

PHYSIOLOGY CANADA

The Newsletter of the...

Volume 33 • Number 02 • Nov 2012 • Issue # 0822-9058



CANADIAN PHYSIOLOGICAL SOCIETY



SOCIÉTÉ CANADIENNE de PHYSIOLOGIE

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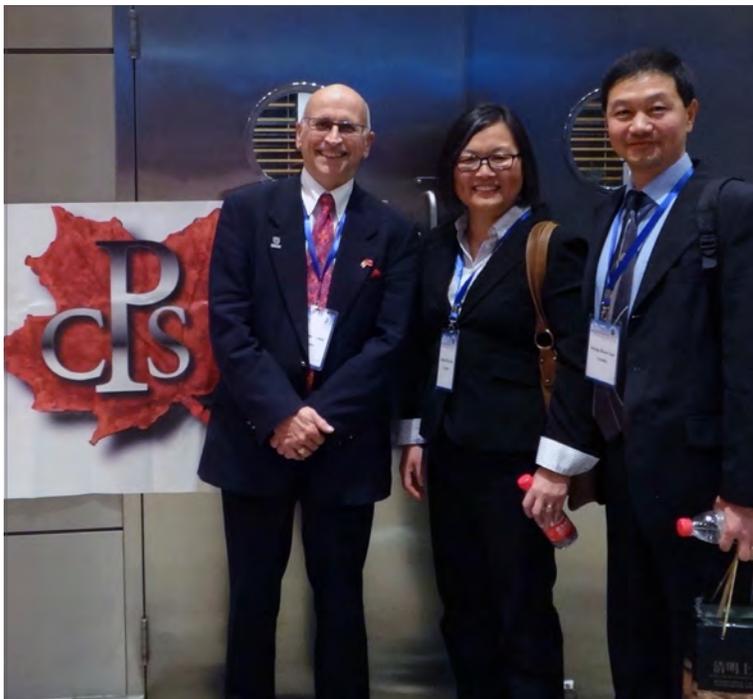
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From CPS President Stephen Sims

Welcome to the fall 2012 edition of Physiology Canada. The CPS partnered with the Chinese Association for Physiological Sciences (CAPS) and hosted two symposia at the International Conference of Physiological Sciences, held November 1 to 4 in Suzhou, China. All together there were 9 national physiological societies represented at the conference. Keynote speakers included Denis Noble from University of Oxford, and Walter Boron from Case Western Reserve University (among others) presenting new perspectives on aspects of physiology. Representing the Canadian Physiological Society, Qingping Feng organized and co-chaired a session entitled "Cardiac Rupture Post-myocardial Infarction", and Stephen Sims organized a symposium entitled "Calcium Regulation in Cell Function".

The meeting was held in the scenic city of Suzhou, which is about a 2-hour drive west of Shanghai, and is known for its peaceful gardens and water frontage on lakes. Our local hosts from CAPS and Suzhou University offered tremendous hospitality and sampling of the local specialties.

The photograph below shows symposium participants Drs. Zhong-Ping Feng, Hong-Shuo Sun with Stephen Sims following a symposium.



The fundamental importance of Physiology in the modern research context was a central theme. Despite 'efficiencies' from consolidation and realignment of academic departments, the various sub-disciplines of Physiology continue to thrive, whether labeled as integrative or cellular or molecular physiology, for example. Judging from the large representation of students at the meeting there is no shortage of aspiring physiologists. Benefits of international cooperation and collaboration were also apparent. Looking forward, this was also a reminder of the upcoming international congresses (Pan American meeting in 2014 headed by the Brazilian Physiological Society and the IUPS meeting in 2013, both described below).

And finally, I encourage volunteers to respond to the call for Nominations below. Participation in the Society is a rewarding experience, offering exposure and collaborative opportunities. Consider responding to the call, and encourage others in your departments / units to join the Society and participate.

