Complex Heterogeneous

THE ORGAN

No. 23 – February 2004

www.cbfm.org

***This Issue*:**

Summer School Report 2003

New members during 2003

Obituaries - Y. Lucas Yamamoto and Kazuo Uemura

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The **Complex Heterogeneous Organ** is the Newsletter of the International Society for Cerebral Blood Flow and Metabolism. The Newsletter takes its name from the opening line of a paper by the first president of the Society (see J. Neurochem. **28**:897-916, 1977). The title emphasizes the intricacy of our research area and the diversity in background of the members of our Society. The short title of the Newsletter, (The Organ), is defined by the Oxford dictionary as a medium of communication.

Result of the Call for Electoral Contest

After the inquiry in the Organ in the September issue, 2003 for the position of new secretary and new treasurer, no request for electoral contest has been received by the deadline. Consequently, Professors Gitte Knudsen and Wolfgang Kuschinsky are to be considered as the Society's Secretary and Treasurer, respectively.

Report from Summer School

PET Pharmacokinetic Course, Montreal Neurological Institute, Montreal, Canada
June 26-28, 2003

The Summer School was held in Montreal, just prior to the BRAIN03 conference in Calgary, and was organized by Dr R.N. Gunn, Prof A.A. Lammertsma, Prof K.L. Leenders and Dr R.P. Maguire. The Summer School followed a similar theme to those held previously at the Rigshospitalet Copenhagen, Denmark (as part of BRAIN99), and in the Netherlands, at Groningen University Hospital in 2001, and at the VU University Amsterdam in 2002.
The aim of the course was to explain pharmacokinetics in the context of PET measurements. The course described how radiotracer data may be used to quantify biological processes *in vivo* via pharmacokinetic modelling. Emphasis was placed on three measurement fields: regional cerebral blood flow, glucose utilization and neuro-receptor binding. For each field, theoretical models were explained and their utility in analyzing dynamic PET data was demonstrated. The course was structured to involve both lecture style presentations involving computer simulations and separate computing exercises for the participants where they could actually apply these models to real PET data. The exercises were very successful with each student having access to their own workstation and advice from one of the course tutors. Both the lecture and computing environments led to good interactions between the students and faculty. A course text was produced and was made available to the students along with the computing exercises.
The course was attended by 40 participants from 7 different countries: USA (12), Canada (10), United Kingdom (7), Germany (5), Sweden (3), The Netherlands (2) and France (1). The faculty consisted of 11 experts in the field of PET pharmacokinetics; USA (3), The Netherlands (3), Germany (2), Canada (1), United Kingdom (1), and Denmark (1).
The course began at 12:00 p.m. on June 26 and finished at 2:00 p.m. on June 28, 2003. This allowed for two social events which consisted of a dinner on the first evening and a cycle ride and picnic around the Island of Montreal on the second evening. These events were well attended by all the tutors and most of the students allowing for further discussions.
Based on the positive feedback from the students as well as the existing waiting list, the intention exists to organize another course around the Brain'05 meeting in The Netherlands.

New members approved during 2003

Ordinary members:

Canada
Antoine M. Hakim
Alan S. Hazell
Jane A. Montgomery
Jean-Paul Soucy
Wandong Zhang

Denmark
Lars H. Pinborg
Anette Sams Nielsen

France
Marc R.M. Hermier
Yutaka Tomita

Germany
Matthias F. Oertel
Bernhard Schaller

Japan
Minoru Asahi
Kenji Dohi
Tatsushi Kamiya
Yoshikatsu Kawata
Kenichi Makino
Kuniaki Ogasawara
Kazushi Takahashi
Hiroshi Watabe

