Byong Seung Cho, CEO – ExoCoBio

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04.08.2022

Tags:

South Korea, Asia, ExoCoBio, Biotechnology, Regenerative Medicine, Medical Aesthetics, Dermatology, ASCE+, IBD, AKI, ARDS, COVID-19

ExoCoBio's CEO, Byong Seung Cho, went from biotech venture capital to setting up ExoCoBio, a company whose core technology is based on adipose stem-cell derived exosomes for regenerative medicine and medical aesthetics. He walks us through ExoCoBio's exosome-based finished product line as well as its promising preclinical findings not just in dermatology.

Can you briefly introduce yourself and tell us about your journey in the biopharma industry?

I have had two types of career over the past 20 years. Initially, I was a biotech venture capitalist for seven years and then afterwards, I worked as in biotech top management for 15 years, working for three biotech start-ups including ExoCoBio. One of these was Medy-Tox, where I acquired some knowledge about the botulinum toxin industry. After my first understanding of exosomes in early 2016, I prepared my business plan for a year and established ExoCoBio in 2017. Our core technology is based on adipose stem-cell derived exosomes for next generation regenerative medicine and medical aesthetics.

What was your motivation for going from a venture capital to becoming a CEO and setting up ExoCoBio?

It was my dream to set up my own company in the biotech industry and not in the investment industry. For that reason, I changed positions almost every three years to acquire hands-on knowledge and experience from both industries. Over the years I have been able to accumulate a lot of knowledge across finance, sales, marketing, strategy, and other functions, giving me a good grounding for most operations and requirements in both business and R&D. Thanks to our unique strategy, ExoCoBio has been very successful so far from a business perspective and in R&D as well, by generating USD 20 million in revenue in 2022, with 50 percent compound annual growth rate (CAGR) for the last 5 years.

Are exosome-based cosmeceuticals the main focus of the company?

ExoCoBio has 2 types of product pipelines, The first is exosome-based regenerative aesthetics including cosmeceuticals. The second is a regenerative medicine based on the 2 main functions of stem-cell derived exosomes, regeneration and anti-inflammation. The potential indications are inflammatory skin diseases like atopic dermatitis, ARDS/COVID-19, inflammatory bowel diseases, and others. For the last 5 years, we have proved that our adipose stem-cell exosomes (ASCEs) have excellent efficacy through a variety of in vitro, in vivo, and clinical studies in 10+ publications including submitted manuscripts.

Since I was the first investor in medical aesthetics in South Korea, I tried to find next generation technologies in the field for over 15 years. When I learned about exosomes, I just knew that was going to be a breakthrough in medical aesthetics, just like Botox had been before. Botox has been one of the best products on the market for the last 40 years but when we age, we lose our skin, meaning that Botox injected into the skin is no longer good enough. This is why the first step to skin regeneration is keeping skin young and healthy. For this, stem-cell exosomes are the best drug candidates.

Furthermore, we have invested more than USD 60 million over the last five years in R&D and to build a brand-new Good Manufacturing Practice (GMP) facility called the ExoGMP project. With 40+ patents, ExoCoBio has become the most serious company in exosome-based clinical applications and exosome commercialization, making us the leader in the industry.

Can you tell us more about the different product line applications?

We started with regenerative aesthetics from stem-cell derived exosomes, developing our proprietary ExoSCRT™ manufacturing process for intact exosomes and then setting up our finished product manufacturing lines. Our ASCE+™ line – the first exosome-based regenerative aesthetics for skin and hair – consists of two products and these are our key products. ASCE+™ can be used for any number of regenerative aesthetics for the skin and hair/scalp. We have accumulated a lot of excellent case studies on skin rejuvenation, depigmentation, anti-inflammation, even for atopic dermatitis thanks to the characteristics of our ExoSCRT™ exosomes. Currently, each of these cosmetic products can be combined with micro-needling, iontophoresis, sonophoresis, RF Microneedling, fractional CO2 laser, plasma treatment, PRP, or other laser treatments.

Is this technology approved by regulatory bodies in Korea, the US and Europe?

Our exosomes and finished products are registered as cosmetic products with the Personal Care Products Council (PCPC) in the US, meaning that they can be used externally in practical applications, mostly with minimally invasive procedures. In addition, we have registered the RSC-exosomes™ that come from rose stem cells. Since there is not much scientific research available yet on plant-derived exosomes, our RSC-exosomes™ would be the first to show what proteins, RNAs, and lipids are contained in plant stem cell-derived exosomes or extracellular vesicles.

