

October 2007
Volume 4, Issue 2

PSSA News

Newsletter of the Physiology Society of Southern Africa (PSSA)

Focus on PSSA 2007 Part 1

This edition and the next edition of this newsletter will be special features on the recently held PSSA conference.

Foreword from Dr Peter Kamerman, School of Physiology, Wits University

The School of Physiology hosted the 35th meeting of the Physiology Society of Southern Africa, from 9 to 12 September at Glenburn Lodge north of Johannesburg. The meeting covered a diverse range of topics, including reproductive, comparative, metabolic, thermoregulatory, cardiovascular and neurophysiology. Fittingly for its setting in the Cradle of Humankind, the meeting was opened by one of South Africa's most esteemed paleoanthropologists, Dr Charles "Bob" Brain of the Transvaal Museum, and then throughout the meeting, delegates were treated to a series of excellent talks by local and international keynote speakers (Sandrine Lecour, Hatter Heart Institute, UCT; Vicki Lambert, UCT/MRC Research Unit for Exercise, UCT; Nigel Bennett, Department of Zoology and Entomology, UP; Clifford Wolf, Harvard Medical School, USA; and Lisa Leon, US Army Research Institute of Environmental Medicine, USA). In total 55 oral presentations and 40 poster presentations were presented at the meeting. The combination of a glorious setting, a convivial atmosphere between delegates and a full and diverse scientific programme ensured a very successful meeting.



Prof Myburgh, President of the PSSA taking in the sights at the Cradle of humankind.

Letter from the President

Dear Colleagues and Friends

After 3 coastal venues for the 32nd to 34th Congresses of the Physiology Society of Southern Africa (the 'Wild Coast', 'Fairest Cape' and 'Sub-tropical Durban') you would be forgiven if you were assuming that the venue itself may not be a highlight of the 35th PSSA. But, it was great to be at a venue with most of the attendees staying on-site, with lovely early summer weather and also historical and geological sites of interest to visit in the nearby vicinity! Especially after the real hands-on stories of fossil hunting that we heard about on the first evening from Dr Bob Brain, during his presentation entitled "EXPLORING SOME OF THE ANCIENT ROOTS OF INTELLIGENCE AND TECHNOLOGY IN THE FOSSIL RECORD", many delegates took the opportunity to visit one or more of the Heritage Sites.

On behalf of the PSSA, I'd like to thank all of the guest speakers for their stimulating contributions. Helen Laburn, Clifford Woolf, Lisa Leon and Sandrine Lecour were thanked at the dinner, so this is especially for Nigel Bennett, Vicki Lambert and Bob Brain.

The proud heritage of Physiology at WITS was highlighted in particular by the recent achievements of two of these speakers who were Hons students in Physiology together: Prof Helen Laburn and Prof Clifford Woolf. Prof Laburn was recently appointed as Dean of the WITS Faculty of Health Sciences, indeed an honour for a basic scientist in the clinical environment. Prof Woolf recently published his 10th article in Nature in addition to the 6 in Nature Neuroscience.

In her welcoming speech, Prof Laburn congratulated the members of the PSSA for "weathering" different potential *threats*:

- the academic isolation of the 80's,
- the relatively low funding opportunities of the 90's,
- the retirements of the strong group of founding members of the PSSA,
- the genomics era, when the importance of Physiology as a discipline was downplayed.

At the same time she has issued us with a few *challenges*:

- to effectively weather the effects (or threats) of departmental amalgamations,
- to add value to multidisciplinary research teams
- to form linkages with other disciplines to add value to your own efforts (e.g. linking with engineers, geneticists),
- to reach out effectively to physiologists in other African countries,
- to improve our position within South African academia (e.g. increasing the exposure of nursing and dentistry students to Physiology)
- to search for opportunities to place Physiology in the "public eye",
- to become more visible internationally ("change your mind-set and get out there!").

Thank you for your vote of confidence and I hope to be able to serve the Society well over the next 3 years. Any ideas or positive news on progress with the above challenges will be welcomed as items for the newsletter!

Kathy Myburgh, President of the PSSA.

PSSA 2007 Prize Winners

Prizes were handed out by Mary Ludik (representative of LASEC) and Clifford Woolf (Keynote Speaker)

Johnny van der Walt Poster competition

The posters for the Stellenbosch University delegates were lost by 1-Time airlines, so they had to be reprinted. Despite the setback, Team Stellenbosch delivered a hat trick.....

