AuPS News

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President's Message

The joint AuPS/ASB 2005 Meeting held in Canberra last September was a great success. The scientific program covered many exciting topics in physiology and biophysics presented by a large number of outstanding international and national speakers. The quality of the posters and oral communications was exceptionally high and sets a standard for future meetings. Congratulations to Dr. Stefan Bröer, Louise Tierney, Nicole Beard, Shin-Ho Chung and Paul Smith of the Local Organising Committee and Dave Davey for his invaluable work as Editor and webmaster. Thank you, to all who attended the Meeting and in particular the Student Members of the Society.

There has been a changing of the guard on AuPS Council this year with the departure of Lea Delbridge (Univ. of Melbourne) and Don Robertson (UWA) both of whom have enthusiastically and conscientiously served as Council members for the past three years. The elected incoming members of AuPS Council include Graham Lamb (La Trobe), Derek Laver (Univ. of Newcastle), Gordon Lynch (Univ. of Melbourne) and Phil Poronnik (Univ. of Queensland). At the AGM, David Saint was re-elected as National Secretary, Dave Davey as Editor, Craig Neylon as Treasurer and Derek Laver has been appointed as Associate Editor / Webmaster. Arising from Council discussions initiated by Lea Delbridge, there was general agreement to develop portfolio responsibility areas for Council members to assist in workload distribution and delegation, and to provide non-executive Councillors with a more defined opportunity to contribute to the Society. The following portfolios have been allocated: Special Interest Group Liaison (Graham Lamb), Student Development (Gordon Lynch), Communications and Media (Trevor Lewis), Sustaining Members (Dirk van Helden), and Physiology Education (Jeff Schwartz, co-opted).

Preparations are underway for the AuPS meeting to be held conjointly with ComBio in Brisbane 24-28 September 2006. ComBio 2006 will incorporate the annual meetings of the Australian Society for Biochemistry and Molecular Biology, the Australian and New Zealand Society for Cell and Developmental Biology, the Australian Society of Plant Scientists and AuPS. The Local AuPS Organising Committee for the meeting is Dr. Phil Poronnik (Chair, UQ)

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Dr. Dan Markovich (UQ), Dr. John Hooper (QUT) and A/Prof Andrew Hoey (USQ). ComBio provides an opportunity for AuPS members to attend plenary lectures and symposia not only in physiology but also those topics covered by the other societies. Your input and suggestions for symposia is encouraged and welcome.

David Adams

Report on the 2005 joint ASB and AuPS Meeting in Canberra

The Joint annual meeting of the Australian Physiological Society and the Society for Biophysics was held in Canberra at the Rydges Lakeside Hotel from September 27-30. The meeting program reflected the interests of both societies in a balanced way, but was particularly attractive for ion channel researchers. The meeting included a total of 8 symposia, 12 free oral communications and a Poster session. Due to the generous support from both societies each symposium included one international speaker. Additionally, four plenary lectures were presented at the meeting, three of which were also given by international speakers. The AuPS lecture was presented by Angela Dulhunty, giving an overview of 'Excitation-contraction coupling from 1969 to 2005'. The ASB Robertson lecture was presented by Philip Kuchel. He received the award for his outstanding contributions to NMR spectroscopy of living cells. The local committee received a number of very positive comments about the scientific quality of the meeting from both local and overseas attendees. The high standard was also apparent in the free communication and poster sessions, which were all well attended. Both Societies have promised to continue support for the invitation of international speakers to future meetings.

A total of slightly over 200 people attended the meeting contributing $65,000 registration fees to the meeting budget. The total costs of the meeting were close to $73,000. The difference of $8,000 was largely balanced by sponsorship from the societies, companies and ANU and UQ institutes.

Catering was provided onsite throughout the meeting resulting in a good attendance of all sessions. Serving of wine and soft drinks during the poster session, in particular, was well received by both presenters and the audience. The conference dinner was held at the Australian National Museum, providing a stunning architecture and excellent food for this event.

The local organizing committee received a large number of very positive comments about the organization and atmosphere of the meeting. We were very glad that the meeting ran smoothly and to our expectations and hope that all participants enjoyed coming to Canberra.

