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## International Speaker Profile

Paul Dietl, Professor of Physiology at the University of Ulm, Germany is the guest speaker at the Molecular Physiology and Membrane Dynamics symposium.



Paul works on the mechanisms of surfactant secretion from cells lining the lungs. Surfactant forms a lipid film at the air-liquid interface in alveoli. This lipid film reduces surface tension and is an essential component to lung inflation. Surfactant is a lipid-rich, lipoprotein-like, substance produced by and secreted from pulmonary epithelial type II pneumocytes by regulated exocytosis of lamellar bodies (LBs). These large vesicles (> 1  $\mu\text{m}$   $\varnothing$ ) fuse with the plasma membrane in response to various stimuli, a single cell stretch

(a deep inspiration) or purinergic activation (P2Y<sub>2</sub> receptor) being the most potent types of stimulation.

Paul has developed several fluorescence techniques that enable a "dissection" of the exocytotic process into various stages, based on quantum yield changes, solubility, diffusion and accumulation of dyes in different compartments according to biophysical properties and modes of application.

Paul's work has found that an elevation of the cytoplasmic Ca<sup>2+</sup> concentration ([Ca<sup>2+</sup>]<sub>c</sub>) above  $\approx$  300 nmol/l is a stimulus for LB fusion events, where the amount of fusion correlates with the integrated [Ca<sup>2+</sup>]<sub>c</sub> over time, persisting for several (up to about 20) minutes. ATP-induced Ca<sup>2+</sup> mobilization involves release from IP<sub>3</sub>-sensitive stores, which is more short-lived than fusion activity. Each fusion event is initiated by a hemifusion phase, i.e. a period of lipid merger between plasma and LB membrane, which can be detected by a decay of light intensity (SLID = scattered light intensity decrease) of the limiting LB membrane in darkfield microscopy. After fusion pore formation, LB contents remain within the fused LB, because the fusion pore opens slowly and surfactant is a hydrophobic material that does not immediately disintegrate. Cells expressing actin-GFP form a dense "actin coat" around the fused and swollen LB, and this actin coat formation is necessary for surfactant release through the pore. When actin coat formation is prevented by removal of Ca<sup>2+</sup> or by

pharmacological treatment with Ca<sup>2+</sup> channel blockers, surfactant release is inhibited. The dependence of actin coat formation and contraction on extracellular Ca<sup>2+</sup> prompted an investigation of localized [Ca<sup>2+</sup>]<sub>c</sub> changes at the site of fusion. Fluo-4-fluorescence measurements revealed transient [Ca<sup>2+</sup>]<sub>c</sub> elevations around single fused LBs subsequent to fusion pore formation (FACE = fusion-activated Ca<sup>2+</sup> entry). Current experiments aim at elucidating the molecular components of Ca<sup>2+</sup> entry in type II cells.

The Molecular Physiology and Membrane Dynamics symposium is organized by the newly formed Membranes Special Interest Group. The SIG organizers, **Jens Coorsen, Peter Thorn and Damian Keating** plan an email contact list and welcome interested AuPS members to contact them.

The Annual Scientific Meeting is awash with awards. Recommend your students and colleagues

## THE A K McINTYRE PRIZE

### SPONSORED BY SDR CLINICAL TECHNOLOGY

The Prize is awarded to members of the Society who are judged to have made significant contributions to Australian physiological science over their **pre-doctoral and early post-doctoral years**. Nominees must be financial and have completed their PhD or equivalent doctoral degree not more than 5 years prior to the time of their nomination.

Nominees must be proposed by two financial members of the Society, who should provide a statement of not more than 500 words summarising the nominee's achievements. The nominee should also provide a *curriculum vitae* and a list of published works, including conference proceedings.

The judging committee shall consist of the Executive Committee of Council (except that any member with a conflict of interest shall be replaced with another Councillor), together with up to two additional members of Council who shall be appointed for each specific round of nominations.

**The Prize consists of a medal and the sum of \$1000.**

Post, fax or email applications to: Prof. Joe Lynch,  
University of Queensland, Brisbane, QLD 4072  
fax: 07 3346 6301 j.lynch@uq.edu.au

**The closing date for applications is 31st October 2010.**

### Post-doctoral publication prize

An annual \$500 award for the best original paper published by an AuPS member during their first 4 postdoctoral years.

### PhD student publication prize

An annual \$500 award for the best original paper published by an AuPS member during the course of their PhD studies

### Student Presentation Prizes

Prizes are presented at each meeting for the best presentations (oral and poster) by graduate students in physiology and related disciplines.

