Journal of Neurochemistry

JNC

JOURNAL OF NEUROCHEMISTRY | 2009 | 109 (Suppl. 1) | 1–2 doi: 10.1111/j.1471-4159.2009.05944.x

PREFACE

The Third ISN Special Neurochemistry Conference – 8th International Meeting on Brain Energy Metabolism – 'Neurodegeneration and Regeneration'

Fig. 1 Photos over the 5 day event, including a foggy day on the Great Wall of China (centre) and Beijing opera at the banquet (bottom right).

The Third ISN (International Society for Neurochemistry) Special Neurochemistry Conference – 8th International Meeting on Brain Energy Metabolism – 'Neurodegeneration and Regeneration' was held from June 27th to July 1st, 2008 at the Fragrant Hill Hotel within former royal gardens in the picturesque scenic area of Western Hills, Beijing. Previous International Conferences on Brain Energy Metabolism were also held in beautiful surroundings, the first in Carcassonne, France, 1993 followed by Blaubeuren, Germany, 1995; Waterville Valley, NH, USA, 1997; Oxford, UK, 1999; Trondheim, Norway, 2001; Heraklion, Crete, 2004; and Lausanne, Switzerland, 2006. It was a pleasure to hold this official ISN conference in China in Beijing. It was co-organized by the Neuroscience Research Institute, Peking University, the Beijing Society for Neuroscience, and the Chinese Society for Neuroscience. Neuroscience research was initiated in China during the early 1920s by the introduction of comparative anatomy of the central nervous system. Since that time a number of Chinese neuroscientists, such as FENG Te-Pei, CHANG Hsiang-Tung, WANG Jin-Xi, and OU-YANG Zhu have made important contributions to this research field. Neuroscience underwent a period of rapid expansion in China after 1980 under the leadership of neuroscientists HAN Jisheng, YANG Xiongli, CHEN Yizheng, JU Gong, and WU Jianping. In the late 1990s, the Neuroscience Research Institute in the Chinese Academy of Sciences was established under the directorship of PU Muming and further catalyzed the progress of neuroscience research in China.

Research funding in China has increased tremendously in recent years. However, the availability of grants for supporting graduate students and junior researchers to attend meetings abroad is still extremely limited. Therefore, being able to attend an international conference and exchange research achievements and ideas with other international, outstanding neuroscientists was an exciting opportunity and essential experience for the career development of young Chinese scientists. Holding international meetings in China provides a great opportunity for them to keep abreast with the advances in their research fields. We would like to thank the ISN for sponsoring the organization of the Third ISN Special Neurochemistry Conference in Beijing, China.

This conference was attended by 311 scientists and 42 accompanying persons from 31 countries and 5 continents. Countries represented included Australia, Belarus, Canada, Chile, China, Czech Republic, Denmark, France, Germany, Greece, Hungary, India, Indonesia, Ireland, Israel, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Thailand, UK, and the USA. Three outstanding and

thought provoking keynote talks of particular memory were presented during the meeting. Mary C. McKenna spoke on 'Changing concepts in brain energy metabolism'; Philip G. Haydon on 'Astrocytic purines regulate sleep homeostasis and memory loss following sleep deprivation'; and Yi Rao on the 'Molecular biology of social interactions.'

The 5 days of sessions included 48 speakers and many special guests covering a wide range of topics in the field of brain energy metabolism (please refer to http://www.isnbeijing2008.org for details). They were on timely and controversial topics including glucose and lactate as substrates in neurotransmission, glycogen in brain, imaging and NMR studies of brain metabolism and neurotransmitter synthesis, cellular and subcellular localization and regulation of metabolic shuttle mechanisms, tripartite synapse and receptor mediated metabolism, mitochondrial function and dysfunction, microglia and oligodendrocytes in neurodegeneration, ammonia metabolism and toxicity, metabolic underpinnings of epilepsy, degeneration and regeneration, mechanisms of neuroprotection and were all subsequently followed by many lively discussions. Eleven students from seven countries had the opportunity to make their own contributions and gave outstanding presentations in the student data blitz session. The selection committee was quite impressed by the quality of the student abstracts and this made the selection process very competitive. Two poster sessions were also held and contained an impressive group of 137 posters of which about 30% were presented by student participants.

The conference began with a discussion on glucose, pyruvate, lactate, glutamate, glutamine, and glycogen as metabolic substrates for cells in the CNS with data from both *in vitro* and *in vivo* models collected by direct content determination and NMR studies. Thus, leading on to the profoundly important question whether these substrates, or metabolites, move among brain cell types through diffusion, gap junctions, and/or from one cell to another. Gliotransmission was a topic discussed with much interest. Particularly with regards to glutamate release and the ability of astrocyte released ATP to be converted to adenosine which induces sleep in intact animals. Epilepsy and drug development including the ketogenic diet and abnormalities in glucose metabolism were discussed. The following many topics related to neurodegeneration were also discussed: the roles of reactive oxygen species, calcium, mitochondria fission and fusion, and NADP oxidase in neurodegenerative processes; microglia, Tau, and oxidative stress in Alzheimer's disease; glutamate dehydrogenase variant in Parkinson's disease; transglutaminase in Huntington's disease; and HP012 isolated from traditional Chinese medical plants in spinal cord injury. Ischemia-related topics included oligodendrocytic and myelin damage by glutamate; the protective roles of CD36, 14-3-3 gamma, inhibition of cAMP-activated protein kinases and new neuron formation. All the talks presented offered the most up to date insight into brain energy metabolism and in depth analysis with many outstanding specialists.

We extend our gratitude to the members of the program committee Arne Schousboe (Chair, Denmark), Piu Chan (China), Gerald A. Dienel (USA), Rolf Gruetter (Switzerland), Susan Hutson (USA), Mary C. McKenna (USA), Andreas Plaitakis (Greece), Ursula Sonnewald (Norway), Helle S. Waagepetersen (Denmark), and Albert C. H. Yu (China) for putting together an excellent program. As well as the members of the local organizing committee CHEN Jian Guo (Chair), WAN You, CHEN Xiao Qian, CUI De Hua, FAN Ming, JIANG Yu Wu, LAU Lok Ting, WANG Yun, WU Bing Yi, XU Qun Yuan, XU Xian Hao, and ZHAO Ji Zong for their efforts in making the delegates feel welcome. The closing banquet was a combination of wonderful food, very colorful traditional Chinese entertainment, and gracious hospitality received numerous appraisals and was enjoyed by all of the attendees. To create a higher impact of this ISN conference to the future development of neurochemistry in China, the speakers were introduced and spoke to Chinese high school students and teachers through a Chinese popular science web site: http://www.dnaq.cn/isn/index.html.

This special issue is composed of manuscripts from many of the invited speakers who participated in this conference. Due to the limitation in page number, we are not able to include all the works presented in the conference as original papers. Therefore, we also included the abstracts presented in this conference at the end of this volume except those who submitted their work as manuscripts. All of the participants are looking forward to the 9th International Conference on Brain Energy Metabolism that will be held in Budapest, Hungary 2010. We hope to see everyone there for another highly stimulating and interactive meeting.

Albert Cheung Hoi Yu,* Mary McKenna† and Arne Schousboe‡

*Neuroscience Research Institute, Peking University, Peking, Beijing, China
†Department of Pediatrics, University of Maryland School of Medicine, Baltimore, Maryland, USA
‡Department of Pharmacology and Pharmacotherapy, Neurobiology, University of Copenhagen, Copenhagen, Denmark

All authors declare no conflicts of interests.

