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Kelvin Chiu and Isabelle Dutry of Sanwa BioTech in Hong Kong highlight the critical importance of personalised fast-track diagnostics in countering the COVID-19 pandemic, the role that Asian firms have to play in remedying the global shortage of medical supplies, and what the future holds for Sanwa.

Kelvin, since we last interviewed you in 2018, many things have changed for both Sanwa BioTech as well as the world. Firstly, as a Point-Of-Care Testing (POCT) diagnostic company, what are your reflections on the COVID-19 situation?

Kelvin Chiu (KC): First, I would like to talk about the situation in Hong Kong and how COVID-19 has affected business and daily lives here. It has been four months since social distancing and quarantine measures were initially announced, and these have only grown stricter as the COVID-19 situation deteriorated. Many countries globally have undertaken such preventative healthcare measures, resulting in the shutdown of non-essential aspects of their economies but I think we have to accept that this is not a sustainable long-term solution to COVID-19. The evidence seems to be growing that the virus is something that is likely to recur in future seasons and may last for decades. This means that we need to start thinking about how to return to work and live our lives under this â??new normalâ?? condition.

This situation has also emphasized the critical importance of personalised fast track diagnostics. The world is focusing on the development of vaccines and therapeutics against COVID-19 but the reality is that this takes years to develop. In the meantime, effective diagnostics should be efficiently integrated into our healthcare systems so that infectious diseases can be traced, tracked and prevented from spreading. In the short-term, this is the only way of managing the situation. Hong Kong is an international travelling hub. Currently, travelling into Hong Kong for non-residents is banned but for the Hong Kong residents returning to Hong Kong, they have to be taken to the nearby exhibition centre to be tested for COVID-19. For now, due to the technology used, the people have to wait for a day or two until they receive test results. If more POCT diagnostics for COVID-19 were available, the waiting process could be shortened to just a few hours.

For instance, we have developed a personalised respiratory diagnostic solution that can produce results from nose swabs within 15 minutes. This would improve the entire testing process immensely and facilitate people returning to more normal lives.

In general, looking at the longer term, I believe this COVID-19 crisis will have a positive impact on the diagnostics industry by changing the approach countries take towards the incorporation of preventative healthcare into their healthcare systems.

Globally there is a shortage of medical supplies. What role can Asia and companies in Asia play to remedy this?

KC: There is a global lack of supply for COVID-19 diagnostics solutions and other medical supplies. The global industry is ramping up its production capacities in response. But a significant challenge that has emerged is the response and action of certain countries as they attempt to acquire more medical supplies and diagnostics for their citizens. However, this will take time. Nevertheless, what is concerning is that some countries have decided to stockpile more & more supplies than strictly necessary in a panic buying scenario.

We can also note the growing levels of nationalism when it comes to the global manufacturing and supply chain networks of the pharmaceutical and biomedical industries. This is a trend that has unfolded over the past decade and it is unthinkable to imagine that any high-tech industry in any country globally can avoid using any overseas component. I do not believe globalization can be reversed like this.

We have seen many complaints about low-quality Chinese production in the past month, but I believe there is also a level of misunderstanding here. As in most other countries, in China and Asia more generally, price dictates quality. There are low-quality products manufactured in China but at the same time, there are also high-quality medical products, equipment and innovations being produced and developed in China. China is the global manufacturing powerhouse and many, if not most, high-tech medical and pharmaceutical products, even if they are produced overseas, use components made in China.

Within the global healthcare industry, we need to advocate for continued global collaboration and cooperation within this sector.

Isabelle Dutry, Chief Scientific Officer (ID): Hong Kong has a very important role to play here because the Hong Kong society and government have had to deal with a number of infectious diseases, beginning with SARS in 2003, followed by the H5N1 avian flu, H1N1 swine flu and H7N9 avian flu outbreaks, so they are really knowledgeable and experienced in the response to such epidemics. This is particularly true from the academic standpoint where there are a lot of researchers

and experts in this area, based at the top local institutions like the University of Hong Kong (HKU) and the Chinese University of Hong Kong (CUHK), many of whom are on the governmentâ??s scientific advisory team. These academics and other stakeholders are also very internationally-oriented and they are used to collaborating and sharing their ideas globally.

What we really need now is to translate this academic expertise and know-how into industrial and commercial momentum. Hong Kong is well-positioned to have a strong diagnostics sector but currently, the international reputation of Hong Kong in biopharma and medical devices is still relatively underdeveloped. For instance, Western players and stakeholders would be more familiar with Singapore as a medical devices hub in the region. I think we have a strong role to play but we do need more government support.

How is Sanwa Biotech responding to the COVID-19 situation?

KC: We are working relentlessly to obtain regulatory approval for our COVID-19 antigen testing in Hong Kong.