Regards,
Stephen Sims
President

Call for Nominations

The CPS is now accepting nominations for the positions of:

- Vice-President
- Secretary
- Councillors (2)

Self-nominations are accepted. The final slate of candidates will be selected by the Nominating Committee and will be presented to the membership early next year to elect these positions. Nominations will be accepted until Friday, December 14th, 2012. Please email the names of the nominated candidates (including University affiliation) to Doug Jones (Doug.Jones@schulich.uwo.ca) and Melanie Woodin (m.woodin@utoronto.ca).

Save the Date: Pan-American meeting

The CPS has partnered with other Physiological Societies of “the Americas” to plan the 1st Pan-American Congress of Physiological Sciences ‘Physiology without Borders’, which is being held August 2-6, 2014.

Please visit the conference website: <http://panam2014.com/>

Save the Date: IUPS 2013

IUPS 2013 will be held July 21-26th in Birmingham, UK. The CPS is Sponsoring two-symposium:

- Inhibitory Synapses: Ionic Shift Plasticity co-chaired by Melanie Woodin (University of Toronto) and Peter Blaesse (University of Munster, Germany)
 - From perceiving to acting: neurophysiological mechanisms of conscious visual perception co-chaired by Erik Cook (McGill University) and Kristine Krug (University of Oxford, UK)
-

CPS Promotional Fund Sponsored Symposium at the Society For Neuroscience

On Saturday, October 13th 2012 CPS Member (and IUPS Treasurer) Dr. Quentin Pittman from the University of Calgary (<http://people.ucalgary.ca/~neuro/pittman/pittman.html>) chaired a symposium at the Society for Neuroscience Annual meeting in New Orleans, LA. This symposium was supported in part through Quentin’s successful application to the CPS Promotional Fund. Here is a recap of the symposium:

The symposium entitled: Brain-Body Communication: Function and Dysfunction and the Critical Role of the Immune System focused on underlying causes of behavioral co-morbidity in peripheral inflammatory disease. The symposium roster comprised 4 speakers: Dr Mark Swain of the University of Calgary discussed his work on the communication between the periphery and the brain that mediates the neural changes that occur in the setting of peripheral liver inflammation.; Dr Annamaria Vezzani of the Mario Negri Institute in Milan presented data on neuroinflammatory changes that ensue, and possibly contribute to, epilepsy; Dr Quentin Pittman (University of Calgary) presented data showing synaptic changes precipitated by cytokines during colitis; Dr Staci Bilbo(Duke University) revealed long lasting effects of early infection upon cognitive functioning in the adult, particularly in the setting of a second inflammatory episode. Despite being the very first symposium of the meeting on the Saturday afternoon when many attendees had not yet arrived, the symposium was very well attended and each presentation was followed by several rounds of questions. This is obviously an area that brings together individuals interested in immunology, behavior, neurophysiology and many types of peripheral organ disease.

CSP Weekly Review

Canadian Science Publishing, NRC Research Press has created CSP Weekly Review. This social media tool curates web content of research and publishing news, industry trends, entertaining tidbits and more. CPS members are invited to visit and subscribe to CSP Weekly Review: <http://paper.li/cdnsciencepub/1340538422#>

Obituary Former CPS President

Keith Cooper, M.B., B.S., M.Sc., M.A., D.Sc. (Oxon). (August 7 1922 - October 19 2011)



Keith Cooper, Professor Emeritus at the University of Calgary, inaugural Head of Medical Physiology at the then new University of Calgary Medical School and later Vice-President (Research) of the University of Calgary, passed away peacefully in Horton General Hospital, Banbury, UK, on October 19th, 2011. Keith, with his wife, were residents of Calgary for 40 years, moving to Calgary in 1968 having been a Fellow of St. Peter's College, Oxford and member of the MRC Body Temperature Unit there. Educated at Watford Grammar School, he entered St. Mary's Hospital Medical School London on a Kitchener Scholarship in 1940. In the post-war years he lectured in Physiology at St. Mary's and then served with the RAF at the Aviation Medicine Institute at Farnborough, before moving on to Oxford. He married Eileen in 1946 and they had 2 children, John and Peter and 5 grandchildren, Kate, Richard, Ben, Emily and Joe. Although Keith and Eileen moved away to Calgary in 1968, the family were regular visitors to their home on Sifton Blvd. Indeed the house was a regular place of entertainment for friends, colleagues and visitors throughout Keith and Eileen's time there. As Head of Medical Physiology at the University of Calgary, Keith played an important role in the establishment of the Neuroscience Research Group; in the late 1960's the concept of a multidisciplinary research group and training program that crossed traditional department lines and encompassed both clinical and basic neuroscientists was highly innovative. Along with his colleague Dr Warren Veale, Keith directed an active research laboratory that produced important papers on thermoregulation, hypothermia and fever. He co-authored Hypothermia for Surgical Practice in 1960 and authored Fever and Antipyresis: The role of the Nervous System in 1995. Keith was a role model, supervisor and

