Qiandai Biotechnology Co., Ltd. CEO Dr. Xuefei Zhou: medical products lead healthy lives

Dr. Zhou Xuefei,
founder and CEO of Qiandai Bio

Qiandai Biotech, based in Hangzhou, is a recently established startup that focuses on the discovery and development of both small-molecule targeted drugs and recombinant protein vaccines. The company's capability of transforming targets into compounds and vaccine candidate products, which are appropriate for fulfilling medical need, is based on a novel product R&D model. This model enables highly efficient and accurate selection of clinical indications and action target throughout the drug design, screening and development process, aided and accelerated by artificial intelligence (AI) technologies.

Around one year since its establishment, Qiandai Biotech has quickly developed a robust pipeline, including various early-stage products and among them two programs that have completed pre-clinical compound (PCC) testing stages, along with clear druggability evaluation and well-defined clinical development plans in place. The company is committing to address major unmet medical needs with global development capabilities regarding innovative drug and vaccine products. Qiandai holds an open attitude towards the prospect of creative and flexible forms of licensing and partnership deals in order to support pipeline progress. This month, GBI had the honor of having a conversation with Dr. Xuefei Zhou, the founder of Qiandai Biotech.

Dr. Zhou spent more than two decades of her academic and professional journey in Germany, she dedicated 15 years in conducting biological scientific and medical research, leading to numerous scientific publications in cutting-edge journals such as Cell. In Germany she served as the clinical research manager, clinical development director, and medical development strategy manager at different pharmaceutical companies such as Sandoz, Biotest, MorphoSys. She also served as the chief technology officer and medical officer at an innovative pharmaceutical company in China, being responsible for global clinical development. These abundance experiences enable her to have proactive and creative mindset and capability of leading teams to successfully complete multiple drug products from the early discovery and development stage to the market launch. Moreover, Dr. Zhou has been recognized as a leading overseas talent in Zhejiang province and currently, she is responsible for Qiandai Biotech's R&D strategy-defining, scientific decision-making, and building global partnership.

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GBI: Could you please share with us Qiandai Biotech's vision, and your motivations for establishing the company?

Dr. Zhou: Our company's vision is very simple. We are committed to discovering and developing first-line therapies and preventive vaccines, which can address the numerous unmet medical needs. Currently, significant resources and capitals have been invested into later-line treatments such as cell therapies and gene therapies, which can be applied only in small population with extremely expensive price. The affordability of such products are key issues. Although the United States is able to provide more access to such therapies with support of health insurance, in many other countries, for example in China, they can be said to be medical options exclusively only for rich populations.

Numerous chronic diseases, such as autoimmune diseases, ophthalmic diseases (including myopia and retinal diseases), and hyperuricemia, which significantly damage public health, currently do not have satisfactory treatment options. Therefore, our belief and goal is to apply our years of experience carrying out innovative drug research and development and working tirelessly to address these needs. The company was founded with this vision in mind, and continues to target true unmet medical needs and particularly those diseases with significantly high prevalence.

We are really lucky to be living in a great time for drug research. Modern AI technologies can be used to boost the efficiency and accuracy while cutting the R&D costs. This can lead to benefits like lower disease incidence rates and better overall health. We don't want to wait until the late-stage of a disease and to apply only remedial therapies, or to rely solely on expensive drugs to extend patient' lives for a couple of months. We hope to effectively suppress chronic inflammation and tumors before they even occur. Health issues that affect children and the elderly are a misfortune for the whole family. So our core driving force and motivation are to let everyone live a healthy and wonderful life, because health is the foundation of happiness after all. Our wish is that our products can truly reduce diseases and the medical burden on families so that more people, including the elderly, children, and immunocompromised groups, can enjoy beautiful and healthy lives. The thought that our products can produce benefits for so many people is what drives our passion and enthusiasm.

GBI: How is Qiandai Biotech aiming to apply itself in relation to the changing medical technology landscape over the next ten years?

Dr. Zhou: With the technology advancing rapidly, medicine has stepped into a new era. Now, we understand how diseases happen and develop much deeper and better than before, and it is getting easier to diagnosis more and more diseases early on. At this point, we need to effectively act and give interventions to reduce disease risk and manage diseases in a systematic and forward-looking way, rather than just responding with symptomatic treatment or last-minute fixes.

For the medical needs of early treatment and prevention in the future, our pipeline is indeed focused on early and preventive treatments. We intervene early to eliminate or reduce risk factors of a disease to effectively cut down the incidence rate and the damage it causes. Of course, these products can also effectively slow down the progress of a disease after its onset. Our goal is that our products bring down the incidence rate and severity of many diseases and eventually turn them into "rare diseases".