Our ExoSCRT™ manufacturing process can be applied to isolate any kind of extracellular vesicles. Damask Rose is one of the most popular plants in the world as a cosmetic ingredient. But there has been no research done on the rose stem-cell derived exosomes, so we are investing in extensive R&D in this area and we have two key patents on the use of rose stem cell exosomes for regeneration and anti-inflammation.

You spoke about ExoCoBio's ongoing R&D efforts. What direction do you see the business taking based on these efforts?

Since the stock market crash this year, most biotech companies are looking at no money for two years, but we have been able to generate some cash for our own business growth and R&D. It took us four years but last year, we saw a positive net operating income. Our vision is part of a long-term value generating business portfolio and as a part of that we are aiming to file an Investigational New Drug Application (IND) in 2024 in the US or Europe for regenerative medicine.

We have a lot of amazing preclinical data from our clinical studies already. Now it is the right time to produce clinical-grade centres for exosomes for clinical trials. However, stem cells are weak in terms of potency and product quality control. Aside from that, exosomes have a competitive advantage against stem cells or other entities because they have regenerative efficacy in addition to anti-inflammatory functions. Our product quality has been observed very consistently across a variety of our preclinical studies, so we are confident that we canovercome the difficulty of stem cells treatments in the future.

While conducting these preclinical studies, is there a particular therapeutic area that ExoCoBio is focusing on?

ExoCoBio focuses on dermatology in terms of tissue, while we are looking for a spectrum of potential indications where stem-cell exosomes can do something better than other options, which for us means regeneration as well as anti-inflammation. We learned from our studies that the potency of stem-cell exosomes is very strong so, we have agile discovery efforts. We have recently conducted studies for Inflammatory Bowel Disease (IBD) and Acute Kidney Injury (AKI) and conducted Acute Respiratory Distress Syndrome (ARDS) COVID-19 animal studies. All of those preclinical studies were successful. Thus, we will decide the first indication for our IND within the next year.

In most cases, inflammatory skin disease is a highly promising area for the company because we have a lot of knowledge about the skin. However, we found that our exosomes have been very active for ARDS or a COVID-19 animal model, so we could get a fast IND approval or an accelerated process for clinical development. We may also consider licensing opportunities with collaborators for our clinical development in the future. We want to be flexible.

What might these partnerships look like? Would they be focused on any specific therapeutic areas?

Since we hope to be as flexible as possible, we are trying to extend our connections to key opinion leaders and companies for future partnering opportunities. Especially for ARDS, IBD and AKI, we have to look for more partners in the future because we have just finished data generation. Certainly, we are generating more and more interest in ExoCoBio these days.

In fact, we are looking for both licensing and collaboration opportunities. Therefore, for medical assets or other companies, we consider commercialization companies to be good candidates. We want to work with companies in aesthetic medicine as well to develop products for ultimate regenerative aesthetics.

ExoCoBio already has a manufacturing facility to produce its own technology. Will the company also be using the site to produce active pharmaceutical ingredients (APIs) for third parties?

The building construction for our ExoGMP facility in South Korea is already done. We are in the process of installing a lot of equipment for it to be fully GMP-compliant within three to six months. Therefore, next year, ExoCoBio will be ready to produce APIs for IV injection grade and provide a Contract Development and Manufacturing Organisation (CDMO) service for customers.

What sort of response are you seeing from the scientific community regarding the use of exosomes ?

The annual number of publications related to exosomes has increased by more than 30 percent every year for the last 10 years. At the time of the first discovery of exosomes, around 1983, people thought that exosomes were a kind of waste disposal system in the body, so nobody was interested in them. However, this has now completely changed with the two biggest discoveries coming around 2007 and 2008. Dr. Sai Kiang Lim, who has been working as our scientific advisor for around five years, published a paper on the discovery of stem-cell derived exosomes' paracrine effect for the first time. In addition, Dr. Jan Lotvall, who is now our chief scientific officer, discovered the RNA transfer of exosomes around the same time.

After their findings and other researchers' scientific discoveries over the last 20 years, the scientific community has become aware of exosomes as a next generation technology for regenerative medicine, drug delivery, and diagnostics. I expect that there are about 200 exosome-related start-ups now around the world.

Drug development in the area has accelerated, especially on stem cell-derived exosomes, because stem cell-derived exosomes can effectively solve very difficult diseases like ARDS/COVID-19 or inflammatory skin diseases. For example, Direct Biologics got a US FDA approval for its Phase 3 clinical trial in April 2022.

What is your final message to PharmaBoardroom's readers around the world, including the big and mid-sized pharma companies who are always looking for assets?

We have been building the biggest existing platform for exosome technology, especially stem cell-derived exosomes and we have a lot of opportunities ahead of us. We are open to considering potential partners interested in regeneration and anti-inflammation in dermatology, ARDS/COVID-19, orthopedics, and others.

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