

Bionet enters Europe via the Czech Republic. Founder, Christopher Tsai said, "We will make exosomes like TSMC's world factory and export them to the world."

By Liu Yu-Ting, TCCCZ

While TSMC's chips are exported worldwide, Christopher Tsai, Chairman of Bionet also aspires to build an Exosome Foundry to become the "TSMC of the bioscience industry" and to enter Europe.



Bionet headquarters by BIONET CORP.



Chairman of Bionet, Tsai Cheng-Hsien by BIONET CORP.

After graduating from the Department of Chemical Engineering at National Taiwan University, Tsai went to the University of Minnesota to study for a PhD in chemical engineering and materials. After finishing study, Tsai founded BIONET CORP. at the age of 33. Recalling the opportunity to start his own business, Tsai said that he had dreamed of starting his own business with technology since he was a child. With his talent and interest in science and technology, he founded BIONET CORP. in 1999, setting regenerative medicine, precision health, and molecular digital technology as its three core competencies, and “exosomes,” an extension of “stem cells,” as the mainstay of today's company development.

Make regenerative medicine come out from the operating theater to the clinics in the streets, small and medium-sized hospitals, and even into the make-up table in every home

Over the years, Tsai has continued to pay attention to the development of scientific trends. He mentioned that in 1999, scientific breakthroughs such as the decoding of human genes and cellular therapy demonstrated the great potential of science. In the late 1990s, the rise of the Internet, which has developed into today's information, data, and AI, all of these digital mega leaps have made him believe that "our generation should seize this great scientific pulse and move forward."

On the other hand, Tsai has been deeply influenced by Taiwan's technology industry. Having lived in different countries during the 1990s, he witnessed Taiwan's excellence in electronics and semiconductors, from Acer's personal computers to TSMC's foundry, which changed the landscape of the global technology industry. This inspired Tsai to revolutionize the world in biotechnology as he did in Taiwan's electronics industry.

Therefore, Tsai hopes to use regenerative medicine to turn Taiwan into a global center for exosome research and a world factory. So that regenerative medicine can come out of the operating theater and go to the clinics on the streets, small and medium-sized hospitals, and even into the make-up table of every home.



Exosomes are the Creator's "formula" for cellular repair and regeneration

Lab technician of Bionet by BIONET CORP.

What are exosomes? Exosomes are extracellular vesicles secreted by eukaryotic cells into the extracellular environment, or growth factors and cytokines from stem cells, and are crucial regulators of intercellular messaging. The components of exosomes include a variety of growth factors, cytokines, and different types of RNA, which act as conductors and messengers in the body, guiding and facilitating the reconstruction of tissues.

As you can imagine, "exosomes are formulas designed by the Creator to regenerate the human body," said Tsai, Founder of Bionet. In short, exosomes can promote the repair and regeneration of body tissues. Indeed, exosomes offer a versatile toolkit for a myriad of applications, including regenerative repair, cellular activation, immunomodulation, and aging retardation.

In the realm of cosmetic medicine, exosomes have proven successful in promoting skin and hair regeneration, playing an important role in cosmetic medicine. Within ophthalmology, exosomes have emerged as promising treatments for corneal injuries and eye conditions like dry eye syndrome, delivering notable results. In the field of joint therapy, particularly in cases of degenerative arthritis, exosomes have shown promise in promoting cartilage regeneration and facilitating joint repair.

In addition, exosomes have the potential to treat neurological diseases. Due to their tiny particle size, exosomes can cross the blood-brain barrier and enter the brain. Therefore, exosomes are considered to be an effective tool for the treatment of brain diseases. Exosomes also offer a new way of treating neurodegeneration and dementia, which are prevalent in an aging society.

Overall, exosomes have important applications in skin and hair regeneration, ophthalmology, joint repair, plastic surgery, and neurological treatments. Furthermore, exosomes have shown great potential for medical and clinical therapies.



Bionet cooperated with Metapore last year by BIONET CORP.

With the cooperation with Korea last year, the transport of exosomes overseas is not a problem

According to Tsai, Bionet is not only focused on developing exosomes domestically but is also actively expanding into foreign markets. The company has established a solid foundation and formed partnerships in Asia. For instance, in November last year (2023), Bionet announced a strategic collaboration with Metapore, a Korean start-up company. This partnership involves mutual investment and technology cooperation aimed at developing advanced nano-purification technology. The goal is to enable mass production of exosomes with high purity and quality standards. Additionally, the collaboration aims to penetrate the Korean medical aesthetic market

How are exosomes transported abroad? Tsai said that in the past, ultra-low temperatures and special containers were needed to transport stem cells, but exosomes do not need cells, only the released components, which makes it possible to make exosomes into a powder to be transported at room temperature or retained in liquid, overcoming the temperature conditions and solving the logistical and preservation problems of stem cell regenerative medicine.

In addition, the COVID-19 outbreak has made cold chaining to -82°C possible, which makes transport much easier compared to the previous -196°C liquid nitrogen. This model meets Foundry's OEM R&D needs, and the lightweight and ease of transport of exosomes provide a competitive advantage in the international market.



Bionet exosome product (ANIKINE) by BIONET CORP.

Bullish on the Czech Republic! Bionet plans to enter Europe

In addition to the Asian market, Bionet also intends to enter Europe. Tsai said that Europe has potential, and the Czech Republic has several policies, such as the emphasis on life sciences, besides green energy electric vehicles, which is also a main investment project. Furthermore, the Czech Republic has applied for the Recovery and Resilience Facility, which also includes healthcare.

Additionally, Tsai observed that the Czech Republic's demand for medical beauty and growth is higher than expected. "We should start plowing Europe," said Tsai. Just as the early Taiwanese people looked at the development trend of Southeast Asia, now we should also take stock of the European market.

Tsai recalled his visit to the Czech Republic many years ago when he stood on the Charles Bridge and listened to Czech musician Bedřich Smetana's "My Country," he was impressed by the cultural heritage and national vitality that the Czech Republic had preserved after escaping from the war.

The Czech Republic has a deep cultural heritage, and exosomes are not only a scientific breakthrough but also a cultural enhancement



Bionet product by BIONET CORP.

Tsai said that the Czech Republic did not fall into war during its democratic during the Velvet Revolution in 1989. The country actively joined the European Union, and its economy began to take off. Over the past three important decades, the Czech Republic has built a stable foundation reflected in its GDP growth. "That's why I say that Central and Eastern Europe is full of opportunities," he says.

Tsai believes that the Czech Republic has a deep cultural heritage, and exosomes are not only a scientific breakthrough but also a cultural enhancement. He looks forward to integrating medical aesthetic technology into the Czech culture and expanding the market with innovative thinking.

Tsai said, "This is a golden time, the Czech Republic and Taiwan due to a variety of factors, recently probably the most intensive interaction in history." Bionet has already obtained INCI certification for international cosmetic raw materials for skin and hair. Thus, the relevant applications can be put into practice immediately. We hope to cooperate with the Czech Republic on these applications this year, and then carry out R&D and OEM cooperation of higher complexity in the future, such as the treatment of neurological disorders, which will be divided into short-, medium-, and long-term targets for deployment in the Czech Republic.