Interview: William Yim â?? Executive Chairman and CTO ; Kelvin Chiu â?? CEO, Sanwa Biotech, Hong Kong

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William Yim and Kelvin Chiu of Sanwa Biotech discuss their innovative companyâ??s impressive growth and the environment for biotech start-up companies in Hong Kong.

Despite only having been founded five years ago in 2012, Sanwa BioTech has seen tremendous progress. Can you highlight some of the main development milestones?

Five years ago, we became acquainted with this technology known as the â??microfluidic lab-on-chip systemâ?•, which is a technology that integrates one or more laboratory functions onto a single, tiny chip handling extremely small fluid volumes. We saw this potential and decided to focus on a particular healthcare application: Point-Of-Care Testing (POCT). With our two strong R&D departments, Life Science and Engineering, which are respectively led by Kelvin Chiu, CEO, and William Yim, President and CTO, we developed a portable rapid diagnostic platform that can perform diagnostic tests in 15-20 minutes.

Our product comprises of three components: our Array-based LED-induced fluorescence ImmunoAssay platform (ALiA) device, single-use bio-chip, and biomarker array for the diseases you want to test for. This test platform is based on a well-established antigen-antibody proteomics, a protein-based immuno-assay with a â??key to keyholeâ?? mechanism, which is well-proven and easily adapted to various diseases diagnosis and screening. Therefore, our product model is tuned for personalized care on a specific POCT needs, and operates more like an espresso machine: the

technology is set but there are different â??flavorsâ?•.

Initially, we had collaborative R&D projects with the Nano Advanced Materials Institute (NAMI) in Hong Kong as well as an overseas institute, realizing our first prototype in 2014. The prototype was showcased in BIO San Diego convention that year. We also performed our first public feasibility demonstration on avian flu in 2014, before moving on to prototype 2.0 in 2015. In 2015 and 2016, we were fortunate to win a number of accolades for our product, including a prestigious Gold Medal from the 44th International Exhibition of Inventions Geneva in 2016. Hong Kong won three big prizes at that convention and we were one of them. Shortly after, we completed our Series A investment round.

Our current focus is to continue our developmental roadmap. We want to obtain the regulatory certificate for our production facilities and move on to product realization and commercialization.

What is the innovation behind your product?

Fundamentally, we are targeting time-critical and life-threatening illness and our goal is to make their diagnosis simple, mobile, and rapid. We want to simplify the high-tech, high-quality, high-throughput laboratory testing process that can be brought to the frontline, and user friendly that can be used by healthcare provider.

POCT diagnostics is a trend that has emerged and gained momentum in the past five years, promoted mainly by physicians & healthcare policymakers that appreciate the value in allowing healthcare providers to make more informed decisions while keeping costs low. To this date, many traditional diagnostics industry players have scrambled to develop or acquire similar technologies, with recent robust market M&A activity attesting to this trend. Outside of Western industrial markets, Chinese health authorities have also recognized POC diagnostics as a significant life-saving trend that is complementary with the traditional laboratory diagnostic practice, and are accordingly promoting research and investment into this platform. In summary, these aggregated developmental trends reinforce the strategic importance and future potential of personalized POCT diagnostics.

Similarly, microfluidic chips have been a hot topic for many years, but we have not really seen many successful product launches in the market. Oftentimes, this limits its use to the academic R&D setting. In order to make it viable for commercial and/or clinical usage, we had to develop a fully integrated system on a very small scale that was still versatile enough to adapt to multiple different applications. Furthermore, we are offering complex, protein-based multiplex diagnoses, which requires stringent risk management control as well as regulatory standards at both national and international level, which further increases the commercialization barrier.

Given the wide-ranging applications of your rapid POC diagnostics platform, which markets will you be targeting?

We are undertaking a multi-pronged approach. On the clinical side, we are first targeting two main products: multiplex respiratory diseases panel, and tropical disease panel There are more in the pipeline but these are our two priorities for now.

We are also looking at the non-clinical market through our veterinary disease panels for pets. In addition, we are designing products for food safety testing.

While working on all these in parallel requires more effort and work, we believe the synergies between these developmental paths outweigh the negatives. Lessons we learn from our non-clinical development and launch can be applied to the clinical side. The non-clinical sector is also less stringently regulated so we expect market launch and therefore revenue generation to happen

earlier.

The diagnostics market has often been segmented into two sections, with high-volume but low-price testings, typically in less developed countries, on one side, and the high-margin but low-volume personalized healthcare market in more developed countries, on the other. Where will Sanwa Biotech be seeking to position itself?

