Experimental Pathological Pain:

from Molecules to Brain Functions

（实验病理性痛：从分子到脑功能）

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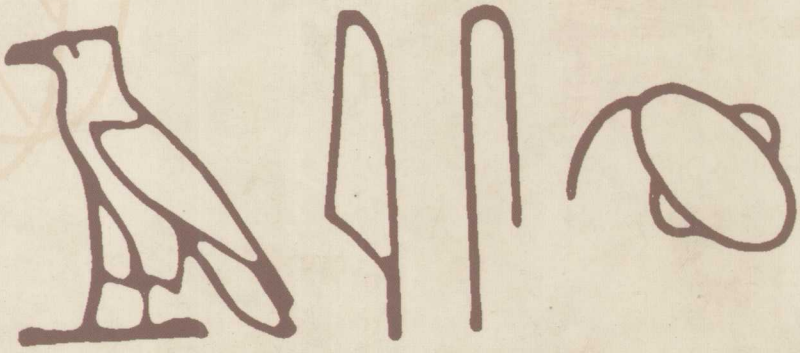

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Foreword I

This book is based on the proceedings of a Symposium on the "International Advanced Workshop on Brain/Pain Research: from Molecules to Mind" held from April 30 to May 2, 2001 in Xi'an, China. The Symposium brought together an international group of renowned basic scientists and clinical investigators actively involved in research of the mechanisms underlying pain.

The Symposium provided an opportunity for Chinese scientists and clinicians to learn from international colleagues, as well as the participants from overseas to gain first-hand insights into the many recent scientific, and social advances in the People's Republic of China. Oral presentations reviewed recent advances in the field, while poster presentations dealt with the latest specific research results. Thus, the papers in this book will help readers to obtain an overview of our current understanding of pain, with an emphasis on recent advances and future research directions. The Symposium and this book are indeed very much in accordance with the guiding principles of the International Association for the Study of Pain, which are principally to foster pain research, management, education and communication. The Symposium indeed was co-sponsored by the China Chapter of IASP, and as President of IASP, I had the pleasure of being one of the participants.

While the book gives in-depth coverage of the topics presented at the Symposium, it cannot adequately convey the social and cultural activities and insights that the Symposium provided for the participants. The scientific programme allowed for much fruitful interaction, but the organizers also arranged a wonderful social and touristisc programme giving many memorable experiences as well as opportunities for participants from the People's Republic of China and the international speakers to interact less formally and learn from each other. Drs. Jun Chen and Andrew Chen are to be congratulated for organizing such a successful Symposium and book.

I hope that the readers of this book will enjoy and learn from its contents as much as I enjoyed participating in and learning from this important Symposium.

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Foreword II

The opening of the International Advanced Workshop on Brain/Pain Research and the International Workshop on Brain Mapping and Neuro-modulation in Xi'an in the April of 2001 was a great event of pain and brain research in the beginning of the new century in China. Since 1989, the China Chapter of the International Association for the Study of Pain (CASP) has set up a serial international pain meetings entitled "East and West Pain Conference" to be held every 3-4 years, devoting to the exchange of information on pain research and pain management between China and Asian countries and the rest of the world, with the latest (the 4th) one being held in Beijing in 2000. I am happy that in between the 4th and the 5th East and West Pain Conference, we are able to sponsor another pain meeting with more emphasis on theoretical aspects, especially on brain mapping and cognitive sciences, which are certainly very important aspects in pain research today. In fact some of the presentations are dealing with brain functions other than pain, which is also very welcome by the pain researchers who are eager to learn from colleagues of other disciplines. The formal publication of the contents of the presentations will certainly benefit not only members of the CASP, but also pain researchers as well as neuroscientists in China.

As president of the CASP, I would like to express my deepest gratitude to Prof. Jun Chen and Prof. Andrew CN Chen, who have put enormous efforts to make this symposium a very successful one, and also to edit the contents in a comprehensive book. I sincerely hope that this will serve as a good sign of the boom of pain research in the "Decade of Pain Control and Research" in China.

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Preface

In the first spring of the new century and millennium, an important international joint scientific meeting associated with brain and pain research was successfully held in Xi'an, the ancient capital city of 13 dynasties in China. The meeting was composed of an "International Advanced Workshop on Brain/Pain Research: from Molecules to Mind" (BPR) (April 30 to May 1, 2001) and an "International Pre-Workshop on Brain Mapping and Neuromodulation" (BMN) (April 28 - 29, 2001). The meeting was co-organized by the K. K. Leung Brain Research Center at the FMMU, China and the International Doctoral School in Biomedical Sciences and Engineering, Aalborg University, Denmark.

The theme of the Xi'an international meeting was: "21st Century: New Era of Brain & Pain Research". This will be in conformity with the resolution declaring the decade beginning January 1, 2001 as the "Decade of Pain Control and Research" passed by the 106th Congress of the United States (IASP Newsletter, Issue 2, 2001), which just followed the "Decade of the Brain". With the increased media and other attention that such a declaration brings, it represents an important opportunity to bring pain research and management to the forefront of the medical community and to the general public.

We were truely satisfied with what actually happened at the Xi'an meeting. The two Xi'an Brain/Pain workshops attracted a total of 270 participants from both western countries and China. It was a grand gathering of neuroscientists, pain researchers, as well as R&D representatives of pharmaceutical industry and medical device makers. The 4-day program of the Xi'an meeting was well formed and it included 15 invited lectures at the BPR Workshop and 11 invited lectures at the BMN pre-workshop. Additionally, the meeting also had nearly 40 poster presentations. The program of the BPR Workshop was formed by a 2-day advanced and updated plenary lecture course associated with (1) Functional plasticity of nociceptors, spinal cord and brain, (2) Experimental pharmacology and analgesia, (3) Experimental induction and neuroimaging of human pain, (4) Cellular basis and neuroimaging of acupuncture analgesia, and (5) Open discussion on east-west and perspectives of pain research. The BMN Pre-Workshop mainly introduced two aspects of advanced technologies: (1) EEG/ERP, MEG/MEF and optic tomographic imaging systems in recording, mapping, and source analysis of human brain processes in laboratories and clinics, and (2) Neuromodulation in the regulation of brain and bodily function and dysfunction. The program of the two Xi'an workshops was highly appreciated by all participants. In particular, each

lecture given by the invited speakers was as long as one hour, which made the program contents and the discussion much more comprehensive and informative.

The successful organization and opening of these two wonderful workshops would have great significance in the history of Chinese brain and pain research and act as a bridge for international scientific and technological cooperations and communications between China and western countries. The two Xi'an workshops would also play a role in bridging the gap between Chinese brain/pain researchers/clinicians and international world-leading pharmaceutical industry/medical device makers.

To meet the requirement of Chinese brain/pain researchers, clinicians and students who are interested in pain research and management, we invited each distinguished speakers and some poster presenters to contribute 22 chapters to form this book: "*Experimental Pathological Pain: from Molecules to Brain Functions*". With formal publication and circulation of this book over the country, the influence of the Xi'an international meeting will be further widened.

The book is mostly based on the Xi'an workshops and composed of four parts: (1) Part I Neurobiology of pathological pain (chapter 1-11); (2) Part II Neuromodulation of pathological pain and motor dysfunctions (chapter 12-17); and (3) Neuroimaging of experimental human pain (chapter 18-22).

Finally, we are grateful to the authors for their strong supports and important contributions to the successful formation of this book. We also want to extend our special thanks to Prof. Barry J. Sessle, the president of International Association of Pain (IASP) and Prof. Ji-Sheng Han, the president of China Chapter of the IASP (CASP), for their wonderful forewords to this book.

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