
Prize & Keynote lectures

Cortical HCN channels: function, trafficking and plasticity
Mala Shah
UCL School of Pharmacy, UK

Respiratory and neural consequences for fish of a warmer and more carbonated future
Göran Nilsson
University of Oslo, Norway

Optical deconstruction of fully-assembled biological systems
Karl Deisseroth
Stanford University, USA
General report - symposia

Established speakers gender

- Male (198)
- Female (102)

Early-career speakers gender

- Male (96)
- Female (102)
# General report - symposia

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| Germany                  | 14 |
| The Netherlands          | 14 |
| UK                       | 75 |
| USA                      | 90 |
Senior symposium speakers – by country

- USA
- UK
- Germany
- The Netherlands
- Japan
- Canada
- Scandinavia
- Australia
- Italy
- Others

The USA and UK have the largest share of speakers, with the USA being the most represented country.
General report - Registrations

Total 2900 (as at 9 July 2013)

- Active scientists – 1108
- Student scientists – 961
- Retired – 48
- Speakers/Chairs – 569
- IUPS Committee members / invited guests – 77
- Press – 8
- Staff – 19
- Commercial – 15
- Exhibitors/Sponsors – 65
- Accompanying persons – 13
- Cancellations - 35
General report - Registrations

Breakdown by Society

Member of:
- The Physiological Society - 857
- The Scandinavian Physiological Society - 54
- American Physiological Society - 391
- Canadian Physiological Society - 16
- Physiological Society of Japan - 121
- Brazilian Physiological Society - 54
- Chinese Assoc of Physiological Sciences - 109
- European Society for Microcirculation - 88
- European Vascular Biology Organisation - 42
General report - Registrations

Breakdown by General Theme Interest

- Neuroscience - 745
- Cardiac & Respiratory Physiology - 761
- Epithelia & Membrane Transport - 333
- Education & Teaching - 203
- Human & Exercise Physiology - 292
- Metabolism & Endocrinology - 390
- Vascular & Smooth Muscle Physiology - 625
- Other - 303
General report - Abstracts

2220– Total abstracts submitted

- Speaker (Symposium) abstracts – 472
- Plenary & Keynote abstracts - 32
- General abstracts – 1716
- Late-breaking posters – 147

Of which
- 16 rejected (on ethical grounds)
- 61 withdrawn (subsequently not attending)
General report - Abstracts

Geographic breakdown

Top 10

- 631 – UK
- 185 – USA
- 143 – Japan
- 105 – Brazil
- 80 – Germany
- 63 – Nigeria
- 54 – Australia
- 52 – South Korea
- 39 – India
- 38 - Canada

Continental

- Europe - 1138
- North America - 223
- South/Central America - 124
- Asia - 497
- Middle East - 54
- Africa - 119
- Australia/NZ - 64
Public events

Free public event
Annual Public Lecture of The Physiological Society

The Rhythms of Life
What your body clock means to you from eye disease to jet lag
Russell Foster, University of Oxford, UK
7.30pm - 8.30pm, Monday 22 July
Hall 1, The ICC Birmingham, UK
Find out more at www.iups2013.org

Free public event
Are you the strongest person in Birmingham?
What does the inside of your body look like?
How much air fits in your lungs?
What happens to you when you exercise?
Meet real scientists in their ‘Lab in a Lorry’
with hands-on activities for all the family
Monday 22 July to Wednesday 24 July
11.00am - 4.00pm
Centenary Square, Birmingham, UK

Hosted by:
General interest sessions

EUDAT training: iRODS, Data Staging and PID$s
Sunday 21 July 10.00 - 16.00
EUDAT is providing a FREE training session for attendees and interested members of the VPH community. We will cover iRODS, Data Staging and Persistent Identifiers. We'll introduce these technologies and concepts and then demonstrate how they can be used in the context of EUDAT's common data infrastructure.

Statistics: the Emperor’s clothes
Tuesday 23 July 13.00 - 14.00
Organised by Gordon Drummond, University of Edinburgh, UK and Statistics Editor, The Journal of Physiology

This short session cannot provide a cure, but seeks to stimulate a fresh resolve in people too afraid to criticise the Emperor. I shall touch on design and data presentation (get that right and you’re nearly there), the logic or otherwise of statistical “proof”, interpreting tests, absence of evidence, nothing goes wrong, and replicates, what are they? The approach is to avoid equations and symbols as much as possible, and use analogy and pictures to demonstrate the underlying ideas.
General interest sessions

Effective presentation skills

Monday 22 July & Tuesday 23 July

- The use of PowerPoint and other presentation aids can be very helpful for scientists to effectively communicate their methods and findings.
- The aims of these sessions will be to assist young (and more senior) scientists who have a special need to improve their presentation skills.

Overall the short exercise will highlight the following areas:

- What constitutes a good PowerPoint presentation? – What should it and what should it not do?
- The presentation slides – designs, choice of background, fonts, font sizes, font colour, importance of contrast...
- Voice projection, presentation speed, presentation aids, body language.
- Common mistakes, the importance of rehearsing, timing, backup and general preparation before the presentation.
- Creating and effective poster presentation using PowerPoint.
General interest sessions

Publishing for beginners

Friday 26 July
Organised by Kim E. Barrett, Professor of Medicine and Dean of Graduate Studies, University of California, San Diego, USA

The goal of this session is to introduce postgraduate students, postdoctoral fellows, and early career investigators to some of the unwritten “dos and don’ts” of publishing. Armed with this information, you should be equipped to increase their chances of securing publication of your work in the journal of your choice while avoiding ethical minefields along the way.