First prize: Wayne Smith (Division of Physiology, Dept of Biomedical Sciences, Stellenbosch University)

Title of presentation: The Peroxisome Proliferator – Activated Receptor Alpha Agonist, K-111, Provides Cardioprotection From Ischaemia/Reperfusion Induced Injury In A Rodent Model Of The Metabolic Syndrome (Wayne Smith, Amanda Lochner, Eugene F. du Toit)

Second prize: Maritza Kruger (Dept Physiological Sciences, Stellenbosch University)

Title of presentation: Antioxidant (Oxiprovin™) Supplementation And Muscle Recovery From Contusion Injury – An *In-Vivo* Study. (Maritza J. Kruger, Robert M. Smith, Kathryn H. Myburgh, Carine Smith)

Third prize: Mark Thomas (Dept Physiological Sciences, Stellenbosch University)

Title of presentation: Hypoxia-Induced Apoptosis In Cultured Skeletal Muscle Cells: The Role Of The Phosphatidylinositol 3-Kinase (Pi3-K) Signaling Pathway (Mark P. Thomas, Anna-Mart Engelbrecht)

Wyndham Competition

First prize James Smith

Title of presentation: Cam Kinase Is Required For The Expression Of The Skeletal Muscle Glucose Transporter, Glut4, In Response To Exercise (James A.H. Smith, Edward O. Ojuka)

No runner up was awarded, because the next place was very similar to 2 others. So, **3 third place/most promising student prizes were awarded to:**

In alphabetical order:

Nontuthuko Chamane (Stellenbosch University Medical School)

Title of presentation: Cardiac Enos: A Comparative Study Between Whole Hearts And Cardiac Cells (Nontuthuko Z.L. Chamane, Amanda Lochner, Hans Strijdom)

Asfree Gwanyanya (Division of Experimental Cardiac Surgery, Dept of Cardiovascular Diseases, University of Leeuven, Belgium)

Title of presentation: Regulation Of Magnesium-Sensitive Cardiac Trpm7-Like Channels By Phosphatidylinositol 4,5-Bisphosphate (Pip₂) (Asfree Gwanyanya, Regina Macianskiene, Johan Vereecke, Kanigula Mubagwa)

Derik van Vuuren (Stellenbosch University Medical School)

Title of presentation: Postconditioning In The Isolated Rat Heart: Characterization And Implementation (Derick van Vuuren, Sonja Genade, Johan A. Moolma).

FUTURE PSSA CONFERENCES

- 2008 – University of Pretoria
- 2009 – Stellenbosch University (Tygerberg)
- 2010 – University of the Western Cape, Dept of Medical Biosciences
(Contact person: Dr David Fisher)



Dr Ed OJuka and James Smith (winner of the Wyndham competition) taking time out in the lab.

Winning words from James Smith, University of Cape Town

The annual PSSA conference is not only a great learning experience for young physiologists but also a pretty good excuse to get away from home for a few days with your supervisors and lab mates. This year our group of 4 researchers from UCT headed up to the 'Cradle of Humankind' near Johannesburg to share our work with fellow physiologists from all over the country. Of course we also did our fair share of socialising and exchanged many a 'lab war story' over a cold beer or two – one story of how the girls from the 'Sperm Lab' managed to keep their subjects sober the night before sample collection seems to stand out in mind. Then there is always the combination of nerves, excitement and dread that juggle around in your belly during the build up to your talk. This followed closely by adrenalin-fuelled elation and a confidence boost to match, when the audience obviously liked your talk. And when your talk unexpectedly takes the cake in the Wyndham competition for best young researcher, that elation rises to levels not often experienced before.

My talk was on the work that I have done over the past few years as a PhD student at UCT. Thinking back to my days in the lab, there have been many ups, downs,

Winning words from James Smith.... continued from page 5

frustrations and celebrations, but eventually I managed to collect enough data to tell a molecular story of how exercise increases the abundance of a protein, called GLUT4, that transports glucose into skeletal muscle. And it seems that the more we found out, the more questions we generated. We started out by showing that exercise caused a transcription factor called MEF2A to bind to the GLUT4 gene. Next we studied some of the signalling pathways that normally regulate MEF2A and found that a pathway involving calcium could increase GLUT4 protein levels during exercise. Now we are looking at the structure of the chromatin in the GLUT4 gene to understand the mechanisms behind this increased binding.