Korea
Myung-Chul Lee
Kyu Hyun Park

Norway
Bjørnar Hassel

Republic of China
Ming Ren Wang

Sweden
Kristina Thorngren-Jerneck

United Kingdom
David G. Gadian
Neil G. Harris
Karen J. Horsburgh

USA
David R. Harder
Beau M . Ances
Jun Chen
David M. Cohen
Joseph P. Culver
Thomas F. Floyd
Daniel P. Holschneider
Bingren Hu
Ikuhiro Kida
Raymond Koehler
Gary Krause
Sang-Pil Lee
Steven W. Levison
Mingyue Liu
Ke J. Liu
Chunli Liu
Sean P. Marrelli
Stephanie J. Murphy
Mei Qin
Juan Saveedra
Avital Schurr
Paul Tompkins

Junior members:

Canada
J. Balasubramaniam
Jeffrey Biernaskie
Murphy D. Blake
Michael R. Edwards
Christopher B.R. Funk
Tania F. Gendron
Omar A. Gharbawie
Kenneth A. Hoekstra
Amanda M. Laslo
David C. Mamo

Colombia
Adriana Medina

Denmark
Henning P. Hansen
Jan Tonnesen

France
Jean-Francois Adam
Hélène N. David
J.-D. Gallezot
Nathalie Lebeurrier
Gweltas Mauger
Romain Valabregue

Germany
Norbert Gerling
Nils Henninger
Rainer Kollmar
Ines Körner
Rüdiger Noppens
Oliver Peters
Heike Sellien
Mary E. Spilker
Till Sprenger
Olaf Windmüller
Johannes J. Woitzik

Hungary
Bela Horvath

Israel
Sara Beni

Japan
Chihiro Akiyama
Toshinori Horiuchi
Yasuhiro Kumai
Kazuto Masamoto
Masashi Takasawa
Yoji Tanaka
Wei-Fang Wang

Korea
Im Ki Chun
Kon Chu

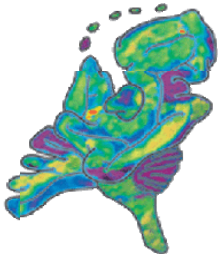
Sweden
Anna Rytter

Switzerland
Oliver Speer

The Netherlands
Gea Leegsma-Vogt
Lia Liefaard
Catalina T. Mesina
Wouter Veldhuis

United Kingdom
Stuart M. Allan
Peter G. Bradley
Barry W. McColl
Mike M. Modo
Timothy D. Wilson
David A. Zygun

USA
Cenk Ayata
Todd Barnhart
Tonya Bliss
Nicolas P. Blondeau
Rachel Bright
John W. Calvert
Eric R. Cohen
Andrew K. Dunn
Turgut Durduran
Bradley E. Enerson
W. Gordon Frankle
Nathan Hageman
Jed A. Hartings
Peter Herman
Benjamin D. Hoehn
Christian J. Hunter
Ken Kazama
Yun-Sook Kim
Bela Kis
Julia K. Kofler
Jae Sung Lee
Khodadad Namiranian
Svetlana Pundik
Allison Shapiro
Tomokazu Shimazu
Sriram Venneti
Lisa Vitullo
Mei Wang
Geoffrey A. Wiss
Bin Xu
Jennifer Zechel
Philippe Garnier



Brain'05 and BrainPET'05

XXIInd International Symposium on Cerebral Blood Flow, Metabolism, and Function
VIIth International Conference on Quantification of Brain Function with PET

June 7-11, 2005, Vrije Universiteit, Amsterdam, The Netherlands

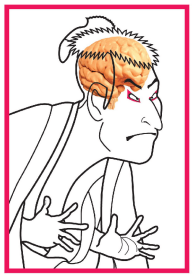
For further information, please visit www.brain05.com