GBI: What efforts do you think are needed to introduce this advanced treatment concept at the level of primary prevention in the current medical environment in China?

Dr. Zhou: First off, it's essential to prove that preventive medications or products are really safe and effective and don't bring any extra risk of damage like liver and kidney toxicity or other health problems. This will make people more likely accept and be willing to use a new therapy before the onset of a disease in order to reduce the risk of onset and severity. Patients also need to be willing accept long-term use, so that the incidence rate can be lowered significantly. This new concept of disease prevention and management may take time to catch on, and, as mentioned earlier, it could take 10 years for people to truly accept the idea of treating diseases that haven't happened yet.

At the same time, this will also require promotion and training to medical staff. I think that the absence of such products, and concerns regarding significant side effects, means that doctors will weigh the risks and benefits of any medication before prescribing them. We hope that future treatments won't put doctors, patients, and their families in a tough spot anymore. It is about maximizing safety and reducing the psychological

burden of prescribing or taking a medication, to let the users know that a product is very safe, and restoring the body to a balanced and healthy state with a clear mechanism of action, rather than damaging the function of other organs to suppress the clinical symptoms of the disease. This requires pharmaceutical researchers to have a more systematic understanding of disease-causing risk and develop interventional treatments from the perspective of overall health.

GBI: Can you talk about the unique strategies adopted by Qiandai Bio in terms of technological innovation, which have made the company stand out among the crowded field? How are the pipeline products significantly differentiated from currently available products?

Dr. Zhou: Firstly, we have got a flat organizational structure and streamlined teams in management. This create a research environment where we can break conventions and be bold innovating. Here, everyone can offer up an insight, gain full trust, and unleash their potential as much as possible. Although our team members are relatively young, they possess critical thinking, creativity, and efficient execution. They are passionate about their careers and do not approach research and development work as just labor.

Nowadays, both experts and young researchers have access to the same scientific information like literature, various big databases, and industry news. As long as you are willing to learn, you have got equal chance to acquire and utilize the latest knowledge and technology. Therefore, young people with solid basic knowledge can do R&D from novel perspectives, and make dynamic explorations, avoiding fixed thinking and inertia, and have the potential to surpass experts and reach new heights of innovation.

In addition, Qiandai Biotech has very clear clinical strategies. We will not blindly follow industry trends, or simply imitate or modify existing drugs. Instead, we take a cautious and rigorous attitude when choosing indications and corresponding drug targets. I am from a clinical background and have been engaged in clinical strategy development for a long time, so I have a deep understanding of the whole context between indication, clinical pain points, and pathogenesis. We are good at starting from a clinical perspective, first identifying unmet clinical needs, and then using these indications to select and validate targets, find safe and reliable mechanisms of action, and develop new drugs based on this. Subsequently, a product portfolio is established through continuously expanding drug indications and enhancing their clinical value.

At the same time, we flexibly utilize new technologies to assist in drug discovery and reduce R&D costs. For example, the target we have chosen may challenge us with a druggability issue, requiring the use of new tools such as artificial intelligence and compound libraries for virtual modeling of target proteins, prediction of binding sites, and virtual screening of compounds. This allows the identification of suitable compound backbones at a low cost and in a short time. Then, we can test their druggability by working with experienced CROs. We really value collaboration. There are lots of excellent CRO service agencies and university teams in China that have years of experience and are happy to explore and model with us. We use these mature service-oriented technology platforms to quickly turn a target into a clinical compound with a minimal technical team. In cooperation we can verify efficacy and safety in animals, and then move on to clinical trials.

Most importantly, we initiate projects and complete every stage of research and development with a global perspective. In the clinical development phase, we aim to conduct global, multicenter clinical trials, not just limit ourselves to domestic clinical trials or the Chinese market. Every indication and product we develop is expected to benefit patients worldwide, which means our products have very broad market prospect. At the same time, we also hope to change the trends of global disease development and grow into a multinational pharmaceutical company.

