PSSA Newsletter

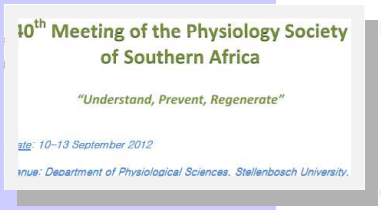
Physiology Society of Southern Africa

Aug 2012

Issue 10

Editorial message

A warm **welcome** to the department of Physiological Sciences, Stellenbosch University. As hosts of the upcoming PSSA meeting, we would like to use this time to introduce our department and its core activities.



As you can see from this recent picture, the mission of the Department of Physiological Sciences is to employ a **curiosity-driven** approach to understand the physiology/pathophysiology of the human body. To **take joy** in the work is important to us. Part of that joy is to be utilizing cutting-edge research methodologies and an integrative approach that spans all levels of organization from molecule to the whole organism. Our department's mission is to investigate threatening health issues that pose a serious challenge to society, with the goal to develop innovative solutions that will ultimately ensure improved health and well-being for all.

Inside this issue:

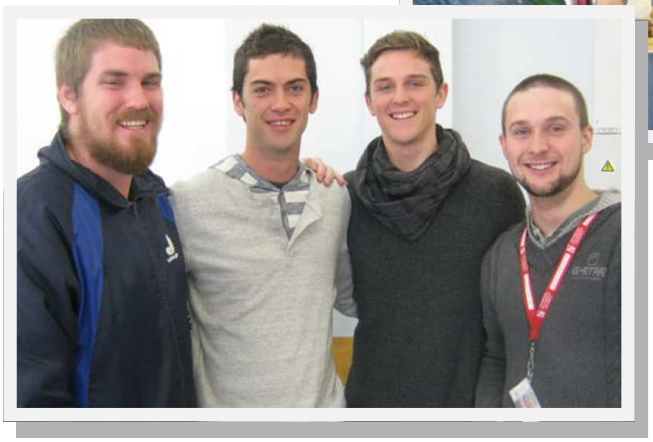
Prof MF Essop
Head of Department
Physiological Sciences, Stellenbosch University

DEPARTMENT OF PHYSIOLOGICAL SCIENCES

UNIVERSITEIT STELLENBOSCH UNIVERSITY

The generation, advancement and dissemination of knowledge are therefore central to our focus and permeate our **research**, teaching and **community interaction** activities.

We firmly believe that people are our most vital resource and our mission is to develop the full potential of all our staff and students.



By embracing this philosophy, our department undertakes to provide a first-class learning platform for our students (undergraduate and postgraduate) thereby empowering them with analytical and integrative skills, independent reasoning abilities, and highly specialized techniques that will enable them to successfully gain entry into the competitive global job market and better serve human health and welfare.

"Physiology is Cool"

We are also mindful of our responsibility to disseminate knowledge to the **broader community** to improve overall quality of life, promote Physiology as a learning discipline and to encourage the pursuit of higher learning and research. By providing this service, we seek to close the educational, economic and cultural gaps between South Africans and to help foster the future growth and development of our country. One example for our departmental interaction with the youth is the implementation of the annual "Physiology is cool" programme:

PhD student Gina Leisching (in front) helped Sinazo Nqeketo of Kayamandi High to find out what blood type she has during the "Physiology is Cool" Winter Week at Stellenbosch University's Department of Physiological Sciences. With them are participants Kylie Wenn (Luckhoff Senior Secondary), Andrea le Roux (Cloetesville Senior Secondary), Simbulele Mncedani (Kayamandi High), Dine Rudolf (Cloetesville Senior Secondary), Nurjaan Brinkhuis (Luckhoff Senior Secondary), and (back row) MSc student Dillan Beukes. Photo: Engela Duvenage

Six Grade 11 learners from three Stellenbosch schools had the opportunity to learn all about their blood groups, lifestyle diseases and various modern research technologies during thesecond annual "Physiology is Cool" Winter Week.