Preliminary program

	Tue (7.6.)		Wed (8.6.)			Thu (9.6.)			Fri (10.6.)	Sat. (11.6)		
8:00-9:00			Poster viewing & light breakfast			Poster viewing &light breakfast			Poster viewing & light breakfast	Poster viewing & light breakfast		
9:00 - 10:30	Course Ia Functional brain Imaging (MR - part)	Course II Stroke Models	Plenary symposium 1 (Physiological basis of functional imaging)			Symp.1	Symp. 2	Platf. 3 BP	Plenary symposium 2 (The ischemic penumbra)	Symp.5	Symp.6	Symp.7 Neurotrans-mission (BP oriented)
11:00 - 12:30	Lunch break 12:00- 1300	Lunch break 12:00- 1300	Platf.1	Platf. 2	Platf. 1 BP	Platf. 5	Platf. 6	Platf. 4 BP	Presidential Symposium/ Niels Lassen Finals	Platf. 7	Platf. 8	Platf. 9 Clinical Functional Brain Imaging (BP oriented)
12:30-13:30	Course ends 15:00	Course ends 15:00	Lunch (at posters)			Lunch & General assembly			Lunch (at posters)	Lunch (at posters)		
13:30 - 15:30			Posters			Posters			14:00 free afternoon	Posters		
15:30 - 17:00	16:00 Opening/ Lifetime achievement award		Platf. 3	Platf. 4	Platf. 2 BP	Symp. 3	Symp. 4	Platf. 5 BP		Platf.10	Platf. 11	Platf.12 Clinical Functional Brain Imaging (BP oriented)
17:15 - 18:45	Welcome reception		Course Ib (part Optical Imaging)	Course III Anesthesia in CNS research		Course Ic (part PET SPECt)	Course IV Stem cell biology					
Evening			Social event			Free (Young Investigator Party)			20:00 Banquet			

BP = Brain PET

Brain'07 and BrainPET'07



XXIIIrd International Symposium on Cerebral Blood Flow, Metabolism, and Function
VIIIth International Conference on Quantification of Brain Function with PET

May 20-24, 2007
Osaka City, Japan

For further information, please visit

http://www.brain07.com/

Brain'07 and BrainPET'07 (The 23th International Symposium on Cerebral Blood Flow, Metabolism and Function and The 8th International Conference on Quantification of Brain Function with PET) will be held in Osaka city, Japan, May 20 (Sun) - May 24 (Thur), 2007. The local organizers are Professors Koji Abe (Okayama University School of Medicine, Okayama), and Hidehiro Iida (National Cardiovascular Center Research Institute, Osaka).

Reminder

Gordon Research Conference

Brain Energy Metabolism and Blood Flow: 'Coupling of neuronal activity and blood flow as basis of functional neuroimaging'

August 8 - 13, 2004
Colby College, Waterville, Maine (USA)

Generously supported by the International Society for Cerebral Blood Flow and Metabolism

Chair: U. Dirnagl, Berlin (ulrich.dirnagl@charite.de)
Vice-Chair: M. Lauritzen, Copenhagen (marl@glostruphosp.kbhamt.dk)
Co-Chair: M.A. Moskowitz, Boston (moskowitz@helix.mgh.harvard.edu)

Vision
Brain blood flow is vital to the normal mammalian nervous system and provides the basis for functional imaging. Despite its importance, the control of blood flow is poorly understood, although both metabolic activity and ionic signalling have been strongly implicated. Over the last decade, dramatic progress has been made in molecular biology, biophysics and genetics that impact our understanding of brain energy metabolism, neural organization, cell signalling and vascular regulation. In addition, new technologies have

emerged to measure blood flow with high spatial and temporal resolution and even to measure activity of individual cells such as vascular smooth muscle within brain. Utilizing these modern imaging methods and other advances, we believe the tools are now in place to address fundamental issues relating to the organization of blood flow and metabolic activity. We also anticipate that the answers to these questions will drive new discoveries in the experimental and clinical neurosciences and impact diagnosis and treatment of stroke and other neurodegenerative disorder. Hence, this field has now its own forum to address the complexities of multi-disciplinary approaches to understanding blood flow regulation within mammalian brain. The biennial Gordon research conference devoted to understanding those aspects of metabolism, cell signalling, cell-cell interactions that impact vascular regulation in the normal and injured brain will provide a unique opportunity for experts and newcomers alike to exchange state-of-the-art advances in methodology and concepts, as well as outline promising avenues for collaborative research.

