Seung-Kyou Lee â?? Vice-President, Korea Bio, South Korea

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Seung-Kyou Lee, vice-president of Korea Bio gives his assessment on the current landscape for biotech firms in Korea. He also discusses Korea Bioâ??s programme to create a further 1000 biotech firms in Korea within three years.

Could you introduce our international readers to Korea Bio?

The association has existed for over 40 years, with the first chairman being Ju-Yeong Chung, the former president of Hyundai. Unlike other associations, we cover all aspects of the biotech industry. Of our 500 members, 30 percent are the large traditional pharmaceutical companies; the remaining 70 percent are start-up ventures, which the biotech industry now revolves around.

There are four main tasks performed by the association. The first is start-up 1000, a program in which we promote and support start-ups. in order to keep up with market growth, a thousand new biotech companies need to be created in the next three years. This is why we decided to create the start-up fund with the government. It is the nature of venture start-ups to be created and destroyed, over and over again. Thus, I believe that more venture should be created, encouraging them to experiment with their technology. Another critical role the association has played involves providing start-up biotech ventures with the opportunity to form an alliance with larger pharmaceutical companies through our networks.

Secondly, we provide venture and pharmaceutical companies with the talent that they have been cultivating. Our third task is to help these technologies to spread across our global network, such as China and Japan and US. Finally, we collect feedback from the industry so that the government can be made aware and resolve any impediments to starting a business in this sector.

What have been the key developments for the Korean biotech industry over the last five years?

There have been four key developments in Korea. The first is the investment in venture start-ups from the government. Korea now has a wealth of opportunities since the industry is mainly composed of venture firms, in addition to the larger â??first moversâ?• such as Celltrion, Samsung Biologics, and Samsung Bioepis. As a result, we now have the technology to produce 320,000L, the maximum quantity, of biosimilar products in the country. Secondly, 30 new pharmaceuticals have been developed with a further 1000 in the pipeline thanks to the government investment. Similarly, we have observed licensing out projects from the local pharmaceutical companies Hanmi and

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Yuhan; the proceeds of these deals are now around $1.5 billion.

Thirdly, there has been an invigoration of Fusion Biotechnology â?? the fusion of biotechnology and information technology. This is one of Koreaâ??s greatest strengths. Finally, there is a near-perfect medical system in Korea, which has been modelled on the US system. Therefore, we have the structure to easily approach the fourth industrial revolution and yield positive results.

Where is the major source of investment into biotech ventures, the Korean government or the private market?

In the early stages of development, the source of the funding is mainly government assistance. Two, three years into the project, the private sector begins to show more interest. The government assistance is required in the earlier stages as it is higher risk. Nonetheless, the government invests, fully aware that less than one percent of projects will be commercially successful. After some start-ups make tangible progress, the private sector steps in and starts investing. Thanks to the governmentâ??s promotion of the industry there is no shortage of willing investors into the more developed biotech start-ups. Companies with strong ideas and technology do not struggle to receive funding. Last year, the private sector invested a total of USD 0.6 billion into the bio industry. One potential caveat is that the new technology must match the demands of the industry. If this is not met, the chance of success is low.

Given that the biotech industry already very established in countries such as the US or China, how realistically can Korea catch up given that its industry is in its infancy?

The US has already â??cycledâ?• the entire bio ecosystem multiple times, resulting in an extremely mature system. For example, when an American venture develops a new drug, the result of which is reflected in the medical fee. The profits from the original drug are then used to develop a new one. A number of biotech ventures generated significant profits through this system. Conversely, this has been almost zero in Korea; as very few have completed this â??cycleâ?•. Consequently, we have an unstable biotech ecosystem.

We are at a critical juncture. If we fail to catch up with the US in the next three years, we may always lag behind. As the government is aware of that, they are investing heavily. With that in mind, the start-ups are only becoming more committed to the task at hand, and hence we have seen the pace of development increase. Consequently, we strive to frame this positively, rather than negatively.

I am optimistic about the future given that a lot of venture is being activated and showing a lot of progress. â??Licensing outâ?• with multinational pharmaceutical companies is also in progress, so it doesnâ??t seem too bad to me. What weâ??d have to improve, though, is taking advantage of the pending fourth industrial revolution. For example, if the government could improve the regulations accordingly, it would deliver more effective results.

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