➢ Telling a compelling story David Paterson, Editor-in-Chief, Journal of Physiology
➢ Nuts and bolts of the review process – how to give the editors what they want Ian Forsythe, Senior Editor and Reviews Editor, Journal of Physiology
➢ Avoiding common mistakes and ethical issues in your submission Kim Barrett, Deputy Editor-in-Chief for the Americas, Journal of Physiology

Panel discussion (30 minutes): Drs. Paterson, Forsythe, Barrett, Julian Paton (Deputy Editor-in-Chief for Europe, Journal of Physiology) and Yoshihiro Kubo (Deputy Editor-in-Chief for Asia, Journal of Physiology)
General interest sessions

**Women in science**

**Why mentoring and sponsorship works - Tuesday 23 July**
Caroline McMillen, The University of Newcastle, Australia / Co-Chair Patricia Brum, University of Sao Paulo
- Barbara Cannon The Wenner-Gren Institute, Sweden
- Abigail Fowden University of Cambridge, UK
- Lisa Nicholas University of South Australia

**Juggling Balls – family and physiology - Wednesday 24 July**
Sue Wray, University of Liverpool, UK / Co-Chair Luciana Rossoni, University of Sao Paolo, Brazil.
- Kathy Morgan, Boston, USA
- Rafidah Hanim Mokhtar, Kuala Lumpur, Malaysia
- Tamara Rosenbaum, Mexico
- Azeez Oyebisi, Ilorin, Nigeria
- Yvonne Hodgson, Australia

**What glass ceiling? - Thursday 25 July**
Bridget Lumb, University of Bristol, UK / Co-Chair Elaine Guimaraes, University of Sao Paolo, Brazil.
- Nancy Rothwell, University of Manchester, UK
- Ana Abdala, University of Bristol, UK
- Ole Petersen, Cardiff University, UK
Industry sessions

Join DSI for a luncheon at IUPS discussing:

*Telemetry in Neuroscience Research: Exploring Experimental Models of Sleep and Epilepsy*

Monday 22 July 2013 from 13:00–14:00 in Hall 9, ICC

DSI will be exhibiting at Booth #32

Hosted by:

[Logos of various organizations]
Industry sessions

Workshop
TR(i)P to Automated Patch Clamp
Live experiments!
Tuesday 23rd
Hall 9, 1-2 pm
Industry sessions

WIREs MEMBRANE TRANSPORT AND SIGNALING

INVITATION
To the seminar
‘Interdisciplinary Research, Funding and Publication’

Presentations:
- Prof. Ole Petersen, University of Cardiff
- Prof. Dmitri Rusakov, University College London

Wednesday July 24th, From 13:00 to 14:00 pm, Hall 8

Interdisciplinary Physiology for Pharmacology and Biomedicine

wires.wiley.com/mts
Satellites

The coronary circulation in health and disease
Dates: Thursday 18 and Friday 19 July 2013
Venue: The Royal Dutch Academy of Science, Trippenhuis, Amsterdam.
Organiser: Jos AE Spaan, University of Amsterdam, The Netherlands

The vestibular system: from laboratory to clinic
Date: Friday 19 July 2013
Venue: School of Sport & Exercise Science, University of Birmingham
Organiser: Raymond Reynolds, School of Sport & Exercise Sciences, University of Birmingham.

Ion Channel Regulation and Neuronal Physiology
A Special Symposium in honour of Professor David Brown
Date: Friday 19 July 2013
Venue: The Royal Society, 6-9 Carlton House Terrace, London SW1Y 5AG
Organisers: Mala Shah, UCL School of Pharmacy UK & Trevor Smart, University College London, UK
Satellites

Brain-heart interactions in health and disease
A Special Symposium in honour of Professor John H Coote
Date: Sunday 21 July 2013
Venue: Austin Court, Birmingham (5 minute walk to the ICC)
Organiser: Thelma Lovick, University of Bristol, UK

H⁺SSS: H⁺ Ion Sensing, Signalling and Servo-Control
Date: 27 - 30 July 2013
Venue: Department of Physiology, Anatomy and Genetics, Sherrington Building, University of Oxford, UK
Organisers: Richard Vaughan-Jones (Oxford UK), Walter Boron (Cleveland USA), Stine Pedersen (Copenhagen DK), Chae Hun Leem (Seoul KR), Mitch Chelser (New York USA), Christian Aalkjaer (Aarhus DK)

Multi-Scale Systems Biology - An ICSU Bio-Unions Satellite Symposium
Date: 28 - 29 July 2013
Venue: Chicheley Hall, Chicheley
Organisers: IUPS (Physiological Sciences), IUBMB (Biochemistry and Molecular Biology), IUBS (Biological Sciences), IUIS (Immunological Societies), IUPESM (Physical & Engineering Sciences in Medicine)
**Travel grants – Total awarded £95,000**

**132 awards made**

**10 awards withdrawn (non-attendance)**

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General financials – as at 10 July 2013

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10% of projected registration fees - £43,732 for IUPS 2017
With thanks to our generous sponsors:

Generous donations from
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- BPE Solicitors
- Belgian Society of Fundamental and Clinical Physiology and Pharmacology

Hosted by:

The Physiological Society
Partner Societies

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China
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Aurora Scientific Inc.
BIOPAC Systems, Inc
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EVS

European Society for Microcirculation

EFBS

European Federation of Biochemical Societies