AuPS News

December, 2007

President's Report

The final AuPS newsletter for 2007 comes at an opportune time with the change in the political landscape and a Labor Federal government. In particular, I believe that there is a sense of optimism about the future in science education and training. Recent policy announcements by Senator Kim Carr outlining Labor's position on science, innovation and research highlight Federal Labor's commitment to a research revolution. Labor has committed ~$175 million to introduce a Future Fellowships program to support mid-career researchers and strengthen Australia's position in the global research arena. Labor has also moved to revitalize Australian Postgraduate Awards (APAs) for postgraduate students by doubling the number of these awards by 2012. A Rudd Labor Government is committed to rebuilding the national innovation system and doubling the amount invested in R&D in Australia. A more detailed account of Labor's plan to build a strong future for Australian research may be found at the web site: http://www.alp.org.au/media/1107/speloo140.php

There has been considerable activity over the past few months with regard to preparing for the Research Quality Framework (RQF). I have been involved as a member of the AAS National Committee for Biomedical Science in the draft ranking of journals in the disciplines of Medical Physiology and Neurosciences. I encourage members to review the draft journal ranks on the Academy's web site (http://www.science.org.au/rqf.htm) and provide feedback on the ranking of individual journals. Labor have indicated that they will replace the RQF with a 'new, streamlined, transparent, internationally verifiable system of research quality assessment, based on quality research measures appropriate to each discipline' so there will no doubt be further activity on this front and the introduction of the RQF is likely to be delayed.

The upcoming annual AuPS meeting jointly with the Australian Biophysics Society to be held in Newcastle appears to be an outstanding meeting based on the quality and quantity of symposia, the invited speakers and the large number of abstracts submitted. I look forward to welcoming new Honorary, Regular and Student members to the Society and the involvement all members in the meeting. In

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particular, your attendance at the AuPS Annual General Meeting 1:00-2:00 pm and the Awarding of Student Prizes at 3:30 pm on Wednesday 5 December is encouraged.

2008 promises to be another exciting and challenging year for the AuPS. I invite you to join me in continuing to work to increase AuPS membership and raise the profile of physiology in Australia.

Finally, I wish all AuPS members a joyous Christmas and a prosperous New Year.

David Adams
President

AuPS Announcements

Physiological Society Exchange Lecturer

The Physiological Society of the UK has selected Prof Colin Sibley, University of Manchester, as the UK lecturer to visit Australia in 2008. Prof Sibley's research group is trying to understand how the placenta normally allows nutrients to get to the foetus and how it extracts waste products of metabolism from the foetus. Furthermore, the group has been trying to find out why the placenta is at fault in some cased of poor foetal growth. Their data shows that amino acid transport abnormalities might be important in this regard.

You can find out more about Prof Sibley and his research at:
http://www.mhs.manchester.ac.uk/staff/ColinSibley

Nominations called for student representative

Mr Enzo Porello will complete his term as the Student Representative on the AuPS Council at the AGM in Newcastle. Enzo has provided a tremendous service to the student members, by coordinating the student events at each scientific meeting. To continue the good work of Enzo and to represent the interests of student members on the Council, nominations are called for this position of student representative. Nominations should be forwarded to the National Secretary, David Saint, and can be received up to the AGM in Newcastle. Any interested parties are encouraged to contact Enzo to find out more about what is involved.

Nominations for Honorary Membership

The following AuPS members have been nominated for Honorary Membership by the AuPS Council for election at the AGM:

- Prof. Christopher Bell
  (Trinity College Dublin)
- Prof. Mark Rowe
  (University of New South Wales)
- AProf. Jack Carmody
  (University of New South Wales)
- Prof. William Levick
  (Australian National University)

Trevor Lewis

All is set for joint ASB / AuPS scientific meeting in Newcastle. The meeting will be the biggest in many years, with 183 abstracts, 14 symposia and four invited lectures.

The programme and abstracts of the joint meeting are now available on the AuPS web site. You will find the block program at:

http://www.aups.org.au/Meetings/200712/programme

From that page, there are links that will take you to the details of the presentations in each session. You can then print the PDF with the abstracts for the whole session, or choose the individual abstracts you would like to print. Please be aware that an abstract booklet with all of the abstracts will *not* be provided to AuPS members. All registrants will recieve a program booklet with a day-by-day listing of symposia and oral and poster presentations.

AuPS Graduate Student Travel Awards

All AuPS student members attending and presenting an abstract at the Newcastle meeting are eligible for a student travel award. This is to assist with the costs associated with attending the meeting. If you haven't already done so, please contact the National Secretary, AProf David Saint, for an application form. Applications will be recieved right up until the AGM. The amount awarded is on a sliding scale according to the distance travelled to attend the meeting and will be announced at the AGM.

Registration

If you have not registered yet, visit:

http://www.aups.org.au/Meetings/200712/registration/

On behalf of the local organising committee, I look forward to welcoming you to Newcastle.