Stefan Bröer
(on behalf of the local organizing committee)

AuPS Publication Prizes

The AuPS Council has two prizes that recognize the achievements of students and postdoctoral scientists who are members of the Society. These prizes are for the Best Student Publication and the Best Postdoctoral Publication in 2005. An award of $500 is offered by the AuPS for each of these prizes, as a contribution towards travel to a scientific meeting.

The winners of these prizes were announced at the AGM in Canberra. Judges for both prizes were Dr. Susie Mihailidou, Dr. Dirk van Helden and Prof. Don Robertson.

Best Student Publication 2005

The judges were unable to decide upon a single winner in this category, and so the best PhD Publication Prize was jointly awarded to Terence Moopanar and James Ryall, who will each receive $250 for travel.

James Ryall received the award for his publication: *James G. Ryall, David R. Plant, Paul Gregorevic, Martin N. Sillence, and Gordon S. Lynch (2004). β2-agonist administration reverses muscle wasting and improves muscle function in aged rats. Journal of Physiology (London) 555:175-188.*

Best Student Publication 2005 (cont.)

Terence Moopanar received the award for his publication: *Terence R Moopanar and David G Allen (2005). Reactive oxygen species reduce myofibrillar Ca2+ sensitivity in fatiguing mouse skeletal muscle at 37°C. Journal of Physiology (London) 564:189-199.*

Best Postdoctoral Publication 2005

The prize for the best publication from a postdoctoral member was awarded to Dr. Paul Gregorevic, for his publication: *Paul Gregorevic, Michael J Blankinship, James M Allen, Robert W Crawford, Leonard Meuse, Daniel G Miller, David W Russell & Jeffrey S Chamberlain (2004) Systemic delivery of genes to striated muscles using adeno-associated viral vectors. Nature Medicine 10(8): 828-834.*

Dr. Gregorevic attained his PhD from the Department of Physiology at The University of Melbourne in 2001, where he studied aspects of skeletal muscle adaptation and regeneration under the supervision of A/Prof. Gordon Lynch and Prof. David Williams.

Since 2002, Dr. Gregorevic has been at The University of Washington, Seattle, with Dr Jeffery Chamberlain, a leading figure in the study of Duchenne muscular dystrophy. It is here that he has been investigating the use of adeno-associated viral vectors to attain widespread transfer of the dystrophin gene, as a potential treatment for Duchenne muscular dystrophy.

Dr Gregorevic has high hopes for the future: *"Hopefully, advances in gene transfer technology and a greater understanding of the mechanisms that regulate muscle regeneration and adaptation will help us to develop therapeutic interventions for the treatment of many muscle disorders."*

SDR CLINICAL TECHNOLOGY

SDR Clinical Technology Poster Prize

The SDR Clinical Technology Poster Prize was awarded to Sonja Kowalczuk (School of Biochemistry and Molecular Biology, ANU). Abstract: *S. Kowalczuk, A. Bröer, M. Munzinger, N. Tietze, K. Klingel and S. Bröer, Molecular cloning and characterisation of the mouse "system IMINO" transporter Proc APPS 36, 80P.* Presented by Roger Lainson, of SDR Clinical Technology.

SDR Clinical Technology Oral Presentation Prize

The SDR Clinical Technology Oral Presentation prize was awarded to Manuel Navarro-Gonzalez (Neuroscience Division, JCSMR ANU). Abstract: *M.F. Navarro-Gonzalez and C.E. Hill, Novel nifedipine-insensitive high voltage activated calcium channels play a role in vascular tone of cerebral arteries Proc APPS 36, 140P.* Presented by Roger Lainson, of SDR Clinical Technology.

CEPP Poster Prize

The CEPP Poster Prize was awarded to Chris Fowler (Department of Anatomy and Cell Biology, University of Melbourne). Caroline Sultana (Blackwells Publishing) presented the prize.

Abstract: C.J. Fowler, K. Ngui, B. Hunne, D. Poole, J.B. Furness and C.B. Neylon, Protein kinase A inhibits cell growth induced by over expression of IK channels. *Proc APPS* 36, 75P.

CEPP Oral Presentation Prize

The CEPP Oral Presentation Prize was awarded to Felice Beitzel (Department of Physiology, University of Melbourne). Caroline Sultana (Blackwells Publishing) presented the prize.

Abstract: F. Beitzel, M.N. Sillence and G.S. Lynch, β-adrenergic signalling in skeletal muscle regeneration after myotoxic injury. *Proc APPS* 36, 130P.

