

Apexigen Inc. is Using Antibodies Derived from Rabbits to Develop Therapies in Cancer and Inflammatory Disease

**Healthcare
Biopharmaceutical
(Privately Held)**

Apexigen Inc.

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**Xiaodong Yang
President, CEO and Director**

BIO:

He has over 15 years of research and development experience in the biotech industry, primarily in the areas of monoclonal antibody and siRNA based therapeutics.

Prior to joining Apexigen, Dr. Yang was Vice President, Research and Preclinical Development at Intradigm Corporation which was acquired by Silence Therapeutics in 2009. In this role, he was responsible for overseeing the progress of company's dis-

covery and preclinical development of RNAi-based therapeutics.

Dr. Yang began his career as a founding scientist at Abgenix (now Amgen), a human therapeutic antibody company in 1995. He assumed increasing responsibilities and advanced to the level of Senior Director of the Oncology Therapeutic Program Team responsible for setting strategy and managing the company's oncology portfolio. Dr. Yang was the project team leader for Vectibix® (panitumumab) and played a key role in discovery, development and BLA approval for Vectibix®. In addition, he was also in charge of managing the company's partnerships with other pharmaceutical and biotech companies on development of therapeutic antibodies to more than 30 different molecular targets.

Dr. Yang received his medical degree from Beijing Medical University. He was awarded his doctorate in Immunology from University of Bern in Switzerland. Dr. Yang was a postdoctoral fellow at Novartis and Stanford University School of Medicine.

Company Profile:

Apexigen, Inc. is a privately held, biopharmaceutical company focused on the development and commercialization of innovative therapeutic monoclonal antibodies for the treatment of diseases with unmet medical needs. Apexigen's product pipeline includes 7 humanized antibodies derived from its proprietary antibody technology platform. Collaborations are a key element of Apexigen's business model with 6 collaborations currently in place. The company's core advantages are its proprietary technology platform and expertise translating the

unique therapeutic benefits of humanized rabbit monoclonal antibodies.

**Interview conducted by:
Lynn Fosse, Senior Editor
CEOCFO Magazine**

CEOCFO: Dr. Yang, what is the idea behind Apexigen?

Dr. Yang: The idea is to develop innovative and Best-in-Class antibody therapeutics. Many companies claim they can do therapeutic antibodies. However, we believe our technology will enable us and our partners to discover and develop unique and superb antibody therapeutics.

CEOCFO: Would you explain the Apexigen technology and how it is different?

Dr. Yang: Antibodies have become one of the major therapeutic modalities in modern therapy for inflammation and cancer. There have been many different ways to make antibodies, which are a part of our immune system and a very important component to our immune defense against any infectious agents. We are taking advantage of antibodies as part of natural components of our immune system against cancer and some of the important components of inflammation and inflammatory disease. At Apexigen we are using a very unique approach where we can make antibodies from rabbits. The reason we pick rabbit as the source of our antibodies is that the way the rabbit makes antibodies is different from humans and any other species like rodents. More importantly, the antibody, as a therapeutic coming from a rabbit source, has higher specificity, potency and the potential to translate to higher efficacy. We have data to

show that antibodies derived from rabbits have unique characteristics and we are translating those characteristics to potential therapeutic benefits.

CEO CFO: What made you decide to go with rabbits and why is this new method possible now; what has been the barrier?

Dr. Yang: The first generation of therapeutic antibodies came from mice and it took about twenty years for scientists to figure out a way to make the mouse's antibody more like a human's. That is the process called "humanization". People were also trying to do it from rabbits as well because it has been known for decades that rabbit antibodies are more stable and specific, and have other characteristics that are more suitable for therapeutic use. However, people were not able to make monoclonal antibodies from rabbits. The reason behind this is that there was lack of technology to make the antibody producing cells to live longer outside of animals to produce enough antibodies to do the pharmacology studies. Therefore, in 1996 a scientist at Loyola University, Katherine Knight, discovered myeloma cells from rabbits by generating transgenic rabbits. These myeloma cells allow people to create monoclonal antibody producing hybridoma cells from rabbits. Then it took about ten years to improve these technologies to the current levels, where now we can make rabbit monoclonal antibodies robustly and quickly. To convert rabbit antibody to human therapeutics we have developed a proprietary humanization technology that is designed specifically for humanizing rabbit antibodies. These are two fundamental technologies for developing therapeutic antibodies from rabbits. The technologies have become more and more mature and robust for various applications and commercialization. Now we are expanding the utility of our technologies to develop more innovative therapeutic products.