Indeed, coronavirus testing is not as straightforward as one seems. There are three major types: antigen(protein) testing â?? which shows whether the patient is currently carrying a viral protein component (Ex. Nuclear Protein) â?? and antibody testing â?? which shows whether the patient is carrying an immunoglobin (Ex. IgG, IgM), last but not least there is the PCR(DNA) testing to show whether the patient is carrying a genetic trace/fragment of the virus. There is some debate as well about the different types of tests that different companies have developed, in particular, relating to their accuracy, sensitivity, time and condition of proper usage.

At Sanwa Biotech, we provide diagnostic solutions based on our microfluidic disposable Lab-On-Chip (LOC) platform. The platform has three components: our Array-based LED-induced fluorescence ImmunoAssay platform (ALiA) device, a single-use biochip, and the biomarker array for the diseases you want to test for. This test platform is based on well-established antigen-antibody interaction, a protein-based immuno-assay with a â??key to keyholeâ?? mechanism, which is well-proven and easily adapted to the diagnosis and screening of different diseases.

As a result, our system is able to diagnose a range of respiratory diseases, including COVID-19 antigen, within 15 minutes, and with an accuracy of between 90 to 100 %. In addition, the system is also easy-to-use, fully automated and portable, which reliefs the requirement of trained medical technicians and brings convenience to medical professionals already overworked and overstretched during this period. We are starting to run clinical studies and we hope to be able to launch this in the upcoming months.

I think beyond the short-term COVID-19 situation, our POCT technology has huge potential in the antigen diagnostics sector, especially now that people have gained a better understanding of how dangerous the lack of diagnostic tests is for patients and the overall healthcare system.

This would be a great opportunity to demonstrate our knowledge and expertise in this field. Once our test is approved, we will be able to support the Hong Kong community as well as some of our Asian neighbours in terms of diagnostics supply solution. However, due to our limited production capacity, we would take a bit longer to expand to other international markets.

What else is new for Sanwa Biotech since our last interview in 2018?

KC: For a great update, we were recently granted new manufacturing facility space in the new Advanced Manufacturing Center (AMC) in Tseung Kwan O Industrial Estate, established by the Hong Kong Science & Technology Parks Corporation (HKSTP), which should be ready by 2022. This would help us expand our manufacturing capacity and start supplying our diagnostic solutions to Asia and other international markets. This is an important step in our development strategy. We have so far obtained HKD 25 million to fund this expansion.

As a result of this expansion, we also need to grow our headcount. We currently have around 42 employees and we expect to reach around 80 soon. We have started our recruitment efforts, which is rather challenging because we need people with a certain level of medical/scientific expertise and experience, and Hong Kongâ??s talent pool in diagnostics and healthcare solutions, in general, is still small compared to other markets. This is why we are also looking overseas, particularly in EU countries like France, where we now have a small affiliate as well.

Our French affiliate in the Normandy region is also a new milestone. We decided to establish the affiliate in France to gain access to the incredible talent pool in the country as well as the great healthcare infrastructure. With the COVID-19 situation, many of the developments have been placed on hold but in general, the collaboration has been very fruitful. We will continue to grow our footprint there once the COVID-19 situation subsides. Our presence in France will certainly support our mission to develop and commercialize high-quality products. Being about clinical or veterinary products, we increase our access to hospitals and veterinary clinics to collect samples and thus facilitate the validation of our researches. With a long history of public health in France, this situation allows us to expand our R&D in different settings and to easily establish collaborations in the European area.

Previously, investors preferred to invest in therapeutics and drugs but we can see that without the right diagnostics there is no preventive healthcare.

ID: I had the pleasure to join Sanwa Biotech a year after its establishment and I am very excited to see the progress the company has made as well as the immense potential of our technology. The product we are developing is a gamechanger. As a French national and CSO of the company, our affiliate in France helps us strengthen our international network. France has a strong tradition in public health and particular expertise in infectious diseases, notably through the research institute, Institut Pasteur, where I spent a number of years, which now has a global network of 33 institutes globally, and this connection between Europe and Asia will generate new ideas for Sanwa Biotechâ??s development.

Many biotechs and other start-ups have taken advantage of the 2018 changes to HKEX to IPO. Is this on the cards for Sanwa Biotech?

We have no plans to IPO this year. We prefer to focus on building and solidifying our business operations for now. We want to scale up, commercialize products and see revenues before we think about an IPO. Part of this reason is that we see that diagnostic companies tend to have lower valuation because investors prefer to invest in therapeutics. But as the COVID-19 situation demonstrates, diagnostics is really a critical component of a functioning and effective healthcare system. We shall re-evaluate our IPO option in 2021, preferably post COVID 19 product launch.

A final message for our international audience?

Sanwa Biotechâ??s mission is to transform the diagnostic landscape to promote the better and more efficient performance of personalised Point-Of-Care diagnostic tests (POCT), and accordingly, preventative healthcare, which will ultimately contribute to patients receiving the right treatments more quickly, more effective healthcare systems and healthier societies.

We also need to remember that the biotech and healthcare technology industries are global industries. Science and innovation require international cooperation and collaboration. No city or country can do it alone.

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