A.K. McIntyre Award 2005

The A.K. McIntyre 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. The recipient of the 2005 A.K McIntyre Award is Dr. Bradley Launikonis, for his contributions to understanding the transverse tubular system and calcium signalling in skeletal muscle. Dr. Launikonis is currently at Rush University in Chicago and upon being informed of the award said "I am very pleased to receive this award and wish to thank my supervisor during my PhD, Prof. George Stephenson, and also Prof. Rainer Fink, Prof. Eduardo Rios and Prof. Graham Lamb who have also guided my work."

Dr. Launikonis undertook his PhD studies at La Trobe University as an Australian Postgraduate Award recipient, under the supervision of Prof. George Stephenson. Investigating the properties of the transverse tubular system (t-system) and the sarcoplasmic reticulum (SR) in skeletal muscle from yabbies, toads and rats helped identify cholesterol as having an influence upon the functional behaviour of these membranes. Manipulation of membrane cholesterol progressed from the use of saponin, which combines with cholesterol to form pores in the surface membrane, to the cholesterol sequestering agent methyl-β-cyclodextrin, which can be used to remove or deliver cholesterol to membranes. Subsequently, it was demonstrated that cholesterol is important for the excitability of the t-system and the function of the voltage sensor / dihydropyridine receptor of the t-system. Although the SR membrane has lower cholesterol content compared with the t-system, continued depletion of cholesterol causes an inhibition of the calcium-pump in the SR membrane. One explanation for these effects is a disruption of the lipid rafts that aggregate key membrane proteins into functional micro-domains. In addition, Dr. Launikonis made significant contributions to understanding the previously ill-defined role of the inositol 1,4,5-triphosphate receptor (IP3R) in calcium homeostasis. It was shown that the IP3R acts as a calcium sensor on the SR membrane, mediating store-operated calcium entry, but plays no role in calcium release.

Dr. Launikonis had also used confocal imaging to estimate changes in the volume of the t-system in skeletal muscle, skills that placed him in good stead with the move to the laboratory of Prof. Eduardo Ríos (Rush University, Chicago) as a NHMRC C.J. Martin Fellow in 2002. In Chicago, Dr. Launikonis has used confocal imaging to characterise the elementary calcium release events ('sparks') from the SR. More recently, he has developed a method for obtaining quantitative confocal images of free calcium concentrations within the SR, and other intracellular organelles. At present, he is trying to assess the role of calsequestrin in regulating calcium concentrations in the SR during excitation-contraction coupling.

When not in the lab, you're likely to find Dr. Launikonis on the football field – that's Australian Rules football. Even in Chicago it has been possible to pursue his passion for football with the Chicago Australian Football Association (CAFA), where he has had success as both a player and a coach. He plays with the local Lincoln Field team and the CAFA Swans team in the Mid American AFL competition.

Dr. Launikonis will be returning to Australia in 2006 with his C.J. Martin Fellowship and rejoin Prof. Stephenson's laboratory at La Trobe.

Dr. Launikonis receives the A.K. McIntyre medal and $1000 prize, generously sponsored by **SDR Clinical Technology**. The judges for the prize were Prof. David Adams, A.Prof. David Saint, Prof. Don Robertson and A/Prof. Lea Delbridge.

Trevor Lewis

Student event at Canberra

Students at this year's AuPS meeting in Canberra were given a rare insight into the experiences and philosophy of one of Australia's most successful biotechnology entrepreneurs - Dr Alan Finkel.

From his historical overview of patch clamp technology to his inspirational insights into the

different philosophies of scientists, engineers and entrepreneurs, Dr Finkel achieved the almost impossible task of engaging a hungry audience at the end of a full day of sessions.

Dr Finkel put his own work on the development of the single-electrode voltage clamp into historical perspective, and the impact of his commercialisation venture on electrophysiology research was clearly evident. And he's not finished yet. Dr Finkel's insight into the future directions of patch clamp technology was mind blowing, with higher throughput, automated, multi-channel patch-clamps coming our way.

The highlight for most students was Dr Finkel's inspiring "paternalistic" speech on his journey from PhD to CEO of Axon Instruments. Dr Finkel stressed the importance of knowing oneself and in not being afraid to take risks. His philosophy on what makes a good scientist and a good businessman gave everybody an opportunity to reflect on their own psychology and to look forward to a world of opportunities for PhD graduates with renewed optimism.