What is interesting about Sanwa Biotech is that we see huge potential in both the personalized healthcare market and the low price high volume market. Traditional diagnostics companies might consider these two separately because of their particular business environment, but the healthcare systems and needs in various regions are very different. GDP-wealthy countries in Asia like Hong Kong or Singapore, as well as some of the larger and more affluent European cities, are markets with greater potential for personalized diagnostics and healthcare in general, with consumers that have a higher WTP (willingness to pay) for personalized service and lower price-sensitivity on a diagnostics test. The problem is with the market depth â?? there are not enough potential consumers.

In major Chinese cities, however, particularly the more developed and affluent coastal cities, you can find the best of both worlds: a highly health-conscious, price-insensitive upper-middle-class consumer base that often flies to Hong Kong or foreign cities for health check-ups and medical services â?? a potential â??high-premiumsâ?? and â??high volumeâ?? consumer base! For example, our preliminary market study shows that a major Chinese cityâ??s rapid flu diagnostic market size may rival countries in Southeast Asia. There are diagnostics companies based in southern China that are only catering to conventional testings for one or two diseases in that region, already striving to keep up with the demand from the millions of testings demanded annually.

Our focus has always been on the Asian market, which will keep us busy. Nevertheless, we are also open to partnering with American & European companies to open up foreign markets.

How would you assess the strengths and weaknesses of the biotech start-up environment in Hong Kong?

No country is perfect. There are many other cities offer a thriving ecosystem, competitive policies and support for technology start-ups. However, Hong Kong has its own uniqueness & strengths as well. For instance, we have a world class business friendly environment and a robust intellectual property (IP) rights protection framework under an internationally well received and efficient governance. Culturally, we are known for our strong working ethic and highly efficient, detail-oriented workforce and talents, which are critical for an innovative, technology based startupâ??s success. The good food and sub-tropical island identity certainly helps with talent retention, especially for foreign talent recruitment.

Hong Kong is renowned as a global financial hub and our stock market is internationally well-received with close links to Western capital markets. That said, one disadvantage is that while there is a lot of money here, Hong Kongâ??s investment culture has traditionally been focused on the financial and real estate sectors, which have very different investment perspectives, expectations and cycles. As a comparison, for a typical in-vitro diagnostics (IVD) biotech, a start-up seed round in the US may be around USD 15 to 20 million. That is unheard of in Hong Kong, where start-ups typically receive less than USD 2 million in an angel round.

The biotech industry cycle is often a very long-term. The ROI (return on investment) period is indisputably longer; a biotech cycle often starts with 5 to 7 years, sometimes even much longer when you factor in the regulatory hurdles. That said, if a company is backed by validated science, the innovation has genuine market value, and demand driven needs are met, eventually the right type of

investors will come. This is what happened to us.

It is also about playing to Hong Kongâ??s strengths. For instance, our focus on infectious outbreaks and portable, POCT protenomics platform played very well to Hong Kongâ??s strengths in those areas, as opposed to say, a sizable high throughput platform. Our research technicians and engineers are known for their detail-oriented work ethic and efficiency, and there are many talented Hong Kong natives â??flowingâ?• back internationally that we can capitalize on. It must be mentioned that Hong Kong is the perfect conduit between China and global markets, acting as a good stepping stone for people from both sides.

Looking forward to the next five years of Sanwaâ??s development, what are the main priorities?

We are currently preparing for the ISO-13485 certification process for our production facilities set for year end. Clinical trials shall proceed shortly after; we are working with CROs in both the China and international markets. This is where we start to develop from a start-up to a small business, we shall embrace the new challenges that come forth.

From Q4 2017, we shall prepare to raise our second round of funding. We see ourselves as a nice complement to conventional diagnostics companies as strategic partners, for whom we might fill a product or platform gap. As we are close to commercialization, we are in a position to provide significant value.

Our name, Sanwa Biotech (ä¸?å??ç??ç?©ç§?æ??æ??é?•å ¬å•¸), derives from an old Chinese expression meaning â??heaven, earth, and man in harmonyâ??. In the business context, it refers to the harmony between opportunities, human talent and the market needs. This is what we are working towards.

One of our wishes is to prove that Hong Kong can be a place for advanced biotechnology startups. We want Sanwa Biotech to be an example for inspiration and motivation that this can be done if given the right mix of factors and support, with an ample dose of perseverance. Hong Kong is such a small community that it is very important for the local players to come together and support each other, which is what we have seen in the past few years.

For us, the definition of success is to see the final deployment and commercialization of our product at the frontline of healthcare services & settings.

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