CEO CFO: Apexigen has a number of products or antibodies in the pipeline; what are you working on now?

Dr. Yang: We are focusing on two areas. One is cancer and the second one is inflammatory diseases, because these two areas have the most unmet medical need, especially oncology. There is a huge effort from many pharma and biotech companies to develop oncology drugs, but many of the approved cancer drugs are barely making incremental improvements. Patients need more potent and efficacious therapies and we believe that our technologies may revolutionize antibody therapy for oncology as well as other diseases such as inflammation. If you look at our pipeline, we have 7 humanized antibody product candidates. These antibodies primarily are targeting cancers and there are 2 or 3 out of 7 of these against inflammation. Some of the antibodies may actually work in both indications and we are in the process of advancing some of the key programs into the human clinical trials. For instance, we are developing our own product candidate APX005, an

**We are a company with multiple opportunities.
- Xiaodong Yang**

antibody against CD40 primarily for oncology indications.

CEO CFO: Is Apexigen working with partners and doing collaborations?

Dr. Yang: Our strategy is that, on one hand we are developing our own products, because that is a key driver for increasing value of the company. On the other hand, we have the capability and the technology to make multiple new antibodies within a very short period. Therefore, we are very actively looking for partners to use our technology. We already have six partners working with us. Two of them are multinational large pharma companies. We signed a deal with Janssen Biotech, a Johnson & Johnson company, in December 2010. This collaboration enables Janssen Biotech to use our technology to develop antibodies against their own targets. We have another undisclosed collaboration with another multinational big pharma company working on another antibody for a different indication and they received IND approval to start clinical trials last December. These are the two technol-

ogy licensing partnerships, where they use our technology to develop their own antibody compounds. There is another type of collaboration we call "product collaboration". In that area we have four partnerships that are primarily in China. One is with Simcere Pharmaceuticals, which is listed on the New York Stock Exchange. We collaborate with Simcere on an antibody against VEGF for oncology. We have a second collaboration with 3SBio, which is another Chinese biopharmaceutical company listed on Nasdaq. We are collaborating on antibody against TNF. The third one is T-Mab Biotechnology. We are collaborating on an antibody against IL1-beta. Very recently on March 6, 2012, we signed another partnership deal with another Chinese pharmaceutical company Shanghai Duiwei, where we are working together on an antibody against VEGF Receptor 2. Although as a young company with 6 collaborations in place, we are still actively looking for more collaborations in both areas of product as well as technology collaborations.

CEO CFO: How does the company stay focused?

Dr. Yang: It is very challenging I have to admit because our number-one priority or focus is to develop our own product. The collaborations help us to validate our technology and help us to generate revenue. As you know, the current economic and investment environment is tough for start-up companies, so we cannot totally rely on the funding from VCs. We have to maximize the value of our products and technology first. Ideally, that will support some of our product development efforts and increase the value of the company. It is a fine balance, because we need both. We cannot just focus on our own product development, because it is very costly and requires significant capital. We spend approximately half of our time on product development and the other half on building new partnerships. Finally, yet importantly, we also spend time working with our partners because some of them do not have a lot of experience in developing antibody therapeutics. Therefore, we have to work together.

CEOCFO: Why should investors put Apexigen on their radar screen?

Dr. Yang: We are a company with multiple opportunities. We have our own product candidate, APX005, an anti-CD40 antibody for the treatment of pancreatic cancer and other malignancies. The proof of concept for anti-CD40 antibody in cancer has been done in humans. It has been demonstrated that an anti-CD40 antibody has efficacy in treating patients with pancreatic cancers. Therefore, we are very excited about the potential of APX005. Secondly, we have technologies that enable not only ourselves but also our partners to make innovative antibody therapeutics very rapidly. The third one is our product

pipeline. We already licensed 4 candidates to our partners in China. Most of them only have the rights in China, so we retain the global rights outside China. If they develop products in China and demonstrate the desired safety and efficacy profiles in clinical trials, we can either develop the candidates outside China by ourselves or collaborate with other companies to advance the program forward. Our management team is highly competent and experienced in both areas of antibody drug development and partnerships, so we know well how to manage the product development as well as partnership alliances. We can create multiple opportunities for our shareholders and investors and these

opportunities are synergistic in a way that the partnerships will help us further validate our products and technology. In the mean time, we generate revenues to support our company and support our product development. Of course, the major value driver is our own product development. We are not just a single opportunity company. We have multiple shots on goal for creating value for our shareholders and investors. Therefore, we are very confident that we can succeed in building a value-creating business. More importantly, we can bring innovative therapeutics to patients who have unmet medical needs.



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