Derek Laver
On behalf of the Local Organising Committee

Profile: Prof. Michael Saguinetti

Prof. Michael Sanguinetti will be presenting the invited plenary lecture to open the Newcastle meeting on **Sunday evening (2 Dec 2007)**. Prof. Sanguinetti has quite an impressive track record in the ion channel aspects of cardiac research. He completed a bachelor's degree in science at Humboldt State University in California before going on to a Masters degree (San Jose State University) and receiving his PhD in pharmacology from the University of California, Davis in 1982.

After a postdoctoral fellowship in biophysics at the University of Rochester, he worked in the pharmaceutical industry for eight years, investigating antiarrhythmic drugs. In 1992 Prof. Sanguinetti joined the University of Utah where he continues his interest in arrhythmias, particularly long QT syndrome, and the mechanism of gating in voltage-gated potassium channels. He currently serves on five editorial boards, including Circulation Research, Biophysical Journal and The Journal of Clinical Investigation.

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What was your first experiment as a child?

I can't remember, but it almost certainly involved some behavioural aspect of a lizard or some insect captured in the apricot and cherry orchards behind my house in California.

When did you first know you wanted to be a scientist?

I wrote a paper in the 5th grade defining my expected career as a biologist. I believe my main area of interest at the time was lizard ecology.

How is it different for students today compared to when you were a student?

It seems to me that students are more concerned about balance and quality of life issues. In general, this is a healthy development, but it probably also prevents full immersion into research that was more typical just a few decades ago. For biology students in particular, there is obviously far more emphasis on molecular mechanisms and pathways then was possible when I was a student.

What is the most memorable event from your time as a student?

My first laboratory experiments – investigating the mechanisms of osmoregulation in a marine insect, *Trichocorixa reticulata*.

Who has been most influential upon in your career and why?

My PhD mentor, Ted West introduced me to the field of cardiac electrophysiology and demonstrated the sheer joy of investigating a phenomenon simply to satisfy your curiosity.

What makes a good scientific mentor or supervisor?

Patience and knowing when not to give advice - to enable a student to find the answers to questions independently.

Is there a single scientific paper or talk that greatly influenced your research pathway?

During my first year as a graduate student at UC Davis, Bertil Hille presented a fascinating seminar on the biophysical properties of ion channels. Bertil's lecture combined with several papers by Toshio Narahashi on channel modulation by natural toxins got me hooked on this field.

Prof Sanguinetti enjoying a hike on Mt Superior, Utah.

What do you enjoy most about research?

An unexpected outcome from an otherwise simple and straightforward experiment.

What is the best piece of advice you've received?

If you are going to make an omelette, you have to break eggs (meaning do not fear making a few mistakes along the path of discovery)

Assuming anything is possible, which person from anytime in history or today would you most like to have dinner with?

Jared Diamond. He is a brilliant writer and speaker who began his scientific career as a physiologist then moved on to ornithology, jungle ecology and anthropology.

What is the most memorable comment you ever received from a referee?

Referring to painstakingly gathered data describing channel kinetics, the referee suggesting to 'chuck it out since it was only window dressing' and that I could instead use the data in a subsequent manuscript submitted to 'a real journal.'

What gives you the most job satisfaction?

Addressing basic science problems that have clinical significance.

What are your major frustrations?

Teaching students who are not interested in basic science.

If you were in a position to change anything about research funding in Australia, what would it be?

The same change is probably needed everywhere – better efforts to fund truly innovative grant proposals instead of those most likely to confirm an obvious hypothesis.

What would you have become, if not a scientist?

A wildlife photographer.

What do you do to relax?

Bicycling, hiking, birdwatching

Trevor Lewis
With the generous assistance
of Prof. Mike Sanguinetti

Postcard from 'fair Verona'

Millions of tourists flock to Verona each year enthralled by the most famous love story of all time – Romeo and Juliet. Indeed it was love (an Italian fiancé) that also bought me here. What will keep me here however, are the efforts of the University of Verona to establish a truly international exercise and sport science faculty. In the last year, the faculty has appointed two full professors and two associate professors, it has spent a million Euros on new equipment and it has provided scholarships for twelve PhD students.

The faculty is organised around four key areas: physical activity and ageing, aerobic metabolism (Verona O_2 lab), exercise tolerance (Verona fatigue lab) and intermittent exercise (Verona team sport research group). The faculty also has strong links with biochemistry, pharmacology, molecular biology and medicine, as well as private enterprise. For example, as a result of negotiations with Benetton, we will be organising the Verona-Ghirada Team Sport Conference in June 2008.

A particularly important goal of the University is to improve its international research links. To this end, the University recently provided funds for a new international PhD program in exercise tolerance (in partnership with Prof. Frank Marino at Charles Sturt University, Australia). This program supports a PhD student in Australia and a PhD student in Italy who will both undertake research exchanges in the partner country during their PhD. The University is keen to fund further programs of this type and any interested researchers can contact me for further information.

AProf. David Bishop
FAAESS, FACSM

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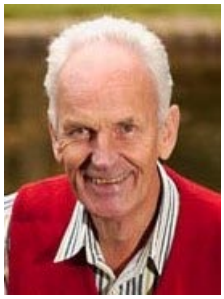
Is there a future for integrative physiology?