Dr Finkel's act will be a hard one to follow, but I look forward to planning next year's AuPS student event with our newly appointed council member and student liaison A/Prof Gordon Lynch.

Enzo Porrello

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"Lectorials" – an approach to large class tutorials.

One of the great challenges facing the teaching of physiology to large undergraduate classes (>400 students) is how to foster deeper learning and engage the students in a communal learning experience. Analysis of student responses in summative assessment suggests that students have difficulties with assessment tasks that require analysis and synthesis. Without tutorials students seem to lack opportunities to apply physiological concepts and to interact with their peers and staff, which results in poor knowledge construction and poor learning outcomes. Without tutorials it is also difficult to give students feedback on their progress and for teaching staff to determine whether students were able to follow lecture topics. Students' desire for a tutorial-style learning environment in such courses is also evident in formal student evaluations. In the School of Biomedical Sciences at the University of Queensland, we are developing large-class tutorials, "lectorials", that challenge students to engage with the course content and complement the traditional lectures and laboratory classes.

These highly interactive "lectorials" are held for the whole class after a series of about 5 lectures in the normal time slot of 50 minutes. These "lectorials" present no new material to the students, but use clinically-orientated problems that cover the previous lecture series. Sets of questions, usually 3 sets of 3 questions per "lectorial", test students' ability to analyse data, apply learnt concepts to new situations and predict new outcomes. Questions are projected on the screen and students are asked to discuss possible answers with the student(s) next to them. After two minutes students are encouraged to volunteer their answers. It is of utmost importance that student answers are repeated over the microphone so that all the students are able to hear the answers. Often the questions posed generate a variety of responses from the students, allowing other students to provide further input until a consensus is reached. Thus, the key to a successful interactive "lectorial" seems to be a readiness to react to student responses and an ability to facilitate group discussions.

Students seem to value this new learning environment, demonstrated by high attendance rates, positive formal student evaluation and informal staff and student feedback. "Lectorials" offer students a chance to test their understanding and to rank themselves within their peer group. "Lectorials" also promote interactivity, provide immediate feedback to staff and students and contribute to improve learning outcomes.

Hardy Ernst

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NEW APPOINTMENTS

Prof. Caroline McMillen has been appointed Pro Vice Chancellor and Vice President: Research and Innovation, at the University of South Australia. Prof. McMillen, formerly of the School of Molecular and Biomedical Sciences, The University of Adelaide, is a leading researcher in the field of foetal origins of adult disease.

In her new role at the UniSA, Prof. McMillen will be addressing the strategies required for the continued support of research and innovation. This is with particular reference to the foreshadowed research quality framework and the shift from a traditional focus on research inputs, to the importance of the quality and impact of research outputs.

Student Travel Awards

Student members of the AuPS who attended the joint ASB / AuPS meeting in Canberra were provided with travel awards from the AuPS Council to assist with the travel costs of attending the meeting. The value of these awards was $100 for travel from Sydney, $200 for Melbourne and Brisbane, $300 for Adelaide and $400 for Perth.

Obituary:
Sandford Lloyd Skinner
MB BS, MD (6 Aug 1933 – 29 May 2005)

Sandy Skinner was born in Clare, South Australia, third in a family of four boys. He graduated M.B. B.S. (Adelaide) in 1957, and in 1958 was an intern in medicine and surgery at the Royal Adelaide Hospital. In 1959 he became a NHMRC Research Officer in the University of Adelaide Department of Physiology under Professor R.F. Whelan, investigating human circulatory physiology, and graduated M.D. in the Faculty of Medicine in 1962. This short period yielded fourteen joint articles in refereed journals, including three in The Journal of Physiology, one in Circulation Research and one in Nature.

Awarded a C.J. Martin Research Fellowship in 1962, he spent two years in the Cleveland Clinic, Ohio, USA in the laboratory of Irvine H. Page, and a third year at St. Mary's Hospital, London. At the Cleveland Clinic, with Page and McCubbin he made major contributions to hypertension research, establishing the first reliable bioassay for plasma renin activity. This was used to demonstrate the release of renin from the kidney by a baroreceptor mechanism in response to reduced renal arterial perfusion pressure. In 1965 he returned to Adelaide, where he was a NHMRC Research Fellow until his appointment by Professor R.D. Wright as a Reader in Physiology at the University of Melbourne in 1968. He remained at Melbourne until after his official retirement at the end of 1998, when he was made an Honorary Principal Fellow in the Department of Physiology.