First and second prizes in both categories are normally awarded.

Only persons who have been approved as Student Members will be eligible for Student Prizes.

Student presenting authors need only indicate they wish to be considered for the presentation prizes when they submit their abstract through the on-line system.

For details; <http://www.aups.org.au/Prizes/>

# Joint Scientific Meeting

28 Nov - 1 Dec 2010

of the Australian Physiological Society and the  
Australian Society for Biophysics

## ■■■■■■ PLENARY SPEAKERS

Robert Kass, Columbia Univ NY  
Robert Dirkson, Univ Rochester NY  
Erik Richter, Univ of Copenhagen  
Richard Callaghan, Oxford University

## ■■■■■■ SYMPOSIA

Imaging and dynamic microscopy  
Multidrug resistance transporters  
Skeletal muscle excitation-contraction  
coupling  
Muscle fatigue/ reactive oxygen species  
Molecular architecture of the heart  
Cardiovascular stress  
Ion channel modulation by toxins  
Metabolic balance regulation  
Lipid metabolism  
Membrane dynamics  
Computational studies of nanotubes  
Calcium signalling  
Developmental physiology  
Physiology Education

*submitted presentations-- session themes include:*

Biophysics; Spectroscopy; Imaging; Fluorescence; Protein & membrane structure;  
Dynamics; Muscle; Cardiovascular; Nervous system; Synaptic transmission; Channels  
& transporters; Signalling; Organ systems; Photosynthesis; Respiration;  
Pharmacology; Exercise; Metabolism; Comparative Physiology; Physiology Education

# AuPS/ASB ADELAIDE

National Wine Centre  
Adelaide, SA



# 2010

## more international speakers

Toby Allen, Univ California  
Markus Amann, University of Utah  
Mark Boyett, Univ of Manchester  
Mark Cannell, University of Auckland  
Susan Cole, Queen's Univ Cancer  
Res Instit, Canada  
Paul Dietl, University of Ulm  
Michelle A Digman, Univ Calif Irvine  
Bob French, University of Calgary  
Jacque Epelbaum, INSERM, Paris  
Enrico Gratton, Univ Calif Irvine  
Richard Lewis, Stanford University  
Andrew L Miller, Hong Kong

## ■■■■■■ special events

*Physiology Education Outreach  
Program (SA high school science)  
Poster vignettes for student awards  
Opening reception Sun 28 Nov  
Conference dinner & dance 30 Nov*

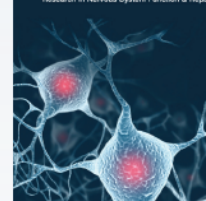
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Australia**



THE UNIVERSITY  
OF ADELAIDE  
AUSTRALIA

Adelaide Centre for  
Neuroscience Research  
Research in Nervous System Function & Repair



UniSA



Flinders  
UNIVERSITY

**ABSTRACT DEADLINE:**

24 Sep 2010

**EARLY REGISTRATION DEADLINE:**

1 Oct 2010

meeting information at <http://www.aups.org.au/Meetings/201011/>

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visage

## Award for the President

Fellow of the International Society of Heart Research.



A primary mission of the International Society for Heart Research is to promote research that advances our understanding of cardiovascular disease and helps to develop new therapeutic strategies.

ISHR members were nominated either by the Council of the ISHR or by one of its Sections or by the Editorial Board of the Journal of Molecular and Cellular Cardiology, and their credentials were reviewed by the members of the Committee. Fellows were selected solely on the basis of scientific excellence, as evidenced by an established track record of publications in high-impact journals. The main criterion in assigning Fellowship status was the performance of independent research that has made a major contribution to advancing our understanding of cardiovascular biology and medicine. Political considerations or service contributions to the ISHR were not a factor in the selection.

Editor.

## The Michael Roberts Excellence in Physiology Education Award

### An Award for You?

A new annual award bestowed by the Australian Physiological Society in memory of Professor Michael Roberts.

The award is intended to recognise AuPS members who have demonstrated a sustained performance of excellence in the delivery of physiology education at the tertiary level.

Recipients of this Award receive a medal, a cash award and an invitation to deliver a keynote lecture at the Educational Symposium at the forthcoming AuPS Adelaide Meeting.



Applications for the inaugural award are now open.

**The deadline for applications is 30th September 2010.**

Eligibility and selection criteria can be found here: <http://www.aups.org.au/Prizes/Roberts.html>

The award is open to ordinary financial members of the Australian Physiological Society who are actively engaged in physiology education.