Qiandai Bio core pipeline candidates

Pipeline	Indications	Pre-clinical	IND filing	Clinical trials	NDA filing
QD-001	Myopia (eye drop)	→	2026 H1	2026 H2	2031
QD-003	Vaccines to prevent respiratory infections	→	2026 H1	2026 H2	2031
QD-004	Therapeutic vaccine for rhinitis and asthma	→	2026 H2	2027 H1	2032
QD-005	Pancreatic cancer, breast cancer, chronic glomerular cirrhosis, liver cirrhosis and other fibrotic diseases	→	2026 H2	2027 H1	2033
QD-006	Autoimmune diseases, chronic kidney disease	→	2026 H2	2027 H1	2033

Source: Qiandai Bio official website

GBI: Looking at Qiandai's pipeline of preclinical-stage candidates, can you discuss the indication selection, clinical development strategy, product differentiation, and competitive advantages of your pipeline?

Dr. Zhou: The initial stage of company's projects is crucial. Each preclinical product candidate has been chosen after careful and comprehensive research. Take QD-001, our lead pipeline candidate, which targets the upstream key signal for controlling inflammation. Its indications cover both autoimmune diseases and chronic inflammation. The mechanism of action is clear with good safety. After the gene is knocked out, mice survived normally without obvious abnormalities and had normal anti-infective immune function. They only showed strong tolerance to inducing autoimmune factors and did not have autoimmune inflammatory reactions.

QD-001 has the potential to become a drug for treating various diseases, including myopia, excessive vascular growth, inflammatory eye diseases, as well as some autoimmune diseases, by selectively inhibiting this target. Since the project is still in its early stages of development, it is not convenient to disclose the target right now. However, we can give a brief introduce to its mechanism of action in autoimmune diseases. This target plays a crucial role in regulating the whole immune system. In the normal tissues of healthy people, the expression level of this target is very low. But in some cases of chronic inflammation and immune imbalance, it can be highly expressed, leading to worse inflammation and a cascade amplification response. At the same time, it can also cause excessive activity of the Th17 pathway, increasing its cell count, and reducing the number of immune regulatory T cells. Studies have shown that knocking out this gene significantly reduces the proliferation of Th17 and bring the number of Th17 cells back to normal levels. At the same time, Tregs are significantly increased, and the expression level of IL-17A/F is also significantly reduced, without interfering with other protective immune functions, including anti-infective and anti-tumor functions of Th1 and Th2. From these data, it seems that the target inhibitor we have selected has promising prospects in the field of autoimmune diseases. Because the target and the candidate drug we have developed have potential in a range of different indications, we are very confident in making this product a widely used first-line blockbuster drug.

In addition, Qiandai is also developing drugs for metabolic diseases, such as hyperuricemia, a disease has been neglected for a long time. We believe that, in the future, metabolic function will weaken with increasing age, and hyperuricemia will become more common due to human dietary habits and aging. Many people have elevated levels of uric acid compared to when they were young, although their uric acid levels are within the normal range. This may lead to chronic damage to the kidneys and cardiovascular system, and even result in gout. These potential health problems cannot be ignored. Therefore, we are actively working on a product that is fast acting and can be safely taken to control uric acid for a long term.

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GBI: Can you tell us about the vaccine products in the pipeline?

Dr. Zhou: We have taken a new approach to vaccine development, because we've noticed that the development capacity of domestic vaccine makers in China are relatively weak. Since the COVID-19 pandemic, people have been paying more attention to vaccines, but they are still in the "fast-follow" stage, mainly focusing on some well-known pathogens, such as COVID-19, RSV, HPV or pneumococcus. And most of the time, only minor modifications are made to the original vaccines, such as making them multivalent or changing delivery methods. However, there is one dangerous pathogen that has been relatively overlooked, with a threat to the health of children that should not be underestimated, and that is Mycoplasma pneumoniae.

Last year, Mycoplasma pneumoniae infections reached a peak in China, particularly affecting many school-age children. In many cases, the first symptom of onset is pneumonia. Pneumonia caused by M. pneumoniae often lacks specific drug treatments since drug resistance has become a global issue, especially in Asia. Last year, about 80% to 90% of cases were resistant to macrolide antibiotics, forcing doctors and parents to choose tetracycline or even cortisone drugs to control the condition and prevent more severe respiratory failure. Children's teeth and bones are still growing, and the use of such antibiotics can have irreversible side effects (such as tetracycline teeth, damaged cartilage development, etc.). Therefore, many children developed "white lungs", or severe pneumonia, due to delayed receiving effective therapies.

In addition, M. pneumoniae can result in many chronic disease

characteristics, including chronic damage to nerve tissue and chronic mucosal inflammation. Many adults with asthma or pulmonary fibrosis are related to infection with M. pneumoniae in childhood.

