

My Biotech Success could be yours

Lonza's Appetite for a Challenge Helps EpsilonGen Take the First IgE Therapeutic into the Clinic

-Tim Wilson, Ph.D., Chief Executive Officer, EpsilonGen

When London-based biotech EpsilonGen was seeking a CDMO to develop the GMP manufacturing process for its landmark immunoglobulin E (IgE) immunotherapy candidate, it was looking for a partner to manufacture what current research and monitoring indicate is the first ever IgE therapeutic to be manufactured at scale and enter clinical trials. Tim Wilson, CEO of EpsilonGen, explains how they focused on an overall body of experience with antibodies because of the fact nobody had done this before, and chose Lonza from their shortlist –recognizing its strong commitment to this new challenge.

IgE Therapeutics – A New Frontier

Among the five types of antibodies in the human genome, immunoglobulin G (IgG) is the most common to be found in the blood, and nearly all current antibody therapeutics are based on its structure. IgG antibodies have a long half-life in the bloodstream but a short half-life in tissue. They have been widely studied, so pioneers of antibody therapeutics logically pursued the one with the long half-life in serum.

In contrast, IgE is present at very low levels in healthy individuals, is slightly larger and more heavily glycosylated than IgG, and has a shorter half-life in blood. But IgE persists for much longer in tissue, and that is where 92% of human cancers occur – not in blood.

IgE plays a role in killing parasites and neutralizing toxins from animal venoms. Despite scientists having known about it for decades, current monitoring indicates that

EpsilonGen



Tim Wilson, Ph.D.
Chief Executive Officer
EpsilonGen

Dr. Tim Wilson has spent his entire career in life sciences, working in start-ups, venture capital, investment banking and equity research. He has held senior positions at a number of firms, including NM Rothschild, Hambrecht and Quist, UBS, SG Cowen, and Pacific Growth Equities. In 2013, he founded Longcross Advisers, a life science-focused corporate finance firm. He gained his Ph.D. from MRC's Laboratory of Molecular Biology in Cambridge and a BSc (Hons) in biochemistry from Imperial College, London.

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EpsilonGen is the first company to explore IgE as a therapeutic platform for solid tumors. Our lead candidate, MOv18 IgE, is the first IgE therapeutic to enter human clinical trials. In an initial study, it was found to be safe, well-tolerated, and showed early signs of clinical activity. A larger Phase 1b trial is currently underway to further investigate safety and efficacy.

Lonza Stood Out as a GMP Partner

Selecting the right CDMO is critical for a small, venture capital-financed company like EpsilonGen. We needed to complete numerous tasks in a short period of time and pay closer attention to the financial aspects than bigger organizations or public companies. Cost never trumps quality, however, and we were conscious we had to carefully balance speed and cost with the scientific expertise and agility we expected would be crucial for what amounts to a first-in-modality program.

With this in mind, we made a shortlist of mainly larger CDMOs with the requisite depth of science and technical resources, but we also hoped to avoid bureaucracy that can slow communication and hamper the speed of a program. Lonza is

a leader in the field, but the reason we ultimately chose them was the good people they had involved, and we liked their flexible outlook.

Motivated by a New Modality

Cancer has been polypharmacy since the 1940s – and remains best served by a multiplicity of drugs and approaches. We see IgE not as a new first-in-class drug, but an entirely new modality like IgG was, and chemotherapy, radiotherapy, etc. Developing a manufacturing process for a novel therapeutic modality presents unique challenges, requiring more effort and innovation. With MOv18 IgE being a first in modality, and due to the structural properties of this molecule type, it couldn't be produced using standard IgG manufacturing methods.

Not all large CDMOs are willing to take on this new type of challenge nor deviate from standard processes, but what we saw in Lonza was an appetite for the project. Their scientists were motivated by the opportunity to gain pioneering expertise in IgE as a concept and platform, which will put them in a strong position if our program is successful in the clinic and momentum builds in these types of antibodies.



Manufacturing of EpsilonGen's IgE antibody took place at Lonza's Slough, UK facility

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Collaborative and Flexible

We were initially concerned that our project might get sidelined if the technical approaches failed and new solutions were required. However, this wasn't the case. During our discussions with Lonza regarding our molecule not being an IgG, they were very collaborative and flexible, quickly adapting with alternatives. For a large CDMO, Lonza really embraced the pioneering culture, recognizing the need for exploratory science alongside traditional antibody manufacturing techniques.

Meeting Milestones with Precision

As with any development project, especially given that this was the first time a molecule of this type was being produced at scale under GMP conditions, technical challenges did arise. A hallmark of a strong CDMO is the ability to respond swiftly, and at Lonza, the project managers maintain open lines of communication and operate with full transparency in these situations.

We benefitted to a degree from being geographically close to Lonza's Slough facility – certainly being in the UK – but it is more about the culture of communication, and they were very responsive. Lonza ultimately delivered product on time and on budget, which is obviously the ultimate benchmark for a CDMO. My team was impressed by their dedication and professionalism.

Right Choice for a Novel Program

With hindsight, the facts show that Lonza was the right choice to develop the first GMP manufacturing process for an IgE antibody. CMC work is subtle and inherently complicated, with countless steps, so you want to be with a CDMO that is motivated for the challenge, has the depth of scientific expertise or specific track record, and is willing to be flexible with its perhaps standardized approach.

The fundamental point was that nobody had a track record with IgE therapeutics, but Lonza checked the other boxes. At the end of the day, we chose Lonza and we're glad we did. They did a very good job. EpsilonGen was able to move forward with our Phase 1b study on the timeline we had set out, and Lonza played a big part in that.

Research into IgE antibodies at EpsilonGen's laboratories in Hammersmith, London



EpsilonGen

EpsilonGen is the world's leading pan isotype company and is a global leader in the development of immunoglobulin E (IgE) and immunoglobulin A (IgA) antibodies to treat cancer. IgE has several features that make it ideal for the treatment of solid tumors, including greater potency, enhanced tumor access, and a long tissue half-life. EpsilonGen's lead clinical candidate MOV18 IgE targets the folate receptor alpha (FR α) and has successfully completed a Phase 1 trial in ovarian cancer. It is the world's first IgE therapeutic to enter the clinic.