Candidates should provide a single page argued case for their nomination and a Curriculum Vitae.

Evidence of achievement and impact could include letters of support from colleagues familiar with the teaching environment, detail of sustained high level teaching evaluation, student recognition, awards, success in obtaining substantial educational research funding and publications.

Please email applications to the AuPS secretary,  
Prof. Joe Lynch

## Federation of the Asian and Oceanian Physiological Societies (FOAPS) representative



Professor David I. Cook  
Physiology, School of Medical Sciences,  
The University of Sydney

FAOPS: TAIWAN, 11-14 Sept. 2011  
30 April, 2011: Abstract submission, early registration.



## Mollie Holman, Physiologist (1930-2010)



On Thursday the 20th of August Mollie Holman died at Broughtonlea Nursing Home, Surrey Hills, Victoria after a prolonged illness. Mollie is arguably the most eminent woman physiologist of her time in Australia. Here I have compiled a brief summary of her life and work.

Mollie Elizabeth Holman was born on the 18th of June 1930 in Launceston, Tasmania, the eldest of four daughters of William Prout Holman and Mollie Bain. Mollie's father was a physician and radiologist who worked in the local hospital. He continued to have a strong influence on Mollie at important times in her life. Mollie received her primary education in Launceston and she quickly rose to the top of her class. She showed the first signs of her future interests when, at the age of 14 years, she enrolled in evening classes in a course called "Introduction to science and engineering". She loved these studies. In 1945, as a result of prompting from her father, Mollie moved to Melbourne to complete the last three years of her schooling at Merton Hall. In 1949 she entered Melbourne University, enrolling for a Bachelor of Science degree which she completed in 1951, majoring in physics. Mollie decided to stay on at university and moved to the Department of Physiology and Pharmacology where she enrolled for a Master of Science degree, working on frog skin membrane potentials under the supervision of Frank Shaw. Completion of the degree took rather longer than Mollie had wished, partly because some of her time was consumed demonstrating to students in pharmacology. She graduated in 1955.

During her time in Melbourne Mollie met Australian Nobel Laureate, Jack Eccles who encouraged her to carry out doctoral studies in Oxford, England with Edith Bulbring. She moved

to Oxford in 1955 where she began working on smooth muscle, attempting to record intracellular electrical activity, which she achieved with spectacular success. In Oxford she first met Geoff Burnstock, with whom she began a long and fruitful collaboration. She completed her D Phil degree in 1957 and returned to Australia in 1958, to a lectureship in the Department of Physiology at the University of Melbourne. At this time Geoff Burnstock was appointed to the Department of Zoology, allowing the fruitful collaboration between the two young scientists to continue.

Mollie and Geoff's work on smooth muscle and its nerve supply was truly pioneering in nature. At the time almost nothing was known about excitatory processes in smooth muscle cells and how nervous activity initiated contractions. A series of papers was published beginning with a note to Nature in 1960. These achievements brought Mollie to the attention of the international scientific community. In 1963 she was appointed a Senior Lecturer in Physiology at the newly established Monash University. In 1965 she was awarded the Edgeworth-David medal for her work on smooth muscle. This was a medal that had been struck in honour of Edgeworth-David, the Foundation Professor of Geology at the University of Sydney. By chance, Edgeworth-David was the grandfather of Archie McIntyre, Head of Department at Monash at the time.

Mollie progressed rapidly through the ranks at Monash, becoming a Reader in 1965 and Professor in 1970. In the same year she was elected to the Australian Academy of Science. Mollie remained at Monash until her retirement in 1995. She was appointed Emeritus Professor in 1996 and in 1998 was made an Officer of the Order of Australia (AO).

Mollie will be remembered not just for her scientific achievements which, by anyone's standards were truly exceptional, but for her warmth and enthusiasm in dealings with others. She was always disarmingly direct in her approach and brought out the best in people. However, if a graduate student was not sure of their facts or was struggling with the mathematical or physical basis of their work, Mollie would promptly point that out. But she would do it in a constructive and helpful way. Her enthusiastic manner made Mollie popular, particularly with graduate students and she became known for her mentoring skills. Because of her passion for research Mollie was always interested in generating better graduate student programs. In later years at Monash Mollie held

the position of Associate Dean Research of the Faculty of Medicine. In this capacity she was able to ensure that the faculty's research effort was maximally supported by graduate student enrolments. In recognition of these efforts The University struck a new medal, the "Mollie Holman Medal" to be awarded each year for the best doctoral thesis in each faculty.

