Ian Huen – Founder and CEO, Aptorum Group, Hong Kong

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Ian Huen, founder and CEO of Aptorum Group, discusses why Hong Kong was the ideal location to base the company, its exciting development pipeline and his unique management philosophy.

Ian, with your asset management background, could you share what inspired you to establish Aptorum Group in 2016?

My biotech journey started in 2013 when my fund entered the biotech sector, mainly looking at opportunities in the US. For a number of reasons, we had developed a strong network with clinical scientists in Hong Kong, which I tapped on when it came to investment into new technology.

Aptorum itself really started in 2016 when we decided to license innovations directly from Hong Kong academics and researchers. My thought process was: looking at global pharmaceutical development, the reality is that many big pharma companies do not do basic discovery work anymore. For instance, the vast majority of new biologic drugs over the past three decades have come from universities. But university research typically ends at the proof-of-concept stage, and there is still a lot of work that needs to be done to take it through the initial toxicology, GLP and then onto clinical trials. VCs usually join the game pre-Phase I and Big Pharma usually buys after Phase II. So there is still a gap when it comes to commercializing academic research at the very beginning of the process.

Drawing upon the examples of Cambridge Massachusetts and San Francisco in the US, the two most vibrant biotech ecosystems in the world, it is clear that you need to have three pillars: strong academic research, robust financing options, and mature pharma development expertise – very different skill sets, but all critical to the process.

Why was Hong Kong the ideal location? From an academic perspective, Hong Kong is very strong in academic research. In addition, for historical reasons, we also have an extremely strong network with non-US, English-speaking countries like the UK, Australia, Canada and Singapore, who all also have strong biomedical research foundations. Looking at the top 50 medical schools globally, for instance, only around half are in the US and the rest are in these non-US English-speaking countries. If Hong Kong positions itself correctly, it can leverage not only on its own research excellence but also the work of these other countries.

In terms of the financial pillar, Hong Kong is part of China and so has access to the Chinese capital markets. At the same time, Hong Kong has a freely floating currency and open capital accounts, which is critical for biotech development because it is such a global industry.

In terms of the third pillar, Hong Kong lacks domestic pharma R&D capabilities so we had to find people with international experience. We were very fortunate to find Dr. Thomas Lee, who has over ten years of industry experience with giants like Novartis and Celgene, and was also the Professor of Pharmacology at The Chinese University of Hong Kong (CUHK). He is now the CEO and CSO of Aptorum Therapeutics, the therapeutic arm of our group. Through him, we also found other industry veterans with experience from companies like GSK and Patheon.

What are the most exciting projects in the works at Aptorum Group currently?

From Thomas' experience at Celgene, we decided that it was most strategic to focus on 'Best in class, First in class' for unmet medical needs in the market, where we could bring the most value. We are not looking to discover and out-license another popular breast cancer drug that will extend survival rates from 2.5 years to three years, for instance.

Our first platform is in infectious diseases, which is an area that Hong Kong is extremely strong in. Part of the reason for this is the epidemiology in southern China, which has been the ground zero for most epidemics. For instance, we like to joke here that the only thing with legs that the Chinese do not eat are tables and chairs! When you have so many different animals living together in close proximity, the chances of cross-species transmissions increase. For instance, it may surprise you to

know that recent research has shown that the 14th century Black Death might have originated from rats that went to Germany from southern China.

We have therefore licensed a series of compound with Professor KY Yuen at the University of Hong Kong (HKU), whose lab discovered the Severe Acute Respiratory Syndrome (SARS) virus back in 2003. This lab is very special because it is recognized by the mainland Chinese government as a State Key Laboratory and also by the World Health Organization.

In addition to developing therapies for SARS, he has a target for methicillin-resistant Staphylococcus aureus (MRSA), which is actually one of our flagship compounds. This target is unique because it is not an antibiotic but an immunotherapy, which is important because antimicrobial resistance is a huge challenge that global experts are saying is even more critical than cancer! We anticipate that this will be a first-in-class compound for a huge unmet need, and we hope to bring it into the clinic in two years. Another very exciting candidate aims to revitalize existing antibiotics to overcome drug resistance.

Simultaneously, we are establishing a Drug Discovery Center (DDC) equipped with fully automated robotic platforms to conduct high throughput screening at the HKU, and we share with HKU 50-50 ownership of all resulting drug candidates.

Another platform is in neurodegenerative disease, where instead of focusing on therapeutics, we are looking at image diagnosis innovation to develop a MRI-based medical imaging technology for early diagnosis of Alzheimer’s disease. Diagnosis and treatment of Alzheimer’s disease is a chicken-and-egg problem because global experts and philanthropists, including Bill Gates, have said that early diagnosis is needed. But there is no treatment or cure for Alzheimer’s at the moment so early diagnosis has little impact. It will be a long game

This is why we are focusing first on early revenue generation with our technology platform targeting researchers using mice. At the moment globally, around USD 16 billion is invested into university research on Alzheimer’s disease annually. Currently researchers need to kill the mice to see disease progression but an MRI-based probe would allow them to see plaque development without killing the mice. Being able to collect longitudinal data of disease progression within the same mouse would be highly significant and efficient, with the potential to facilitate drug development five to seven years down the line.