For further information and updated program, please visit the conference website
http://grc.expneuro.de

Application
The Chairs will admit applicants on an ongoing basis beginning Fall 2003, based on the information provided on the application. For applications, please use the GRC website
http://grc.org/programs/2004/brain.htm

Attendance at the Conference is **limited to 135 conferees** and the Conference may be full well before the deadline; therefore, submit your application early. Upon acceptance to the Conference, individuals will receive registration information. The Conference fee covers registration, all meals and room. Preference will be given to individuals presenting posters. Contact the Conference Chair for more information.
We particularly encourage young/new investigators to submit abstracts (deadline, April 1, 2004) of their proposed poster presentations. The abstracts should be submitted in standard format (title, authors, institution, text up to 400 words). A total of at least 14 awards ($600 overseas, $400 USA/CND, $250 East Coast; plus registration fee will be reimbursed) will be given to young investigators with the most innovative presentations. At present we are aiming to raise funds for more bursaries.

Program
For a detailed program visit the Conference website: http://grc.expneuro.de or the Gordon Research Conferences website: www.grc.org. Poster sessions are scheduled between the oral sessions.

Oral session 1. ATP and oxygen consumption of the working brain
Discussion leader: Albert Gjedde; Speakers: Maria Erecinska, Fahmeed Hyder

Oral session 2. Astrocytes in neurometabolic coupling
Discussion leader: Bo K. Siesjö; Speakers: Maiken Nedergaard,, Ursula Sonnewald, Marianne Fillenz

Oral session 3. Energetic costs of neuro-transmission
Discussion leader: Pierre Magistretti; Speakers: Douglas Rothmann, Luc Pellerin

Oral session 4. Neurovascular coupling I
Discussion leader: Wolfgang Kuschinsky; Speakers: Edith Hamel, Robert V. Harrison, Steven Segal

Oral session 5. Neurovascular coupling II
Discussion leader: Ulrich Dirnagl; Speakers: Timothy McMahon, David R. Harder

Oral session 6. Neural underpinnings of BOLD and vascular signals used in functional neuroimaging
Discussion leader: Robert Turner; Speakers Marcus Raichle, Nikos Logothetis, Martin Lauritzen

Oral session 7. Methodological frontiers
Discussion leader: Bruce Rosen; Speakers David Kleinfeld, Alan P. Koretsky

Oral session 8. Clinical aspects of neurovascular coupling
Discussion leader: Costantino Iadecola; Speakers: Stanley Rapoport, David Eidelberg, Arno Villringer

Orals session 9. Hot topics: Last minute breakthroughs, and selected presentations from posters
Discussion leader: Kamil Ugurbil

Keynote lecture: Consciousness and the electrophysiology of mammalian neurons and circuits.
Rodolfo Llinas

Other Meetings of Interest to the Members

The Seventh Int. Conference on Xenon CT CBF and Related CBF Techniques June 22-25, 2004, Bordeaux, France

For further information, please visit

http://perso.wanadoo.fr/objectif.congres/xenon%20web/the-2004-Xenon-CT-CBF.html

In Memoriam; Y. Lucas Yamamoto

Y. Lucas Yamamoto, MD, PhD, an internationally recognized investigator in nuclear medicine with a special interest in the physiology and pathophysiology of a wide spectrum of brain disorders, died peacefully on September 18, 2003 after a prolonged battle with multiple ailments. It was one of Nature's ironies that Lucas passed away from a stroke, the very brain ailment that he had researched for more than three decades.

Lucas completed his medical studies at Hokkaido University Medical School, Japan in 1952. After an internship and training in general surgery at the International Catholic Hospital, Tokyo, Japan, Lucas attended Georgetown University, Washington, D.C. to train in neurosurgery, finishing this course in 1958. Lucas then worked from 1958 to 1961 at the Hospital of the Medical Research Center of Brookhaven National Laboratory, Long Island, N.Y., Lucas became involved in the project on the boron-capture method for treatment of gliomas. He received in 1961 his PhD in Radiology from Yokohama University School of Medicine, Japan. He then joined the team of the Cone Laboratory for Neurosurgical Research at the Montreal Neurological Institute where his expertise in nuclear medicine and training as a neurosurgeon added great strength to the program in brain scanning. During summer stints at Brookhaven, he helped to develop the first cerebral blood flow studies using positron emitters based on an instrument utilizing 32 NaI detectors. This system was later transferred to the Montreal Neurological Institute, where it was modified to produce the first tomographic PET scan of a human glioma.