The participating learners were Simbulele Mncedani and Sinazo Nqeketo of Kayamandi High, Nurjaan Brinkhuis and Kylie Wenn of Luckhoff Senior Secondary, and Andrea le Roux and Dine Rudolf of Cloetesville Senior Secondary. The three-day event, which was held during the first week of the school holidays, was hosted by the Department of Physiological Sciences in an effort to stimulate awareness around the practical applications of this study field, and about the work and research that physiologists and exercise scientists do.

The outreach, organised by Dr Balindiwe Sishi of the Department of Physiological Sciences, also included career guidance, a tour across the Stellenbosch University campus, a visit to the Animal house and the JS Gericke Library. "The aim of this outreach was to expose and inspire young learners in such a way that they become interested in the study and research of Physiology, and biomedical science in general," says Prof Faadiel Essop, chair of the Department.

general," says Prof Faadiel Essop, chair of the Department of Physiological Sciences.

Core research activities

Prof. Carine Smith currently heads the **Multidisciplinary Stress Biology** research group in the Dept. Physiological Sciences at Stellenbosch University. The group's joint interest is the interaction between the endocrine and immune systems in response to a variety of stressors, thereby linking the disciplines of exercise physiology, neurophysiology, endocrinology and immunology. Apart from the aim to consistently deliver research of internationally competitive standard, the group also includes in their research a component to ensure applicability of results to the improvement of health and overall benefit of society.

Many different models for stress are used to probe the communication between the different role players in this complex, interrelated response. In humans, unaccustomed exercise has been established and used as a stress model for both acute and chronic stress conditions, as well as surgical stress, HIV/AIDS and the metabolic syndrome. Rodent and tissue culture models are also used with great success to simulate standardized stress conditions, and to elucidate the different mechanisms and role players responsible for a particular acute stress response, as well as adaptation to chronic stressors.

M S B
Multidisciplinary Stress Biology

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Core research activities

The **disease signalling group** (DSG), headed by Prof. Anna-Mart Engelbrecht aims to be a cutting-edge research group on the South African and international arena. We strive to ask **key questions** that will further develop science and enable us to make an impact at the forefront of scientific development and innovation. Our work is hypothesis driven and we aim to tackle science in a professional manner. We communicate our work through publications in scientific journals, and also exchange ideas and expose ourselves to novel research by being present at key national and international conferences.

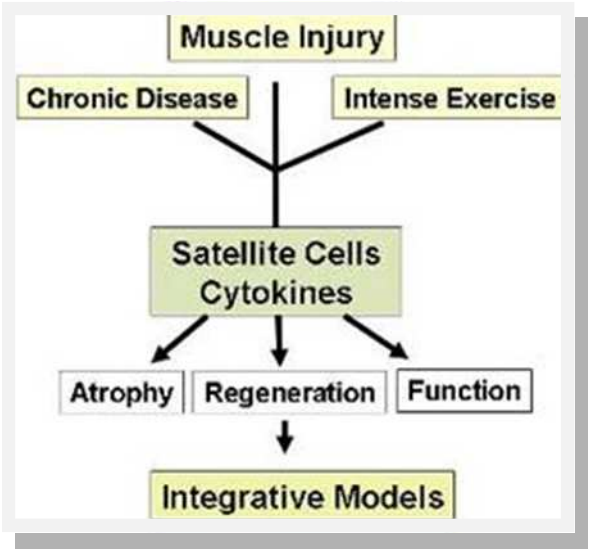
The group includes senior doctoral students as well as student on MSc and Hons level. It provides an environment for growth and promotes team building, through dedication and hard work. The group also exposes its students to novel techniques, preparing them for world class scientific careers.

DSG

Disease Signaling Group

Core research activities

The **Muscle Biology Group**, headed by Prof. Kathy Myburgh investigates skeletal muscle cell injury in various disease models. Ranging from satellite cell activation and stem-cell related research to muscle biopsie analysis and various exercise conditions this group is assessing muscle atrophy and regeneration in a most integrated fashion.



Core research activities

The **Cardio-Metabolic Research** Group (CMRG) is headed by Prof. Faadiel Essop.

