Albert Yu â?? Chairman, Hong Kong Biotechnology Organization (HKBIO)

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Dr Albert Yu, chairman of the Hong Kong Biotechnology Organization (HKBIO) gives his expert insights into the crucial importance of diagnostics in countering the COVID-19 pandemic, how Hong Kongâ??s positioning within health technology is shifting, and why more and more biotech firms are choosing to IPO in Hong Kong.

Albert, COVID-19 is not the first epidemic Hong Kong has had to deal with. What is your perspective on the current situation?

Hong Kong has indeed had a number of such experiences, from the 2003 SARS outbreak to the subsequent H5N1 avian flu, H1N1 swine flu and H7N9 avian flu outbreaks, so there is experience and expertise we can draw upon here. However, this pandemic has spread so quickly and to such a global scale that we can see many, if not most, countries struggling. What is clear is that technology can help us resolve the situation but what surprises me is that we do not seem to have enough of the right technology!

When it comes to a pandemic like COVID-19, diagnostics is the first priority. You first have to find out where the disease is before you can respond to it. Vaccines and therapeutics will take a long time to materialize. For vaccines, the development period is a minimum of one year.

Nevertheless, COVID-19 diagnostics are still messy right now. Antibody testing is being mistakenly used as a method of early detection when it can only tell you if the person has had COVID-19 at some point, not whether he or she currently has the virus or when he or she had it. The molecular diagnostics sector is rather advanced but many countries are facing problems with low accuracy and specificity of these tests. While this technology has been around for many years, it seems that globally, there is not a lot of know-how when it comes to deploying it in crisis situations. This is worrying because COVID-19 is a natural disaster but the world is potentially under threat from other infectious diseases stemming from biological warfare or biological errors. We need to be better prepared.

Hong Kong is managing it relatively well at the moment but at the beginning, it was difficult. We knew we had to diagnose around 8,000 people a day but our hospital capacity could only handle 1,000. Where would the remaining 7,000 people go? Other countries are still facing such capacity issues in terms of infrastructure, hospital resources and healthcare professionals. I believe countries should be outlining a clearer strategy to deploy the maximum level of available resources. The first line of defence is, of course, hospitals and medical centres but once they are at maximum capacity, the biotech sector should be mobilized. We have the necessary laboratory equipment and diagnostic capabilities. Once the biotech sector is at full capacity, then the final line of defence should be the academic sector. Academic and research institutions also have the necessary state-of-the-art laboratory and scientific equipment to run diagnostic tests.

Diagnostic capacity is really critical because one of the biggest problems of any pandemic is the ensuing panic. The panic is caused by a lack of knowledge. We do not know who is infected and who is safe, we do not even know if we ourselves are infected! There needs to be a proper plan in place to increase diagnostic capabilities as much as possible.

Globally, we are seeing a worrying rise of â??bio-nationalismâ??, as countries seem to be competing for resources to tackle the COVID-19 pandemic. How do you think this will impact the global healthcare industry?

This is a global problem and it requires a global solution. As the World Health Organization (WHO) has emphasized repeatedly, countries have to work together. Cooperation, not competition, is key.

For the industry, I do view the situation as a positive opportunity for us to advance and contribute. The crisis has illustrated the importance of the biotech and healthcare industry, as well as the need to foster, support and utilize each countryâ??s biotech sector. Many countries in the world do not even know how many cases of infection and death they have because they lack the testing capabilities.

Diagnostics actually have much lower barriers to entry compared to drug development. The amount of time and resources needed to develop and commercialize products is comparatively lower so the sector is easier to develop. However, the critical importance of diagnostics is clear, and the field is still not that well-developed. Taking cancer as an example, we still do not understand enough about how to diagnose cancer. We have not identified enough biomarkers to produce a 100 percent absolute diagnosis. We have not identified all the different types of cancer mutations. If we do not have precise diagnostics, we cannot have precise treatments â?? or precision medicine. No disease is single-factor, all are multifactorial, and in addition, they are also four-dimensional: any patientâ??s disease would evolve over time. We need diagnostics to understand disease progression for each patient. Only then can we achieve personalized medicine.

With recent events, how do you see Hong Kongâ??s positioning within the healthcare technology sector in light of its complex relationship with mainland China?

Hong Kong itself has many advantages supporting its ambition to become a biomedical hub, including good scientists and a good healthcare system. However, we must keep in mind our political context as we are under the â??One Country, Two Systemsâ?? framework with mainland China. In terms of global healthcare innovation, the US is still the undisputed leader because they have the strongest foundation in science. If anyone in the world wants to become a top scientist, they usually spend at least some time in the US. After all, the US started the race much earlier than any other country. In that sense, they do not need to worry about competition; as long as they continue running, they do not have to worry about other countries catching up. Many European countries are also advancing well, they do things a little differently from the US, but they also have strong fundamentals.

For China, I think the country is catching up tremendously quickly but sometimes people overestimate the progress made. China is very good at learning and improving. We can see this with all the PD-1/PD-L1 drugs that have been developed there. It is clear that if there is any good technology or product in the world, China can improve it and produce it much more cheaply. But truly original innovation is still missing. Part of this has to do with the societal framework. China still has a top-down system, which is more efficient when you look at the big picture. The US does not. Of course, there are pros and cons to both systems. Looking at the pandemic, if China had handled it the way the US is handling it, the death rate in China would be enormous. At the same time, the US has a much more free culture, which supports creativity and innovation. People in the US also have a more individualist mindset. Both countries are at different developmental stages.

For Hong Kong, we must know how to leverage the strengths of mainland China. For instance, with the Greater Bay Area initiative, we can see a lot of advantages in being next to Shenzhen. Many researchers and companies from Hong Kong are expanding their presence into Shenzhen â?? including my own company â?? because Shenzhen has more land and investment capital. My company is negotiating with potential partners in Shenzhen to develop a manufacturing facility there but we will keep Hong Kong as our international HQ. In that way, Shenzhen and Hong Kong are rather complementary.

On another note, it has been over a year since the Hong Kong Stock Exchange (HKEX) revised its listing rules to allow pre-profit biotech companies to list. You are on the HKEX Biotech Advisory Panel, how do you evaluate the past year?

It has been a good year with many IPOs, to the extent that HKEX is now the second-largest biotech funding market. At the same time, most of the IPOs have been companies from mainland China, and some are doing better than others. It is a good start but we have to continue working to establish Hong Kongâ??s reputation in healthcare investment. For instance, the valuation of diagnostic companies is still lower than what we would like to have. We need more success stories of diagnostic companies listing in Hong Kong â?? and more success stories generally! Also, it would be great to see companies from other parts of Asia like Japan and South Korea, and even other parts of the world like the US come to list on HKEX. That would be the next milestone of success for HKEX and Hong Kong.

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