While he was interested in all avenues of scientific progress, the main object of his own research remained the growing ramifications of the renin-angiotensin system. The importance of that interest has been given a detailed summary in the memorial tribute by Duncan Campbell and other former research colleagues[1]. Sandy's high international standing in the renin-angiotensin field led to many international invitations as lecturer, and as visiting research worker. He was invited to spend a

sabbatical year in 1973 with Paul Leyssac in the University of Copenhagen, to investigate renin production from isolated perfused renal glomeruli, with full professorial status, supported by the Danish Medical Research Fund. He spent six months of 1980 by invitation in Pierre Corvol's INSERM Unit 36 in Paris. In 1988 he was Visiting Scientist during four months in the Department of Medicine, Harvard University, and in the following year returned to INSERM Unit 36 for another three months. He was the only Australian invited to participate in the 1973 WHO-sponsored meeting on the International Standardisation of Renin. In 1998 he was an invited lecturer on the renin-angiotensin system and pathogenesis of diabetic microvascular disease, at the Merck & Co symposium in Rome "100 years of the Renin-Angiotensin system", and on retinal renin and proliferative retinopathy at the American Hypertension Society, in New York.

At the University of Melbourne, Sandy set high standards for students in his laboratory, and they appreciated this even when it took some experience for them to adapt to his style. Sandy showed rigor with breadth in his scientific outlook, with an almost intuitive understanding of circulatory and respiratory physiology. His enthusiasm for research was infectious, often involving special interests shared with younger colleagues, as in a study of the renal basis of resistance to water deprivation in the Spinifex hopping mouse, *Notomys alexis*. His inspirational influence as an outstanding experimenter and guide was evident to any casual visitor to his laboratory, and has often been confirmed by his young collaborators. In all, he was principal or consultant supervisor to twenty-seven post-graduate and eleven Honours students.

One of his finest qualities was generosity to his research students by instruction and by participation in their experimental work, help with editing, group ski weekends and outings. For his older colleagues, there were invitations to gatherings at home, or at the Skinner beach house at Anglesea with the lawn tennis court Sandy was proud to have lain down. On my retirement, he organised a party there with invitations to all my former post-graduate students. Again, when one of his own students sprained an ankle in the Department, he applied ice, obtained a wheel chair somewhere, and stopping the traffic wheeled her safely across busy Grattan Street to the Student Health facility.

Sandy Skinner's bibliography lists 115 journal articles or book chapters. He had collaborated with more than twenty-five Australian and international senior scientists. His joyous, sociable personality made him friends within his immediate circle of colleagues and across the wider University communities in Australia and the world. He is grievously missed by us in the Physiology Department who benefited from sharing his knowledge in vigorous discussion and debate - a true physiologist and friend.

I am grateful for the indispensable help of Sandy's widow, Lesley, for information and advice in preparing this memoir.

Dr John S. McKenzie

Honorary Senior Fellow
Department of Physiology
The University of Melbourne

Notes:
1. Duncan J. Campbell, Colin I. Johnston, Darren J. Kelly, Eugenie R. Lumbers, Joël Ménard, James W. Ryan, and Jennifer L. Wilkinson-Berka (2005) *In memoriam: Sandford Lloyd Skinner (1933-2005)*. Hypertension 46, 452-453.

This obituary is an edited version that was originally written for and will be published in the University of Melbourne Medical Society Journal *Chiron*, volume 5 no. 4, June 2006.

2005 Exchange Lecturer

Prof. Simon Gandevia is on his way to the UK as the AuPS exchange lecturer to the Physiological Society. Prof. Simon Gandevia will be presenting a series of lectures in Dublin, Glasgow, Manchester, Oxford and Cambridge. He will also be delivering the opening lecture at a Physiological Society Focused Meeting on the Neuroscience of Human Movement in Health and Disease, University College London, on 19 and 20 December 2005.

This issue of AuPS News has been compiled by Trevor Lewis.

The next issue of the AuPS News will be distributed in March 2006. Any contributions for the AuPS News should be sent to Trevor Lewis at: t.lewis@unsw.edu.au

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