

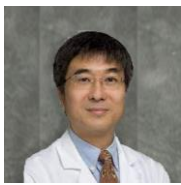
Monthly Market Insight

September 2023



VMS recently hosted the Healthcare Ecosystem-themed Investor Day. Our Healthcare Team invited five distinguished leaders from our portfolio companies to share their insights on the development and outlook of each of their specialized sectors.

Entrepreneur profiles:



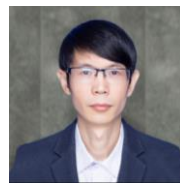
Prof. Jie Wang is the Founder and CEO of SyMap Medical. He is a world-renowned heart failure expert, who is one of the first to introduce interventional cardiovascular devices in China for development. He currently serves as professor at Jiangsu Provincial People's Hospital/Nanjing Medical University and is a member of the American Physiological Society and American Heart Association (AHA). Prof. Wang was part of the research team that developed the RDN treatment for hypertension, he received the prestigious Edison Award in 2011. He also invented the renal nerve mapping and positioning technology and was awarded Best Innovation Award at the US Cardiovascular Research Technologies annual meeting. **SyMap Medical** is a leading global company focused on the research & development and innovative, minimally invasive interventional technologies to treat major cardiovascular and respiratory diseases.



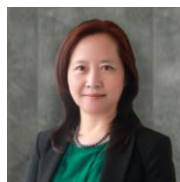
Dr. Karen Chu is the Founder and CEO of HiRO. In addition to her extensive experience with clinical trials globally, Dr. Chu possesses a unique understanding of cross-border strategy and management. Currently, she is a board member for three US/EU Biotech companies in clinical stages. **HiRO** is an innovative contract research organization (CRO) based in China with a global reach. It is dedicated to providing a full range of customized services for global clients.



Dr. Jimmy Wei is the President of Chime Biologics. He is a healthcare and life sciences expert with over two decades of global industry experience. Prior to joining Chime Biologics, he has led the incubation and investments activities into multiple well-known biotech companies, including Zai Lab, I-Mab, XW Labs, CMAB and JHL Biotech. **Chime Biologics** is a leading CDMO with innovation centers focused on efficient cell line development and advanced technology to provide one-stop CMC solutions for biopharmaceutical customers worldwide.



Prof. Lingfeng Liu (Steven) is the Founder and CEO of ST Phi. He is a distinguished expert in the field of immunotherapies and cancer research, specializing in the development of CNK-UT technology. This technology can be applied as cell therapy for different types of tumors, viral infectious diseases, and autoimmune diseases. **ST Phi** is a cutting-edge cell therapy company with a number of internationally leading platform technologies, originating from a world-renowned cancer research center.



Dr. Claudia Lin is the Founder and CEO of JADE Biomedical. She has over 20 years of experience in biotechnology and pharmaceutical industry, spanning R&D, translational research, Quality and GMP Compliance management, from clinical development stages to product launch, and post-marketing product life-cycle management. **JADE Biomedical** provides biopharmaceutical CMC quality-related testing services, from process development, clinical trial submission, phase I/II/III clinical testing, as well as GMP safety quality control testing during and after the commercialization process.



Leading Chinese healthcare companies develop breakthrough therapeutics that save lives

SyMap Medical and **ST Phi** founders presented recent breakthroughs in the treatment of cardiovascular disease and cancer.



Prof. Wang Jie is a cardiologist specializing in treating patients with heart failure. During treatments, he noticed heart failure patients often require a Left Ventricular Assist Device (LVAD) to sustain life while waiting for a heart transplant. In mainland China, this device is known as an “artificial heart”, but it acts as a pressure pump. SyMap develops devices targeting conditions that cannot be solely treated with drugs.

For example, medical professionals usually install coronary stents for heart failure patients because it is generally difficult for drugs to dissolve a blocked heart artery. There are “clot-busting” thrombolytic drugs but they are not as direct as installing a stent, which is a physical intervention to treat the disease.

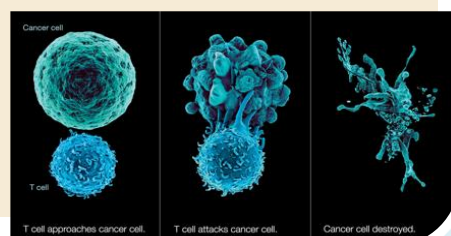
Currently, there is another approach using physical intervention – transcatheter aortic valve replacement (TAVR). To put it simply, heart valve disease is when the doors of your heart are mal-functioning – it is required to be replaced with a good one so the heart can function properly, drugs would not be able to treat this effectively. In recent years, device-based therapy has gradually moved forward and can even be used to treat high blood pressure.