Lucas started the PET project at the Montreal Neurological Institute by first using a Ge-67 generator to produce positron-emitting Ga-68. In addition, Kr-77 was produced at the McGill University synchrocyclotron, by irradiating crystalized KBr and distilling Kr-77 out of the irradiated target. The full versatile PET project developed somewhat later with the first scanner utilizing BGO crystal detectors combined a few years afterward with a medical cyclotron.. Lucas' energy and enthusiasm were integral to the success of this bold and costly venture. This project took us to Japan and to a company, Japan Steel Works, that had just made a prototype of a small medical cyclotron. Following several more trips to Japan and intricate negotiations, the "Baby" cyclotron (the second instrument of its kind) was delivered to the MNI in the fall of 1981. Lucas then put his full energy into this integrated system for studies on the pathophysiology of brain tumors, epilepsy, Alzheimer's Disease, Parkinson's Disease, and stroke. He also did extensive work on experimental models of cerebrovascular disorders in the laboratory to elucidate the mechanism of such conditions as focal ischemia, hyperemia, poverty and luxury perfusion, red cerebral veins, and the possible role of retrograde venous perfusion in treating acute cerebral ischemia. He was a key player in the application of fluorescein angiography for these experimental studies and for its use as well in the surgical treatment of cerebrovascular malformations. His research resulted in over 300 reports.

Lucas was a member of the International Society for Cerebral Blood Flow and Metabolism, the Society of Nuclear Medicine, and the Japanese Nuclear Medicine Society. In the Cone Laboratory at the MNI, he was instrumental in training many Japanese fellows; he not only supervised their professional training but gave them and their families much moral support during their stay in Canada. Lucas was highly regarded by these former fellows, many of whom went on to distinguished academic and clinical careers throughout Japan. Lucas enjoyed participation in many annual meetings of the Neurosurgical and Nuclear Medicine Societies of Japan. He will be remembered by his many colleagues and students as a scholar, physician and friend.

Professor Mirko Diksic, PhD and Professor Emeritus William Feindel, MD, OC, Montreal Neurological Institute, McGill University, Montreal, QC, Canada

In Memoriam; Kazuo Uemura

Kazuo Uemura, M.D
December 1934-January 2004

Dr. Kazuo Uemura, the Emeritus President of the Akita Research Institute of Brain and Blood Vessels, Akita, Japan, died on January 3, 2004. He was 69 years old. Dr. Uemura was a member of the International Society for Cerebral Blood Flow and Metabolism from its inception until his retirement in March 2000. He chaired the first BrainPET: *The Quantification of Brain Function: Tracer kinetics and image analysis using PET in 1993 in Akita, Japan*.

His group was among the first ones to widely apply the intra-carotid Xe-133 clearance method to measure regional CBF in various types of stroke patients. The results contributed to understanding the pathophysiology of cerebrovascular diseases. For example, his group was the first to describe the effect of chronic hypertension on the cerebrovascular CO_2-response. In mid 1970, his group developed a quantitative method for CBF tomography using a home-built SPECT system and continuous infusion of Kr-81m.

Dr. Uemura provided much of the inspiration behind the CBF and metabolism work carried out by his coworkers, and was a driving force stimulating the young scientists and medical doctors of his laboratory. Many of the people who worked under him are now professors and senior scientists in nuclear medicine and neuroradiology throughout Japan. He generously communicated ideas not only for his own group, but also for many friends in the neuroimaging and CBF and metabolism field around the world.

Contact: Iwao Kanno, Ph.D. (kanno@akita-noken.go.jp)