The mission of the CMRG is to investigate the underlying mechanisms driving the onset of the **metabolic syndrome**, type 2 diabetes and **heart disease**. The CMRG's basic philosophy is to continually excel to greater heights in order to make world-class contributions in the field. The group's success in tackling such challenging research questions hinges on four crucial aspects, namely 1) a hypothesis-driven approach; 2) the employment of state-of-the art research methodologies and equipment; 3) an integrative approach using cell-based, animal and human studies; and 4) building strong international collaborations. Team work is central to the CMRG's successes and a concerted effort is made to create a stimulating research environment that engenders critical thinking, thought-provoking discussions and promotes the exploration of curiosity-driven ideas. The CMRG is people-centered, and great emphasis is placed on nurturing the unique talents of each individual to ultimately reach their full potential. For example, CMRG team members have been awarded several prestigious awards (at national level) over the last few years for their outstanding research work.

Stellenbosch University

Department of Physiological Sciences

LabTutor Workshop 10th September 2012

The Department of Physiological Sciences, University of Stellenbosch, would like to invite you to the LasecSA & ADInstruments workshop on Monday, 10 September 2012. The workshop will precede the 40th Conference of the Physiology Society of Southern Africa hosted by the University of the Stellenbosch.

The hands-on workshop is a unique opportunity for all participants to gain experience with some of the newest technology used in Education and Research.

Workshop topics will include:

- Data Acquisition with PowerLab,
- ADInstruments in Medical Education: Medical Laboratories & Nursing
- LabTutor: Basics for Administrators and Laboratory Staff
- LabTutor: Experiments practical session
- LabChart: Research using ADInstruments

Venue: University of Stellenbosch, Department of Physiological Science
Lasec Powerlab Laboratory, C/o Merriman and Bosman Street
1st Floor, Mike de Vries Building, Stellenbosch

Date: Monday 10 September, 2012 (9am – 5pm)
Morning/Afternoon Tea and Lunch will be provided

Registration: Registration is FREE but compulsory. Attendee places are limited, so please book in advance by visiting:

www.adinstruments.com/southafrica_workshop

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Experience LabTutor Online

Act Quick: Register before 30 June 2012 for Temporary Access to all LabTutor Online Experiments free-of-charge. Please fill in the form below and Fax to +27 21 531 7562 or email your details to johan.dewet@lasec.co.za

Name: _____

Organisation: _____

Address: _____

Contact Number: _____

Email: _____

Teaching Areas (e.g. physiology, pharmacology, nursing, etc): _____

_____

Physiology Society of Southern Africa

Stellenbosch University

Department of Physiological Sciences

Microscopy in Education Workshop 10th September 2012

The Department of Physiological Sciences, Stellenbosch University, would like to invite you to the SMM Instruments and Leica Microsystems workshop on Monday 10th September 2012. The workshop will preceded the 40th Conference of the Physiological Society of Southern Africa, hosted by the Department of Physiological Sciences and the University of Stellenbosch

Workshop topics will include:

- Microscopy and Imaging in Education
- Technology and Microscopy
- Using Technology in Teaching

Where: Microscopy Teaching Lab, Department of Physiological Sciences, Mike de Vries Building, C/O Merriman Ave and Bosman St, Stellenbosch

When: Monday 10th September 2012
9:30 am – 1:00pm (free play after 1:00pm)

Registration: Registration is required, but is FREE
Places are limited, so please hurry

SMM Instruments (Pty)Ltd

Leica MICROSYSTEMS

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RSVP: Microscopy in Education Workshop – please contact Sarah Ketting sarahk@smmafrica.com to register.

Name: .....

Organisation: .....

Address: .....

Contact Details - Cell: ..... **email:** .....

Teaching Areas: .....

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We are still on the web !
www.physiolsoc.org.za/

We would like to hear from you

If you would like to contribute to the newsletter, be it with news from your department, news regarding your research, issues centred around physiology and teaching, or anything you feel should be shared with the PSSA community, please contact the editorial team (bloos@sun.ac.za).