I have known Mollie since 1964, so for 46 years, although I never had the privilege of working with her directly. But the many adventures we shared were always enjoyable, whether it was a trip into the Flinders Ranges to go painting, or to go skiing at Mt Hotham, or just

discussing local politics. Mollie always seemed to have her finger on the pulse of events at Monash and each time after I had visited her I would return, my brain filled with lots of news of unexpected developments. None of that flair and enthusiasm was lacking when I last saw her on her 80th birthday.

Mollie is survived by her three sisters, Jill, Joan and Lucie and their families.

Uwe Proske  
Emeritus Professor of Physiology,  
Monash University

**NEW!**

## INTRODUCING THE HARVARD APPARATUS PUMP 11 ELITE

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## News From Council

### Archive material

The Council is slowly processing the AuPS/APPS archive material with a view to putting it online as an accessible collection.

We welcome any contributions of photos, proceedings, stories from meetings you've been to or things you've found in an old uncle's shoe box. Please contact the Associate Editor.

### New - Special Interest Group

The Special Interest Groups (SIGs) are active and flourishing in the AuPS.

The membership form will soon include a tick box so you can show us where your interests are and help create communication and affiliation between members of Special Interest Groups.

The latest SIG to form is the **Membranes** group comprising Peter Thorn, Jens Coorsen and Damian Keating (see cover article).

If you have an interest and like to talk to others consider forming a group. I'm always happy to have a SIG feature in the AuPS News.

#### Call for Nominations – AuPS Secretary

The closing date for nominations is **30th September**, 2010, whereupon an email ballot will be held if necessary. Any current member is most welcome to self-nominate.

Nominations from women are particularly encourage as they are currently under-represented on Council.

If you wish to find out more information about this position, please do not hesitate to contact Joe Lynch.

Nominations for Associate Editor are also open, noting that this appointment is not subject to membership election but is nominated directly by Council.

#### Physiology Education posters and Presentations

Those of you who are up on the Society rules will know that authors are limited to one oral presentation at the Annual Scientific Meeting.

Council has determined that you may also present on Physiology Education.

Applications are still open for the **Michael Roberts Award for Excellence in Physiology Education**.

Everyone seems to be putting tremendous effort into teaching at the moment, please bring your findings along to the meeting. It would be terrific to have an Education free communications and poster session at the Adelaide meeting in addition to an Education Symposium.

### Physiology Education Symposium – Monday 29<sup>th</sup> Nov, 9:00 am

Chair: Simon Potocnik and Ann Sefton

keynote speaker TBA-

*Inaugural AuPS, Excellence in Physiology Education, Michael Roberts medallist.*

Strategies to enhance engagement in on-line health science courses.

**Michael Nott**, RMIT University, Victoria.

The KISS approach. How to develop an effective self directed e-learning application.

**Richard Guy\***, Heather Pisani\*\*, Peter Rich\*, Giovanni Mandarano\*, Cathy Leahy\*\*, Tom Molyneux\*\*, Rob Davidson\*. School of Medical Sciences\* and School of Health Sciences\*\*, RMIT University, Australia

Lecture Attendance, Learning Style and Assessment Outcome in Physiology Students

D.M.Horton, S.D.Wiederman and **David A. Saint**, University of Adelaide,

The Human Physiology Writing Centre: Mentors helping students with their writing tasks

**Steven Wiederman**, Julia Miller, Chad Habel, University of Adelaide,

#### **AUGUST 2010 :: WELCOME TO THE SECOND ISSUE OF EMPHASiS**

EMPHASiS, for the Scientists in Schools (SiS) program, and its sub-program Mathematicians in Schools (MiS).

<http://www.scientistsinschools.edu.au/downloads/newsletter/EMPHASIS%20Issue%2002%20August%202010.pdf>

## Meetings in 2010

Adelaide 28<sup>th</sup> Nov to 1<sup>st</sup> Dec, 2010

### DECEMBER 2010

National Wine Centre, South Australia

The joint meeting of  
the **Australian  
Society for Biophysics &  
the Australian  
Physiological Society**

### AUPS/ASB ADELAIDE



### 5th Australian Health & Medical Research Congress

**2010 Date: 14 - 18 November 2010**

Melbourne Convention & Exhibition Centre

A call for abstracts and registrations will be made soon.

Meeting website <http://www.ahmrcongress.org.au/> for registration rates and instructions on how to submit your abstract.