When I began my career as an integrative neuroscientist, more than 40 years ago, everyone around me was concerned with integrative matters. The amount of cellular and molecular research in neuroscience going on at the time was minuscule. How the pendulum has swung since then! The question could be asked, do we still have the need for integrative physiologists? In an article on this subject, Alan Cowley[1] quoted a report which declared that 'findings from the reductionist sciences can only be extrapolated to ... a discrete molecular or cellular phenomenon', not to organ systems and intact animals. Put simply, if we are to fully exploit the huge advances provided by genomics, proteomics and other reductionist biologies, we will need people trained to be able to assemble the pieces to incorporate them in the greater whole.

The subject of neuroscience is a case in point. The molecular and genetic approaches have provided major advances in our understanding of neuronal mechanisms. But when it comes to integrative brain function, our knowledge remains remarkably primitive and it is unlikely that molecular biology will provide many of the answers.

My own research in recent times has centred on the question, 'Where is my arm when I cannot see it?' We are all vaguely aware that we have a sense of limb position and movement, but spend little time thinking about how it might work. The anatomy and physiology of the neuronal components that make up this system were well-studied a long time ago. What we are having trouble with is not a shortage of pieces for the puzzle, rather a lack of understanding of how to assemble them. The point I am making is that even in such established fields as integrative neuroscience there remain major challenges for the future.

So the answer to the question I posed at the start of this piece is, yes, we do need to continue to encourage the integrative sciences. While current fashions remain firmly in favour of the molecular sciences, in the future the pendulum may well swing back again. We must therefore make sure that we don't reach a point where there are too few young integrative physiologists moving up through the ranks to provide the subject with its necessary corporate memory.

Uwe Proske

1. Cowley A. (2005). Global Manpower Needs for Integrative Systems Physiologists. *The Physiologist* **48(1)**: 1-3. Available online at:
http://www.the-aps.org/publications/tphys/tphys05.htm

Upcoming Meetings

11 December 2007
National Forum on Education in Biomedical Sciences
The School of Biomedical Sciences, Monash University. A one day workshop. Further details, including registration, see:
www.med.monash.edu.au/sobs/forum.html

17 to 21 February 2008
International Symposium on Resistance Arteries.
Hamilton Island, Great Barrier Reef, Queensland, Australia
Organised by Mike Hill (Missouri), Chris Triggle (Calgary), Shaun Sandow (Sydney)
Further information: http://medicalsciences.med.unsw.edu.au/SOMSWeb.nsf/page/9thISRA2008

20 to 22 October 2008
Joint International Meeting of the Chinese Association for Physiological Sciences, The Canadian Physiological Society, The Australian Physiological Society, the American Physiological Society and The Physiological Society
Beijing, China. Further information will be posted on the AuPS web site as it becomes available.

27 July to 1 August 2009
XXXVI International Congress of Physiological Sciences
Kyoto, Japan. The theme for the meeting is Function of Life: Elements and Integration.
Further information: http://www.iups.org

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UPCOMING CONFERENCE

Integrative Physiology

Scientists have recently made enormous strides toward elucidating the multiple functions of genes in cells and animals. Most of these advances initially provided data at the cellular and molecular level. But now with new and emerging technologies, such as mouse genetics, this research has revealed novel functions for organs. Remarkably, scientists have also discovered unanticipated connections between organs as varied as fat, kidney, brain and bone, to name a few.

This symposium will summarize where the field of integrative physiology is now, and how we can move forward. In particular, this meeting will cover the genetic basis of the functions of many organs, the identification of novel physiological functions for various organs, and the definition of genetic cascades leading to frequent degenerative diseases such as metabolic syndrome, heart failure and osteoporosis.

May 14

4:00 pm Registration
5:00 pm Welcome and Introductory Remarks
5:15 pm Keynote Lecture
6:00 pm Welcome Reception and Networking

May 15

7:30 am Registration, Continental Breakfast, and Poster Set-Up
8:30 am Session I: Hypothalamic Regulation of Physiological Function
11:00 am Data-Blitz 1
2:00 pm Session II: Integrative Physiology I
4:30 pm Session III: Integrative Physiology II
5:30 pm Keynote Lecture

May 16

7:30 am Breakfast & Poster Viewing
8:30 am Session IV: Cardiac Physiology
11:00 am Data-Blitz 2
2:00 pm Session V: Vascular Biology
4:00 pm Keynote Lecture and Closing Remarks
5:00 pm Poster Session and Reception

Scientific Organizing Committee

- Gerard Karsenty, Columbia University
- Andrew Marks, Columbia University

Featuring talks by

Johan Auwerx, Bradford Berk, Jeff Flier, Leonard Gaurente, Laurie Glimcher, Jonathan Graff, Tamas Horvath, Barbara Kahn, Gerard Karsenty, Shigeaki Kato, Richard Kitsis, Leslie Leinwand, Eleftheria Maratos-Flier, Andrew Marks, Gerald Shulman, Bruce Spiegelman, Ira Tabas, Jil Tardif, Ken Walsh

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

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