mentor to numerous trainees who now occupy senior academic positions throughout Canada, Europe and the United States. He was President of the Canadian Physiological Society and of the Canadian Federation of Biological Societies and board member of numerous other organizations. Keith had many interests outside his academic life, including music (he was at one time on the Board of Directors of the Calgary Philharmonic and Chair of the 1995 Royal Canadian College of Organists Convention), skiing, fishing, walking in the mountains and bird watching, the latter one of Eileen's passions. Before emigrating to Canada he greatly enjoyed dinghy sailing and had been a flag officer of 2 UK sailing clubs. Quite apart from his academic prowess, Keith will be remembered by all who met him for his warmth, his interest in so much that went on around him and very much for his rich repertoire of stories and jokes. Keith was one of the last of a generation of classically trained people who were equally knowledgeable discussing science, music, religion or the environment; he brought insight and humour to every conversation.

Eileen died in 2008 and Keith then returned to the UK where he was close to his family. Through those last few years, though failing in strength, he never lost his sense of humour, his unfailing courtesy to all around him, or his interest in the affairs of the world.

Who am I? Where am I?



Dr. Ahmed S. Mahmud

MBChB, MSc, PhD (Physiology)

Assistant Professor of Neurophysiology, Department of Physiology

Baghdad University-College of Medicine; Baghdad, Iraq

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Ahmed Mahmud is a new Regular Member of the CPS. He recently immigrated to Canada, and is seeking a research position in Physiology.

Dr. Mahmud, the newest member to our society, was an Assistant Professor of Neurophysiology who worked for the College of Medicine; Physiology department- Baghdad University, Baghdad, Iraq for more than 17 years lecturing and supervising under as well as post graduate medical students and doing research work in neurophysiology.

After completion of his undergraduate study (Bachelor of Medicine and Surgery MBChB-1988) at the College of Medicine-Baghdad University, internship and medical training, he was interested in human physiology and perused his MSc (Physiology-1993) and then PhD (Physiology-1999) with

Who am I? Where am I? *Continued...*

his research focusing particularly on axonal excitability/ electrical properties of neurons and the development of membrane potentials across biological membrane that investigate the normal development and maturation of the central and peripheral nervous systems; as well as understand the neuronal basis of disease and their underlying pathophysiology in patients with neurological disorders.

He is also interested in sensorimotor physiology and higher control of voluntary movement of the body with the relevant sensory information / proprioception, and its alteration in neurodegenerative diseases (e.g Parkinson's, Alzheimer's disease and in motor neuron disease as amyotrophic lateral sclerosis).

Dr. Mahmud is now a permanent resident in Canada and living in Mississauga, Ontario since July 2011. Being a newcomer to Canada, he is currently seeking a research position in Physiology and would be grateful for CPS members to contact him if they have positions available.

