Interview: Dr. Christopher Cheng – Managing Director, Hong Kong Institute of Biotechnology (HKIB)



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Professor Cheng, managing director of the Hong Kong Institute of Biotechnology, introduces the organization's mission to improve development of biotechnology and traditional Chinese medicine sectors as well as the main challenges ahead.

What is the mandate of the Hong Kong Institute of Biotechnology (HKIB)?

HKIB was first established in 1988 by Sir Charles K. Kao, then-Vice-Chancellor of the Chinese University of Hong Kong (CUHK). He is known as the 'Father of Fiber Optics' and was jointly awarded the 2009 Nobel Prize for Physics for groundbreaking achievements concerning the transmission of light in fibers for optical communication. What was visionary about him was that despite having not much training in biology, he made the decision to set up HKIB in order to promote the growth of a biotech industry in Hong Kong.

We were then the first and only biotech organization in Hong Kong. Our mission statement was – and continues to be – to provide the catalyst and the essential infrastructure for the development of biotechnology and Chinese medicine industries in Hong Kong. The intention is to channel R&D, from CUHK as well as other institutions in Hong Kong, into industry by facilitating product development and commercialization. Since this is a lengthy process, and as a small institute we cannot do everything so we are more focused on a small number of areas: process development, production formulation and quality control (QC) – areas not traditionally overseen by the

universities. We are therefore filling this mid- to downstream gap in product development.

We received a donation from the Hong Kong Jockey Cub Charities Trust in the beginning to help us get started. They have continued to support us since then and we have also received support from the Innovation and Technology Commission (ITC). We are regarded as a research institute by CUHK and a few years ago, ITC appointed us as one of the designated local research institutes, meaning that we are eligible for certain ITC grants.

HKIB is also entirely self-financed. While we are a company incorporated under CUHK, which is a public university, CUHK is not permitted to use public funds to run companies, so as managing director, a main responsibility is to manage the financial sustainability of the institute. We currently have around 60 employees at HKIB.

With such a broad mandate covering both biotech and Chinese medicines, how is HKIB structured?

There are four functional units under HKIB: a biotech incubator, biologics, GMP consultation and Traditional Chinese Medicine (TCM). The biotech incubator was established in 1996 to provide start-ups with the essential services, equipment and support to facilitate their development. The biologics unit offers both upstream research and downstream production services that meet the standards required for clinical trials. Through our GMP consultation services unit, we also offer GMP implementation, support and advisory services, from things like feasibility studies, hardware support and training programs. Finally, our TCM unit offers a GMP production facility as well as contract manufacturing, analytical and product registration services.

The two key priorities for us now are GMP TCM production and the conduct of clinical trials. We have been very supportive of GMP development in Hong Kong. 2017 is the year the generics drug industry in Hong Kong has achieved PICS GMP standards and we are proud to have supported this through the provision of training courses. It is notable because we are the only public GMP TCM facility in Hong Kong so we can serve the needs of both local industry as well as academia. With the latter, we are crucial in the provision of GMP-certified materials for researchers looking to conduct TCM clinical trials. For this reason, we are now in the process of expanding our existing TCM GMP facility and recently, we received funding of over HKD 30 million – jointly from ITC and the Jockey Club – for this purpose.

What have been the challenges when it comes to developing an indigenous biotech industry in Hong Kong?

[Featured_in]

HKIB was perhaps the first institute established in Hong Kong focusing specifically on the development and commercialization of new products. The main challenge is perhaps something not peculiar to Hong Kong, but the issue is rather pronounced here. Hong Kong has very good universities but their focus has traditionally been on basic research. Like in any other places, universities strive for excellence in global academic rankings. In Hong Kong, the University Grants Council (UGC) has therefore placed a lot of emphasis on research output, which means that university administrators are under tremendous pressure to maximize that, which trickles down to the professors and research graduates and so on. The so-called KPIs for professor evaluation were the quality and quantity of publications as well as research grants awarded, meaning that it does not pay for academics, especially young untenured academics, to invest time and effort into translational research. In order to advance in their careers, they would need to focus on their academic pursuits.

What is positive is that we are seeing some change now. In the most recent research assessment exercise, the new yardstick of ‘societal impact’ was added. This is particularly relevant to the field of traditional Chinese medicine (TCM) because TCM research will be difficult to make it into first tier international publications such as Nature or Science, but it nonetheless has a huge impact on society!

Talking specifically about traditional Chinese medicine (TCM), what makes the development of this field particularly relevant for Hong Kong?

For local development, I strongly believe that you have to look at the relative strengths of each region. For an industry to be commercially viable and sustainable, it needs to be based on something already established and rooted in its own ecosystem – particularly as we are a small economy with only 7-8 million people. Money would be better spent if we can build from an existing business.

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TCM is an example of an indigenous industry rooted in Hong Kong that could generate significant returns on investment. For instance, Hong Kong has one of the best healthcare systems in the world. It is very systematic and the mainstream healthcare practitioners are well trained in Western medicine. All medical documents in the hospital system in Hong Kong are in English and conform to the standards of Western medical practice. Perhaps the only other place in Asia that can say the same is Singapore. At the same time, we have close connections with mainland China and an

affinity for TCM, which is also very well-established in Hong Kong. There are three schools of Chinese medicine in Hong Kong at the Chinese University of Hong Kong (CUHK), the University of Hong Kong (HKU) and Hong Kong Baptist University (HKBU). Furthermore, these schools are now attracting more and more young people these days. Previously, when I see a herbalist, I would expect to see an old man practicing TCM! Today there are a lot more young people entering in the industry, which is encouraging. The Hong Kong government has also decided to establish a new Chinese medicine hospital. Already, under CUHK's teaching hospital, Prince of Wales Hospital, there is the Institute of Integrated Medicine that looks to treat patients holistically with both the Western and TCM approaches. The fact is that there are certain limits in Western medicine and the Institute is exploring the possibilities of integrated medicine to see if some areas of Chinese medicine can supplement Western medical practice – safely and ethically, of course.

There are four principal components when it comes to the integration of Western and Chinese medicines. The first is to put herbal medicine on an evidence-based approach. Secondly, it is to identify the active ingredients used in TCM, which requires a lot of translational research. Thirdly, it is with the conduct of clinical trials for TCM, which is well-suited to Hong Kong because we have a high-quality and reputable clinical trials environment. Finally, it is GMP TCM production. This is something I am pushing for: today, there are over 10 GMP TCM facilities but HKIB was the first and continues to be the only public facility offering GMP TCM manufacturing services. At the moment, GMP manufacturing is not mandatory for the TCM industry in Hong Kong but the government is looking into the possibility of introducing this regulatory requirement in the future.

Finally, the TCM industry is already thriving in Hong Kong. Many people are either directly or indirectly employed by the TCM industry along the entire value chain, so its commercial viability has already been proven.

As a result of the established Western medical practices, Hong Kong can play a role in fostering convergence between Western medicine and TCM because we understand the need to bring an evidence-based approach to TCM. Hong Kong sits at the heart of East and West so I believe it is the best place to put Chinese medicine on an evidence-based approach.

On a more personal note, given your long and distinguished career in your field, what is your proudest achievement so far?

This is a very big question! If you ask me to name just one thing, I would say the most important achievement I have made in my career is the training of so many young people, from both Hong Kong and mainland China, who have subsequently gone on to contribute fruitfully to both academia and industry.

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