We do antigenicity testing with our product by accurately screening key proteins required for pathogen infection of human respiratory epithelial cells, discovering multiple antigenic epitopes of multiple proteins for recombination. That not only ensures strong antigenicity, but also reduces the risk of allergic or autoimmune reactions caused by cross reaction with human tissue proteins, greatly improving effectiveness and safety. At present, we have demonstrated the good antigenicity and safety of these recombinant subunit proteins in inducing specific antibodies in animals. We are working on a post immune challenge test in the works to determine whether these immune antibodies provide sufficient protection. Once the challenge test is successful, we will speed up preclinical and clinical development and strive for conditional approval at the next infection peak to reduce the incidence rate of mycoplasma infection and pneumonia.

GBI: What specific measures and plans are currently in place for sustainable development?

Dr. Zhou: We believe that sustainable development means being able to keep learning and creating value. Our team is currently in a stage of rapid growth and efficient performance. We are also learning from the experiences of many great companies, connecting with excellent teams, absorbing their new ideas and technologies, and seeking opportunities for cooperation. With the fast advancing of technologies, we hope to booster our creativity and influence, which is key to make sustainable development. At the same time, we always stick to our original goal of truly solving medical problems and stay super enthusiastic about the whole research and development of therapies. During the R&D process, team members have had a lot of fun and feel extremely proud while continuously achieving breakthrough research results. Despite limited funds, our team has quickly completed the proof of concept of multiple important projects and made some breakthrough progress, spurring everyone to maintain strong motivation and continue to move forward.

GBI: What is the corporate culture of Qiandai Bio? How does this culture affect employees' work efficiency and the overall atmosphere of the company?

Dr. Zhou: I am really grateful for all the employees who have joined us, a startup company. Our team is full of young people who want to take hold of their destiny, with innovative courage and ability. During job interviews, we felt a perfect match, where they saw the future prospects of these products and were eager to make things happen and do them well. I believe that in the future, we will provide an open learning and growth platform for every employee, allowing them to not only achieve specific goals but also build a strong career, growing into talents who can start their own businesses independently at the right time. This is another vision: to enable everyone to fully unleash their potential and keep growing fast.

Here, employees will get exposed to cutting-edge technologies, advanced research and development concepts, and goal-oriented project management methods that may not be available in other companies, thereby gaining a complete and in-depth understanding of the systematic development of drugs and forming a clear logic for drug development. This is the opportunity we hope to provide for talents. In addition, our company's culture is very open and inclusive, where everyone is free to speak up and any ideas can be put forward. We do not judge, but encourage everyone to mingle, and find new solutions. We hope to break away from conventional ways of thinking, stick to the principle of simplifying complexity, solving problems quickly, and reaching our final project development goals.

GBI: What successful experiences in team building can you share with us since the establishment of the company one year ago?

Dr. Zhou: I believe that everyone at Qiandai is self-motivated and self-disciplined. Young people in China develop strong willpower and resilience thanks to tough exams, which gives them an edge over talents from overseas. One of our successful experiences is to provide everyone with sufficient opportunities for development and self-improvement, while also giving them full trust and respect. Everyone can speak up their opinions and is encouraged to think independently and critically. Coming up with project proposals and development suggestions is really important. In such a relaxed and friendly environment, everyone can strongly self-driven to pursue their dreams and also realize their personal value.

GBI: How does Qiandai respond strategically in terms of facing industry competition for capital and relatively tight financial conditions?

Dr. Zhou: Whether it is a financial cold winter or a super competitive environment, none of it affects our company's core values, our products, or our core competitiveness. As long as the product is excellent enough, its value will be recognized by the market, and it will play its role, bringing us subsequent returns.

We believe that we do not need to wait until the product is launched to make profits and obtain returns. As long as we make international and domestic patent applications for our pipeline products, we can seek collaboration partnerships and transfer deals to achieve early product returns from our

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pipeline. Currently, many large pharmaceutical companies are actively seeking valuable products, including preclinical products. There is always a shortage of innovative projects. We are now implementing a dual track approach to VC financing and licensing deals to gain funding, increasing the ways to raise funds. We will actively participate in some international conferences, including the upcoming investor exchange conference in the United States and the cooperation summit in Europe in November, to introduce our products to the international pharmaceutical industry, demonstrate the prospects and value of our products, and to find partners to support our development. Perhaps we will set a precedent where start-up technology companies do not rely on VC financing, but make money through our own product collaborations and transfers, providing a steady stream of funding for subsequent project development.