To leverage on Hong Kong’s competitive advantage in herbal or traditional Chinese therapies, we also have a natural health platform. One is a pro-EGCG candidate for the treatment of endometriosis. We also have a platform for gastroenterology that is focusing on the modulation of

gut microbiota derived metabolites, developed in conjunction with The Chinese University of Hong Kong (CUHK) Professor Joseph Sung. At the moment the only viable treatment for patients that do not respond to antibiotics seems to be fecal microbiota transplantation (FMT), which is not a very clean or elegant business model. Our solution is to create a polymer that attaches to the metabolite, which makes them too big to enter the bloodstream. We expect that this will be so revolutionary that we would have to explain the mechanism of action to FDA once we file for IND.

With Hong Kong now making biotech and biomedical development a priority, do you see the landscape becoming more competitive in terms of both research projects and funding sources?

Our business model is about bringing great drug candidates from universities to pre-clinical and up to phase I, and then looking at out-licensing or IPO options for phase II. Our value proposition is really the financial and business execution we can offer.

From a business perspective, this is the best place to be because the amount of investment needed per program is much smaller but the potential returns are huge, compared to investing in a phase III drug candidate. I used to do futures trading so you need to have a very good understanding of odds. There are winning bets and losing bets, but there are also good bets and bad bets, and just because you win a bet does not make it a good bet. Even if a VC fund diversifies across a portfolio of phase III candidates, you face the capital allocation issue – and at some point, if you have a platform with 20 phase III candidates, then you have basically bought a pharma company!

Aptorum has around 20 candidates at the moment and we are focusing on a handful, mainly in the infectious diseases and gastro platforms, initially to take them to Phase I. In addition, we are in the driver’s seat so we can cut funding off if necessary. This is what differentiates us from other VCs and angel funds. I work with all my Principal Investigators (PIs) very closely and we have a symbiotic relationship. Aptorum provides them with the centralized financing, operational and business execution functions and services that the researchers lack.

I like to draw this analogy. Hong Kong had a great biomedical success story last year with Professor Dennis Lo’s Cirina, and he is an amazing scientist – like Superman, he managed to develop his liquid biopsy technology single-handedly. However, pharmaceutical drug development needs the Avengers: a multidisciplinary team of many talents from microbiology, chemistry, pharmacology, clinical trials and so on – and of course, finance and investment! Superman alone cannot do it.

In any case, more government investment is also a very positive thing. There may be more competition but the pie is getting a lot bigger as well. I would rather be 1 percent of a million than 10 percent of a hundred!

You have assembled an A-list team at Aptorum Group now including world-class academic researchers and experienced industry veterans. As CEO, what is your management philosophy?

I like to joke that my alter ego is a Chinese historian because I did a Master's degree in Comparative and Public History fairly recently. The Tang and Song dynasties were the most vibrant literary dynasties and one of the key writers and poets, Liu Zongyuan, wrote a very short piece about a hunchback that was very good at growing trees. He asked the hunchback what the secret was, and the hunchback said, it is very easy. I know trees need soft, moist and fertile soil. I simply create the environment, plant the seeds and walk away. Liu asked him, but is that not what everyone else does? Why are you so much more successful? The hunchback explained, the others are too overeager. They do not focus on the soil but instead, keep staring at the seeds every day, therefore ruining them.

That is my philosophy. Academics are sometimes skeptical of VC funds because they view venture capitalists as blood-sucking mosquitoes. I compare myself with an even lower lifeform: the microbe. I am in the stomach of the universities to provide them with nutrients.

I firmly believe that having strong personal relationships with my PIs built on mutual respect is key to our success. I have found world-leading experts to join my team so the only – and most important – thing left to do is just let them do their jobs.

A final message from Aptorum Group to our international audience?

The name of the company: Aptorum comes from a piece of ancient Chinese wisdom. Our logo is actually the 19th hexagram from the I Ching (also known as the Book of Changes), the ancient Chinese classic. It is called 'Lin' ( ), which means 'approach', how you approach the world. The 5th line is red, denoting 'Zhilin' ( ), which means, 'to approach the world with intellect and knowledge. That is the Chinese name of the company. The full quote is more or less, 'the appropriate way of approaching the world is through intellect', so we took the word 'apt' and named our company 'Aptorum'.

Our name therefore encapsulates our mission: to work with the smartest people in universities to discover first-in-class therapeutics to meet the world’s unmet medical needs.

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