

A rising star: pharmacological development in China

Joanna Schaffhausen (Editor)

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The pharmaceutical industry in China has been expanding at a rapid pace – by more than 20% annually in recent years, compared with a more modest growth of 4–5% in the USA and EU – and China is committed to sustaining this blistering growth. Biotechnology features prominently in China's 12th Five-Year Plan that is meant to guide economic and social strategy between 2011 and 2015. At the unveiling of the plan, Chinese State Councilor Liu Yandong said China plans to spend more than \$300 billion to further develop its science and technology, especially biotechnology. This commitment, along with other ongoing efforts to modernize the pharmaceutical and healthcare industries, has made China a rising player on the global pharma stage. Some of the advantages of drug development in China include the presence of experienced researchers and engineers, a lower cost base compared with other countries, and committed support from the government to increase R&D capabilities and improve the intellectual property environment. Its large population is well suited for clinical trials because many patients are treatment-naïve.

However, some key challenges remain for China. It has less experience with clinical trials than some of its neighbors, notably India. The healthcare industry, although improving, still faces problems with infrastructure and resources. Some high-profile incidents (e.g., the heparin contamination in 2008 that killed 95 people in the USA and the counterfeit diabetes drugs that led to two deaths in the province of Xinjiang) highlight concerns about quality

control in pharmaceutical manufacturing. China is aware of these issues and is working to address problems. For example, the State Food and Drug Administration recently announced a 6-month campaign to crack down on illegal online drug sales and the sale of counterfeit traditional Chinese medicine (TCM).

In this issue of *Trends in Pharmacological Sciences (TiPS)*, we are pleased to begin a series of articles that focus on topics that are important to China and, thus, to the greater pharmacological community. The articles will run one per month over the next several issues. These reviews, written by leading Chinese researchers, illustrate some key trends in diverse areas of pharmacology, including new tools to study compound chemicals and development of targeted therapies. We will also feature several pieces examining China's ongoing modernization of the study of TCM and the lessons that can be learned from these efforts. As we launch this month, we are delighted to bring you a perspective piece on the development of pharmacology in China, written by *TiPS* Editorial Board Member Ming-Wei Wang with his colleagues Richard D. Ye and Yizhun Zhu. In addition, we invite you to learn more on computational methods for drug design and discovery, especially as they have been applied in China, with a review article from Hualiang Jiang and colleagues.

TiPS wishes to thank Ming-Wei Wang for his invaluable help in designing this special series of articles. We hope you as readers will enjoy the results.