### International Conference on Integrative Medicine. October 2010 Jerusalem.

The scientific committee of the convention is still open to accept additional topics to the conference program.

More details and information in English, German, French, Spanish and Russian

Are available in our site: [www.mediconvention.com](http://www.mediconvention.com)

Baker IDI Heart & Diabetes Institute in collaboration with Elsevier

The second Asia Pacific Conference on the Metabolic Syndrome (APCMS)

"Asian Perspectives on a Global Health Challenge"

**6 to 7 November 2010. Singapore.**

FEAST has been running joint workshops with the Australasian Research Management Society (ARMS) aimed at disseminating FEAST knowledge and experiences to research management staff across Australia. These have been well received by all. Information about past and upcoming workshops can be found at [www.feast.org/seminars/2010](http://www.feast.org/seminars/2010). The next workshop will be held on Tuesday 21st September, prior to the annual ARMS conference (22-24 September) in Fremantle and hosted by the WA chapter.



## AuPS - SPECIAL INTEREST GROUP COORDINATORS

### Muscle

- Graham Lamb
- Gordon Lynch

### Smooth Muscle and Autonomic NS

- Caryl Hill
- Dirk Van Helden
- James Brock

### Physiology Education

- Phil Poronnik
- Jeff Schwartz
- Anne Sefton

### Endocrinology, Reproduction and Fetal Development

- Chen Chen
- Karen Gibson

### Cardiovascular

- Livia Hool
- David Allen
- Lea Delbridge

### Neurophysiology

- Pankaj Sah

### Exercise

- Mark Hargreaves
- Mike McKenna

### Metabolism and Signalling

- Mark Febbraio

### Cell signalling

- David Cook
- Grigori Rychkov

### Channels and Transporters

- Stefan Broer
- Jamie Vandenberg

## AuPS Sustaining members



This issue of AuPS News was compiled by Simon Potocnik with many thanks to the generous contributors.

The next issue of AuPS News will be distributed to members in December 2010. All contributions for AuPS News should be sent to: [newsletter@auaps.org.au](mailto:newsletter@auaps.org.au), after the Adelaide meeting, 2010.

## Meetings in 2011

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### **Perth AuPS meeting 2011**

This will be a combined meeting with **ASCEPT and HBPRCA** and so should be a week of scientific presentations of considerable interest to a wide range of AuPS members. The meeting is planned for the week beginning Sunday 4<sup>th</sup> December and there will be a number of shared sessions and symposia as well as dedicated sessions for the individual societies involved. AuPS and ASCEPT will run as is traditional, from Sunday to Wednesday. The local organizing committee consists of staff from The University of Western Australia (Associate Professors Livia Hool and Lynette Fernandes and Professor Don Robertson).

We urge all AuPS members to support this meeting. AuPS meetings in Perth have traditionally been an opportunity for participants to not only attend the meeting but to go on to enjoy the climate, beaches and many other tourist attractions that "The West" has to offer.

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### **Heart to Heart: from Access to Action**

#### **Invitation and Call for Abstracts**

**The third Heart Foundation Conference to be held in Melbourne,  
17 - 19 March 2011.**

Melbourne, Convention and Exhibition Centre, will host leading international and Australian presenters to showcase key clinical, research, and public health perspectives on cardiovascular disease.

The program will span primary prevention through to reduction of risk factors, and treatment and ongoing management of cardiovascular disease. Already, six outstanding international speakers and ten leading Australian speakers are confirmed for the program.

The public health stream of the program will cover areas such as Aboriginal and Torres Strait Islander heart health, tobacco control and smoking cessation, overweight and obesity, physical activity and sedentary behaviour, and healthy eating.

The research and clinical practice stream will cover topics including acute coronary syndromes, chronic heart failure, management of clinical risk factors such as lipids and hypertension, arrhythmias, thrombosis, and more. In addition, there will be a focus on quality use of medicines, and on state of the art devices and imaging

**Call for abstracts is now open**

<http://www.heartfoundation2011.org/abstract.asp>

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### **ANNOUNCEMENT OF FAOPS COUNCIL**

The FAOPS Council has consulted council members and representatives of relevant societies and decided that the 7th FAOPS Congress to be held in Taipei and the 8th FAOPS Congress to be held in Thailand will be **postponed to 2011 and 2015**, respectively.

**FOAPS 2011, TAIWAN, 11-14 September.**

**Key dates:**

**30<sup>th</sup> April, 2011: Abstract submission, early registration**

**31<sup>st</sup> July, 2011: Late Registration**

<http://www.faops.org.my/>

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