

Preface: Molecular Approaches of Chinese Medicine

Scientific research on traditional Chinese medicine (TCM) is not nearly as well developed as Western medicine and biology. TCM has traditionally been a form of experience-based medicine. Therefore, research on its efficacy and mechanisms of action has long been neglected. It was only recently that scientists inside and outside of China started to apply scientific methods to analyze TCM. Hence, it does not come as a surprise that there are still considerable gaps in the scientific understanding of TCM. In my opinion, there are important reasons for filling these gaps.

Natural medicines may provide valuable resources to meet the need for global health care at affordable prices. This is also illustrated by the fact that many health care systems, especially in developing and Third World countries, cannot afford the costs. The availability of sophisticated therapies developed by high-tech medical and pharmaceutical research in industrialized countries will be more and more restricted to the rich elites in society. On the other hand, traditional medicines have been developed in almost all cultures worldwide. Since ancient times, these natural medicines have been used without rigorous scientific control and without the tremendous development costs for drugs, which challenge pharmaceutical companies. As a consequence, the vast majority of the world population with insufficient access to modern drugs still relies on natural medicines. More than 21,000 plant species are used worldwide in herbal medicines, as compiled by the World Health Organization. It has been questioned whether or not the synthetic drug pipeline in

the pharmaceutical industry is running out of candidates. During the past two decades, the costs for the development of a novel drug have increased tremendously. In parallel, the number of drugs with acceptable toxicities has been decreasing. Therefore, the pharmaceutical industry is focusing on novel technologies (such as genomic and bioinformatical methods) and the development of macromolecular drugs (therapeutic antibodies, proteins and peptides).

TCM is one of the most experienced and well-known natural medicine systems and attracts public interest. In 2005, the export value of TCM was about € 11 billion, accounting for one quarter of the overall exports of China's medical industry.

From October 3rd to 7th 2011, a symposium and workshop, "Scientific Approaches to Chinese Medicine," was held in Hamburg, Germany, at the HanseMercur Center for TCM (HMZ-TCM). It was organized by the German-Chinese Society for TCM (DCFG-TCM). The event was essentially sponsored by the Chinese-German Center for Promotion of Sciences (CDZ) and the HanseMercur Insurance Group.

A crystallization point for the organization of the conference was the DCFG-TCM. This association was established in 2006 with the aim of bringing Chinese and German scientists together to cooperate, pursue, and promote basic-scientific, interdisciplinary research on TCM and its applications in medicine. The DCFG-TCM promotes molecular and cellular, biochemical, and physiological research as well as investigations on humans that help

to elucidate and understand the mechanisms of TCM.

The symposium was hosted by the newly founded HanseMercur Center for Traditional Chinese Medicine at the University Medical Center Hamburg-Eppendorf. The center was founded in July 2010. For the first time in Germany, a center is completely devoted to TCM and unites research, training, and therapy under a single roof. The research approach ensures compatibility with the natural sciences, foreseeing the application of cytobiological, molecular biological, and biochemical methods.

The lectures of the symposium covered a broad range of TCM. Systems-biological concepts of TCM, physiological, biochemical, and biophysical basic aspects in applications of Chinese medicine, including acupuncture and herbal therapies, were discussed. The invited lecturers came from Germany, China, Hong Kong, Austria, and the Netherlands.

An important goal of this conference was to bring scientists and physicians from China and Germany together. Western medicine and science on the one hand and TCM on the other

hand have divergent traditions, each finding it difficult to understand the scientific language of the other partner. These intercultural barriers were at least partially broken down at the symposium, since all participants had a strong interest on the same topic, i.e., TCM. Another goal was to initiate excellent joint collaboration projects in research, but also to establish new and more TCM treatment modalities and possibilities in Germany. The integration of TCM in Western medicine may combine the best of both worlds in a “one world medicine.”

The current special issue of *Forum on Immunopathological Diseases and Therapeutics* highlights some important aspects of the symposium. It was fortunate that we gathered together a series of interesting articles on the scientific approaches to Chinese medicine.

Guest Editor:

Professor Dr. Thomas Efferth

Department of Pharmaceutical Biology
Institute of Pharmacy and Biochemistry
Johannes Gutenberg University,
Mainz, Germany



**GUEST EDITOR
PROFESSOR DR. THOMAS EFFERTH**

Thomas Efferth is Professor and chair of the Department of Pharmaceutical Biology, Institute of Pharmacy and Biochemistry, Johannes Gutenberg University, Mainz, Germany. He is a biologist by training and obtained his degree from the Technical University of Darmstadt, Germany. He completed his doctoral thesis at the German Cancer Research Center, Heidelberg, Germany, in 1990. Dr. Efferth was awarded the Ludolf Krehl Prize of the Southwest German Association for Medicine in 1991, the Willmar Schwabe Award of the German Society for Medicinal Plant Research in 2006, and the CESAR Award for Translational Oncology in 2011. From 2005 to 2009 he headed a research group for pharmaceutical biology at the German Cancer Research Center, Heidelberg, Germany. From 2007 to 2009 he was associate professor (apl) at the University of Heidelberg. In 2009, he accepted the chair and professorship of Pharmaceutical Biology at the Johannes Gutenberg University, Mainz. He is honorary professor at the Northeast Forestry University, Harbin, China, and visiting professor at the Zhejiang Chinese Medical University, Hangzhou, China. He has published over 200 original papers and over 80 reviews in peer-reviewed journals in cancer research, pharmacology, pharmacogenomics, and natural products.