Of course, we are also looking for some investors who share the same vision, truly understand us, and are willing to create value with us and promote the progress of medicine forward together. Perhaps we will be remembered for writing a new chapter in medicine history. It is hard to find such a suitable investment institution in the field of innovative drugs, especially in China. Because it is only in recent years that people have begun to pay attention to the development of innovative drugs. Previously, investments were mainly focused on generic or modified drugs. We are still in the stage of learning and exploring.

We hope to find partners who can communicate well with us in a cooperative and supportive way, so that our company can develop steadily and jointly completing the global clinical development and commercialization of our products. We will not put too much energy in seeking VC investors, instead, we will let things happen naturally and promote our research and development achievements more by attending international investment conferences or cooperation summits. We won't be too worried or anxious about financing situation. We believe that we are a team that can row past international giant cruise ships.

GBI: Looking ahead to the future, what are the important development goals or strategic plans of Qiandai Biotech? How will these plans drive the company forward?

Dr. Zhou: In the near future, we plan to complete the development of QD-001 eye drops, oral treatment drug for autoimmune diseases, and Mycoplasma pneumoniae vaccine as soon as possible. At present, we have completed preclinical efficacy verification and need to further demonstrate the drug properties and safety of the compound to get ready for the clinical stage.

With a cash flow shortage, everyone's sense of crisis actually stimulates the potential of the team. We will consider setting priorities for pipeline products and prioritizing the indications of each product. This is also a great training for the team. Anyway, we can still find a way for the company to survive in a crisis.

When our funds are relatively abundant, we will also achieve greater value, which is our long-term goal. By continuously developing products with clinical value and market potential, we will gradually establish our company's brand and let more partners and future large multinational pharmaceutical companies know our company's research and development capabilities. This is the only way to achieve stable long-term development for the company.

GBI: How does Qiandai Biotech balance economic and social benefits, ensuring that it can contribute to environmental protection and social progress while developing rapidly?

Dr. Zhou: It can be said that in the early stages of research and development, we have systematically considered many subsequent factors, including whether compound synthesis would cause environmental pollution or produce toxic substances, whether metabolites in the body are toxic, and whether endotoxins would be produced during protein synthesis. In addition, we also pay attention to whether there are too many synthesis steps, leading to unnecessary energy consumption and cost waste. We also consider whether the product can maintain stability at room temperature during transportation without strict temperature control, as this is more beneficial for long-term green development in the future.

Finally, if our drugs and vaccines can significantly cut down the number of hospital visits for patients, alleviate the burden of home care, and even improve the quality of life and work

efficiency of many populations, this will create enormous social value.

GBI: Which market would you prioritize when commercializing your company's products in the future?

Dr. Zhou: When it comes to commercialization, we plan to sync up with the global market. Moving forward, we may find partners to cover the European, American, Japanese, and Brazilian markets, while leaving the Asian or Greater China markets for ourselves. At this point, we will leverage the advantage of domestic clinical development speed to accelerate global development. Therefore, we will prioritize retaining our development and commercialization rights in the Chinese market.

Brazil, a market often overlooked, will be covered for patent filing. The country has a large population, and living standards and medical standards have also been improving in recent years. Its pharmaceutical market, an emerging field, has strong development momentum and enormous potential. As I have been responsible for clinical development and registration in Brazil for many years, I have a deep understanding of the whole approval process and its importance in the country.

GBI: What are your criteria for selecting partners?

Dr. Zhou: When seeking drug research and development partners, our main goal is to make sure that the target partner's technology is at the cutting edge of the industry. For example, when screening small molecule drugs, we have come into contact with many AI virtual screening drug companies, including some domestic AI technology companies. We have found that there is still a significant gap between China and foreign countries in drug screening modeling and the richness and novelty of compound libraries. So, after careful evaluation and consideration, we chose to collaborate with a British AI company, which brought us great success and surprises in protein modeling, compound libraries, and research on hard-to-drug targets. In addition, we highly value our partners' past experience and expertise. For example, in our ophthalmology project, we selected experts who had previously conducted animal myopia efficacy studies in the eye valley for the efficacy validation. In the selection of clinical CRO, we seek clinical CRO partners with relevant indication experiences, which can lay a good foundation for the project and make sure the trial data is of good quality.

At the end of the interview, Dr. Zhou said: "In general, our company focuses on the fundamentals of health, committed to solving problems for the improvement of public health, reduce the potential risks of diseases, especially chronic diseases , for children and the elderly, and reduce the incidence rate and severity of diseases in future. We also hope to strengthen cooperation with excellent enterprises and technology platforms at home and abroad going forward, so as to enable better development of pharmaceutical products."