Recent PhD Theses *The publication of recent trainee thesis or conference abstracts*

Chronic Maternal Stress and Genetic Variants in the Etiology of Spontaneous Preterm Birth

PhD thesis successfully defended by Inge Christiaens

Laboratory of Dr. David Olson

Department of Physiology

University of Alberta

Preterm birth is the leading cause of mortality and morbidity in newborn infants. With an estimated 15 million preterm births annually worldwide, the global burden of preterm birth is enormous. Despite decades of research, its etiology remains elusive. Preterm birth is a complex phenomenon with genes and environmental factors contributing to its risk, both in the mother and the fetus. For this dissertation, we explored the role of chronic maternal stress and genetic variants in the etiology of spontaneous preterm birth. We conducted a case-control study in 622 women in Edmonton. First, we examined the association between lifetime chronic stress and preterm birth. Exposure to two or more adverse childhood experiences was associated with a two-fold risk of preterm birth, regardless of maternal age, smoking status, educational status and a history of miscarriage (OR 2.09, $p=0.024$) Lifetime physical and emotional abuse was also associated with spontaneous preterm in our study population (OR 1.3, $p=0.033$) Second, we conducted genomic studies for preterm birth in collaboration with the Preterm Birth Genome Project, the World Health Organization and the March of Dimes. Using a candidate gene approach, we discovered two novel single nucleotide polymorphisms (SNPs), both located in the mineralocorticoid receptor gene that associate with spontaneous preterm birth: rs17484063 (OR 0.50, $p=0.038$) and rs2883929 (OR 0.49, $p=0.017$). For each additional effect allele, the risk of preterm birth was halved. In women with ≤ 1 adverse childhood experiences, the odds ratios of rs17484063 and rs2883929 for preterm birth were further lowered (OR 0.37; $p=0.024$ and OR 0.37; $p=0.013$, respectively). Via activation of the maternal-fetal HPA axis, a biological plausibility of the role of these SNPs in the etiology of preterm birth exists.

This is the first evidence of genetic variations in the mineralocorticoid receptor gene that associate with spontaneous preterm birth. In addition, we discovered a strong relationship between adverse childhood experiences and preterm birth. Taken together, this research confirmed that chronic maternal stress and genes involved in the stress response likely have an impact on the risk of spontaneous preterm birth.

The CPS Promotional Fund

Up to \$2,500.00 will be available twice a year to organizers of CPS events which stimulate physiology research, integration and/or teaching in Canada. For example, the funds can be used as seed money for the holding of a regional meeting, or promotion of the CPS at a national or international conference. There will be two competitions for funds, with application deadlines January 1st and July 1st. Multiple awards may be allocated at any competition. Any funds available from the January competition will be carried forward to the July 1st competition. Regular CPS members are eligible to apply. Send a 1-2 page proposal to the secretary of the CPS, describing the amount requested, date, location and nature of the planned event. Indicate how the requested funds will support the event and how the event will foster Canadian physiology. Events sponsored by the CPS Networking Fund will display a CPS banner to promote the Society and recognize its financial support.

For detailed information please visit the [CPS website](#).

Positions Available

Two post-doctoral fellow positions available immediately for studying physiological and pathophysiological effects of hydrogen sulfide (Nature. 459:500, 2009; Science. 322:587, 2008; EMBO J. 20:6008, 2001).

Candidates must have excellent academic background and research record in either molecular biology, enzymatic chemistry, or drug design/chemical compound synthesis, and should be within three years of receiving their PhD degrees. Email CV, one-page statement of research interests and career goals, and names of three references to: Dr. Rui Wang, Lakehead University, Thunder Bay, Ontario, Canada ([email: rwang@lakeheadu.ca](mailto:rwang@lakeheadu.ca)).

Upcoming Physiology Meetings

7th European Elastin Meeting

September 1-4, 2012

Ghent, Belgium

www.elastin2012.be

2nd European Conference on the Biology of Hydrogen Sulfide

September 8-11, 2013

University of Exeter, England

[Website and further information will be available November, 2012.](#)

Integrative Biology of Exercise

October 10-13, 2012

Westminster, Colorado

<http://www.the-aps.org/mm/Conferences/APS-Conferences/2012-Conferences/Integrative-Biology-of-Exercise>

EB 2013

April 20-24, 2013

Boston, MA

<http://experimentalbiology.org/EB/pages/default.aspx?splashpage=1>

IUPS 2013 37th Congress of the International Union of the Physiological Sciences

July 21-26, 2013

Birmingham, UK

<http://www.iups.org/>

Submissions & Contact Information

We welcome your contributions! If you would like to be featured in “Who am I? Where am I?” or write a historical perspective, send us a note.

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