

CAPITALIZING ON CHINA-BASED RESEARCH AND DEVELOPMENT

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Here we profile the Guangzhou Institute of Biomedicine and Health (GIBH), which was created to improve public health by promoting technology-driven innovation and international collaboration in biomedical research. GIBH is designed to be a “translational highway from bench to clinic”, focusing on the early stages of pharmaceutical discovery and development and partnering with other entities to bring lab discoveries to the clinic.

An Urgent Call to Action

The first major infectious disease of the 21st century arose in February 2003. Originally identified as an “atypical pneumonia”, it originated in Guangdong Province, China. In March 2003, the disease was renamed Severe Acute Respiratory Syndrome or SARS (1). Although SARS claimed 812 lives, unprecedented international cooperation enabled containment of SARS in less than four months.

SARS illustrated the importance of international cooperation and responsive research efforts in containing newly emerging infectious diseases. Furthermore, scientists and officials in the Peoples Republic of China realized that China needed to become an integral part of these international efforts. This involvement would require creating modern facilities for handling dangerous disease agents, building state-of-the-art laboratories, and producing well trained scientists to contribute to the continued improvement of human health (2). The Chinese Academy of Sciences and the governments of Guangdong Province and its capital city, Guangzhou, organized to raise the equivalent of 36 million U.S. dollars to establish the Guangzhou Institute of Biomedicine and Health (GIBH) to serve as a base of international cooperation in health research.

The Guangzhou Institute of Biomedicine and Health (GIBH)

GIBH is charged with taking disease-focused research discoveries from the lab bench directly to the improvement of human health and social wealth worldwide. According to Dr. Ling Chen, Director General of GIBH, his job comes with huge responsibility, and he states that he is continually mindful of his responsibility to the Chinese taxpayer. He also recognizes the opportunity that GIBH has to contribute to human health beyond China through collaborations with public and private research efforts around the world.

The work at GIBH will focus on the early stages of drug discovery, elucidating disease mechanisms, validating targets for new therapeutics and identifying lead compounds. GIBH hopes to partner with international biotechnology and pharmaceutical companies to take these lead compounds into preclinical and clinical studies. Currently the center is working in four disease-focused research areas. In the area



The Guangzhou Institute of Biomedicine and Health in Guangdong Province. GIBH is located in the city of Guangzhou (formerly known as Canton) in Guangdong Province of southern China. Guangzhou is a city of 10 million people and will be home to the 2010 Asia Games.

of infectious disease, the center is working on an adenovirus vaccine for HIV. They are also investigating influenza, hepatitis and SARS. In the area of cancer, they are investigating kinase targets and small-molecule kinase inhibitors that have therapeutic potential. GIBH is investigating natural product drugs for the treatment of metabolic (obesity, diabetes) and cardiovascular (thrombosis, atherosclerosis) diseases.

China-Based Research and Development

Capitalizing on China's Strengths

China has many features that make it an excellent place for biomedical research. It represents a growing market with a large number of patients of diverse backgrounds. China has a rich history of traditional medicine and a huge resource of natural products that will be investigated by GIBH.

Additionally, China is training many new scientists and is increasing research and development capital and improving protections on intellectual property. Non-human primate models for preclinical testing are native to the Guangdong Province, and GIBH is collaborating to establish a Non-Human Primate Center for Biomedical Research and Service that will meet international quality standards. Furthermore, the government investment in biomedical research and development is expected to triple over the next five years.

Another strength that China has is thousands of years of tradition in experience-based medicine. The challenge for GIBH is to extract the truly effective compounds from the mixture of traditional, experience-based Chinese medicines and natural products and use modern technologies to give this ancient wisdom a new life.

Guiding Business Collaboration and Research at the International Level

Leading GIBH and promoting the collaborative international efforts necessary for a successful venture requires a person with international experience, an inherent understanding of China, and both business and academic research experience. When the international search committee looked for someone to serve as Director General of GIBH, they chose Dr. Ling Chen.

Dr. Chen originally received his M.D. from Shanghai Medical College. In 1985, he was one of 50 students to participate in CUSBEA (China-United States Biochemistry Examination and Application Program). He studied at Indiana University where he received his Ph.D. in Biochemistry and Molecular Biology; Dr. Chen followed his graduate education with postdoctoral research at Harvard University Medical School and the Dana-Farber Cancer Institute. He later entered industry as a senior research fellow at Merck & Co., Inc., where he directed genomic research efforts and research in cancer gene therapy. At Merck, Dr. Chen led the development of an HIV vaccine that is now in phase II clinical trials in 18 countries. After leaving Merck Pharmaceuticals, Dr. Chen became the founding director of the Department of Biotherapeutics at Lexicon Genetics, Inc., where he focused on identifying gene function and developing protein drugs based on genomic targets. He is widely published in the peer-reviewed literature, including papers in *Nature*, the *Journal of Clinical Investigation*, *Journal of Virology* and *Cancer Research*.

Dr. Chen's interest in science as a tool for improving quality of life and health developed early. Because of his mother's work

as a pathologist, he was immersed in biomedicine from his earliest days. During an internship after completing his medical degree in Shanghai, he realized that doctors save one patient at a time, but that he wanted to make progress for human health on a more global level. This passion for improving health through science drives his efforts to make GIBH as successful as possible in reaching its goal of developing better cures and more affordable medicine for all people. Even today, Dr. Chen's favorite part of his role as Director General at GIBH is the time he gets to spend guiding the scientists and students in his laboratory, keeping him involved in leading-edge research, even as he is immersed in the day-to-day activities of guiding the entire institute.

Dr. Chen's international experience, education in the U.S. and China, and his extensive experience in both the academic and the industrial research laboratory provide important perspective for guiding the development of the GIBH. In the two years since being named as Director General of GIBH, Dr. Chen has recruited 40 internationally trained Ph.D. scientists to GIBH, who come from both industrial and academic settings. He also helped to create an International Scientific Advisory Board of independent, highly regarded international scientists to guide the work of GIBH. This year GIBH also has approximately 50 graduate students beginning their training at the institute. The hope is that GIBH can combine the best of both the academic and industrial worlds: the out-of-the-box thinking of academia and the practical, business sense of industry, as well as the best of both the eastern and western philosophies of education, research and resources to produce a superior resource for translational biomedical research.

References

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