Prof. Steven Liu: In some instances, stem cell therapy was able to achieve medical breakthroughs. Notably, a seven year old girl was diagnosed with B-cell acute lymphoblastic leukemia (ALL) and her illness relapsed shortly after chemotherapy. She then received CD19-targeted CAR T-cell therapy 11 years ago, and has been cancer-free ever since. Another achievement was when the FDA approved BCMA CAR-T therapy last year, since then, this therapy has successfully treated patients with lymphoma.

In terms of commercialization, BCMA is used to treat multiple myeloma (bone marrow cancer) and has enormous potential for this target. BCMA has a 97% response rate, a remarkable outcome and may fundamentally change tumor treatment.

At ST Phi, one of our biggest breakthroughs is the development of CNK T-cell and UT cell technology, targeting solid tumors. This technology is highly effective to treat multiple different types of solid and hematological tumors, with efficiency far exceeding the current CAR-T therapy, this therapy is able to treat the broadest spectrum of indications globally. CNK’s safety and efficacy is already proven, during exploratory clinical trials for advanced liver cancer.

ST Phi’s cellular therapy uses T-cells sourced from healthy donors and is effective across multiple tumors types. These donated T-cells, after modification, in addition to liver cancer, can also treat neurological diseases, breast cancer, and hematological tumors. Based on our latest technological breakthrough, we continue our mission to “Engineering Cells for Cures”.



Domestic innovative drug development speeds up, experts discuss the new path for industry

Over the past decade, China's innovative drug development has grown at a rapid pace, also benefiting CXOs. Our CXO experts from **HiRO**, **Chime Biologics**, and **JADE Biomedical** share their views on the key factors contributing to the CXO industry's growth in China.

Dr. Karen Chu: CROs, or Contract Research Organizations, came about around 40 years ago, when Pfizer needed outside help and hired various CROs to assist in the drug development process, to make up for research talent gaps internally. Soon after, CROs became a vital partner in biotech or biopharma companies' business expansion plans.



In the past decade or so, many scientists choose to return to China after studying or practicing abroad. While there are an abundance of healthcare experts in China, those familiar with clinical trials chose to stay overseas. They mostly chose to stay within their area of specialty – for example, if the scientist conducts clinical trials in the United States, he will just settle down there, rather than bring the expertise back to China. Yet in recent years, biotech regulatory standards have become increasingly strict in China. As an example, within clinical trials, there is a guideline called ICH-GCP that addresses good and ethical clinical or manufacturing practices. As these standards rise, the need for CROs grows, which in turn improves clinical trial knowledge and opens up the possibility of overseas expansion. As more CROs emerge in China, whether under therapeutics, diagnostics, or medical devices, there will be increasing demand for CRO services in order to help innovative drug makers “go global”.



Dr. Jimmy Wei: The Contract Development and Manufacturing Organization (CDMO) industry has a sizeable global market size – nearly \$600 billion – and still growing rapidly. Biopharma companies generally has high requirements for talent and capital resources, setting a high entry barrier for new entrants. Given its high barriers of entry, the CDMO industry in China is still quite nascent, many with only five to six years of operating history. However, there is huge potential for growth in the domestic Chinese market, which Chime Biologics can benefit from. Up until NMPA's approval for CDMOs around 2017 to 2018, there were no CMOs or CDMOs in China because the regulatory body did not allow macromolecular drugs' manufacturing to be outsourced.

Chime began transitioning to the CDMO business in 2020. In 2022, we were granted a rare manufacturing commercialization license in China, only two CDMOs was granted this manufacturing license, yet the market has large demand.

Furthermore, macromolecular drugs are mostly developed overseas, where the market is much bigger than China's, giving CDMOs such as Chime even more room for expansion. China acts as an enabler for Chime's growth and overseas expansion efforts, providing a solid foundation of cash flow from domestic manufacturing demands. CDMOs in China will also take advantage of the lower manufacturing cost to continue meeting global demands.

Dr. Claudia Lin: At JADE Biomedical, we combine global quality standards and macromolecular drug standards to ensure the production of high quality biological drugs. We are at the forefront of the industry as a company that caters to both the Chinese and overseas markets. In the past six years, we also realized there is still much to learn about tailoring to China, because the market is diverse and clients have different requirements. In addition to our technical capabilities, we have to stay attuned to changing market trends, striving to stay at its forefront, and be ready to respond to client needs before they arise, and ready to upgrade our technology to ensure that we maintain global standards.



Image source: JADE Biomedical

Within the CXO Ecosystem, Chime Biologics, HiRO, and JADE Biomedical provide complementary products and services, and often collaborate in terms of promotional or cross-selling activities. For example, when attending biotech trade shows overseas, European and American customers tend to prefer one-stop services, so these three companies together can provide an attractive, packaged solution for customers – with Chime Biologics specializing in manufacturing, HiRO in clinical research, and JADE Biomedical in quality testing.

Leaders from our Private Equity and Healthcare Team



Jianming Zou (JM)
Head of Private Equity



Andrew Ng
Head of Healthcare



Dr. Alva Chen
Director and Therapeutics Leader