When asked to write this article I was advised that it should be informative to future presenters in the Wyndham competition. I suppose I was lucky in two respects: one, my data told a neat and interesting story that flowed logically, and two, I really like my work and enjoy telling people about it. Other than that, I think the key to any presentation is to avoid reams of text and to use diagrams to present your work as simply and understandably as possible without sacrificing scientific accuracy. I know how easy it is to drift off and start thinking about mum's home made cottage pie as soon as too many acronyms, complicated jargon and page long paragraphs start clouding my brain. Or you could try slipping the judges a basket of nice juicy apples on the morning of the big day!

PSSA Committee members 2007 - 2008

President re-elected for another term of 3 years: **Prof Kathy Myburgh**, Department of Physiological Sciences, Stellenbosch University

Vice President and head of the Local Organising Committee for PSSA2008: **Prof Dirk van Papendorp**, Physiology Department, School of Medicine, Faculty of Health Sciences, University of Pretoria

Continuing in post for 3rd year: Treasurer: **Dr Anna-Mart Engelbrecht**, Department of Physiological Sciences, Stellenbosch University

Re-elected for Council Member for 2nd year: **Dr Jos du Toit**, Medical Campus, Stellenbosch University; Prof Alta Schutte, Potchefstroom Campus, North West University

Elected Council Member: **Mark Tufts**, University of KwaZulu-Natal

News from Physiology departments across the country

University of Stellenbosch

Dr Carine Smith was recently promoted to Lecturer in the Department of Physiological Sciences

International News:

South Africa is becoming a popular destination for European scientists of all age groups!

The Department of Physiological Sciences has enjoyed visits from International academics on 2 occasions this year and await the arrival of 2 international postgraduate students from Europe who will intern with the masters level students.

1) Professors Birgitta Essen-Gustavsson and Eva Blomstrand (see photo below left and right respectively flanking Prof Myburgh) visited from Uppsala and Stockholm in May (2007) as part of a Sweden-NRF exchange programme. Between analysis of human muscle samples for determination of the enzymatic responses to high intensity training intervention, there was also some time for fun: wine tasting at the Brazenhead, Andringa Str Stellenbosch and a late autumn beach walk at the Strand (like heaven since the cold, dark Swedish winter had not ended yet). In August (2007)



2) Prof Willem van Mechelen of the Vrije Univ Amsterdam visited the Exercise Group to discuss mutual interests in measurement of body composition and free living energy expenditure. Dr Theo Nell (see photo attached), our resident expert anthropometrist, will benefit from future interactions. Prof van Mechelen was en route to the Drakensberg as invited speaker at a conference on Occupational Risk Management (Information that may be of interest to other Human Physiologists:

46th Annual International Conference on Occupational Risk Management, 28-31 August, Drakensberg; <http://www.health-safety.co.za/conferences.htm>).

Editorial team

*Dr Kennedy Erlwanger
Kennedy.erlwanger@wits.ac.za

*Prof Andrea Fuller
fullera@physiology.wits.ac.za

* School of Physiology,
 Wits University

PSSA on the Web!

Visit:

<http://www.physiosoc.org.za>

Who said marking was not a joke?

Students can bring some humour into the mundane task of marking assignments, tests and exams, a couple of examples from exam scripts follow.

Courtesy of Prof Myburgh

2nd year Physiology students given a supplementary exam:

“Lots of muscle fibre types don’t use ATP, but they do manufacture it and store it for other fiber types to use”

Believe it or not, the same student went on to say:

“ATP is transported throughout the body and as it is needed, so it is taken up and stored”

Student 2:

“Action potentials are caused by the calcium that causes muscle contraction”

The same student:

“ATP originally comes from hormones that are released into the blood and transported right into the muscle”

Student 3:

Is this student just confused about the order of events?

“ATP is required during the creation of the action potential that moves through the membrane of the muscle cell to give the necessary energy for complete contraction.”

.....or simply confused:

Who also said:

“ATP is also present during the EC cycle [sic: excitation-contraction] It is necessary to carry calcium which is bound to troponin”

Kindly submit articles for inclusion in the next edition of the newsletter to Kennedy.erlwanger@wits.ac.za



PHYSIOLOGY SOCIETY OF SOUTHERN AFRICA