agenus news

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Beating Big Pharma At Its Own Game

Delivering innovations with speed and quality is what sets Agenus apart

Agenus is advancing a new generation of immuno-oncology therapies at record speeds. Over the past 3.5 years, 13 of our discoveries have been filed as INDs, which outpaces any competitor in immuno-oncology, including big pharma. Our unique vertically integrated capabilities have been key in driving this achievement. Our target discovery, antibody discovery, preclinical/assay development, cell line development, and clinical GMP manufacturing functions reside in-house and are key to our speed and innovation.

SPEED: Delivering milestones and strengthening our partnership with Gilead

Last year, we announced a significant immuno-oncology partnership with Gilead for $120M upfront cash payment and $30M equity investment. Since then we have achieved 2 IND acceptance milestones for Gilead's licensed program and one of its option programs. The first was GS-1423 (a first-in-class tumor microenvironment modulating bispecific) and the second was AGEN2373 (a potential best-in-class CD137 agonist). These milestones triggered additional cash payments totaling $15M.

Today, we announced a manufacturing agreement with Gilead, whereby we will complete the supply of a second batch of Gilead's GS-1423 drug substance, which is already in the clinic. Our team at Agenus West in Berkeley continues to perform with innovation in manufacturing our broad pipeline of I-O antibodies and bifunctional molecules, delivering with speed 3 to 4 times faster than industry average.

These undertakings may sound simple to some, BUT they have been critical to our success in outpacing big pharma in delivering more INDs for an exciting new generation of I-O therapies with groundbreaking potential.

SPEED: A unique, state-of the-art facility that is breaking records and setting standards

Our ~25,000 square foot process development and cGMP manufacturing facility in Berkeley was acquired from XOMA in December 2015 with retention of experienced scientists, engineers and technical personnel to staff the facility. Our facility utilizes high quality, productive cell lines (from our Cambridge, UK site), which we have optimized to deliver high antibody yields from a single GMP run. At a contract manufacturing organization (CMO), we may encounter low expressing cell lines, resulting in multiple GMP runs to produce an equivalent amount of product, which in turn would increase time and associated costs. Our state-of-the-art bioreactors and controls are a perfect fit for generating required high-quality amounts of antibodies for quick introduction into the clinic, and we are thus able to support multiple programs in parallel.

Our team of process development and manufacturing personnel has an average of 15 years of industry experience. Including their time with XOMA, they have developed and manufactured over 50 antibodies, the majority of which advanced to the clinic. In the last 18-20 months, our Berkeley facility and personnel have developed and manufactured 8 compounds, including two bispecific compounds, with 7 accepted INDs and one pending acceptance. In addition, our Berkeley team has extensive experience in writing and submission of CMC Module 3 sections for dozens of INDs, IMPDs and BLAs.

At Agenus, we have set path-breaking records for our speed in advancing from research cell bank to GMP manufacturing in ~4 months, which is 3-4 times faster than industry average of 12-18 months[1]. We believe that our completed development and at scale drug substance manufacturing of our bispecific antibody, AGEN1223, in under 2 months from research cell bank is the fastest ever, surpassing even conventional antibody development timelines in the industry.

We have been able to complete cGMP grade manufacturing of our lead assets targeting CTLA-4 and PD-1, AGEN1884 and AGEN2034, respectively, to ensure adequate clinical supply for our pivotal trials to meet our accelerated BLA filing timelines in 2020. Further, we have delivered registration grade material at commercial scale for these antibodies via technology transfer to our CMO ~3 times faster than industry standards.

We have successfully demonstrated comparability to the FDA, EU and French Ministry of Health following improved cell line, medium, process and formulation changes without a single CMC question from the agencies.

QUALITY AND SPEED: Key to delivering important therapies to patients

To reliably deliver quality drug substance and to support our speed to the clinic, Agenus is leveraging its internal end-to-end process development and manufacturing capabilities. Cell line development (CLD) is a critical first step towards antibody manufacturing and is housed at our Cambridge, UK site. Between our sites, almost all components of CMC manufacturing, namely development of analytical methods, upstream/downstream processes, formulation, drug substance manufacturing and regulatory CMC writing, all reside in-house for control of quality and speed. The industry average is ~18 months to complete CMC activities at an estimated cost of $7 million using external CMOs[1]. Our strong internal network and collaboration with our discovery and CLD teams in our Lexington and Cambridge sites allow for transfer of knowledge and information through early engagement to increase efficiency and probability of success in drug development through manufacturing. Therefore, we have achieved a much faster pace (7-12 months) of manufacturing vs. CMOs. This integrated approach helps us with overall lower cost, high efficiency manufacturing and ensures fast delivery of high-quality cell lines to our GMP manufacturing facility. These capabilities culminate into faster INDs with seamless supply of quality product, which is essential for clinical and commercial success. We continue to innovate and evaluate current technology systems for continuous improvement and to develop unique pathways to increase our speed and quality. I am proud to say that our efforts have enabled us to fully internalize clinical supply of all antibodies across our portfolio.

Al Dadson,

Chief Manufacturing Officer

"I am excited and proud to lead such a talented group of scientists, engineers and technicians at Agenus as we endeavor to transition from an R&D organization to a commercial organization, with the goal of positioning Agenus as an I-O leader combining innovation with speed and quality."

Al Dadson is an accomplished leader with over 38 years of experience in the biotechnology industry. Al has depth of experience and is an exceptional leader in process development, cGMP manufacturing through commercialization, technology transfer to top tier commercial CMO and facility design/engineering. Al spent 20 years at Bayer as Senior Principal Scientist/Engineer where he led the upstream development of Bayer's first biotechnology drug Kogenate® through commercialization. Subsequently, Al joined XOMA Corporation, where he led a high performing team for the development and manufacturing of antibodies of different isotypes with more than 20 advancing into the clinic. Under his leadership at XOMA, his team developed and cGMP-manufactured 13 antibodies for the National Institute of Allergy and Infectious Disease (NIAID) biodefense program for over 8 years. He successfully led several partnership collaborations in the past with Genentech, Chiron/Novartis, Servier, Schering Plough, Dendreon, Onyx and Aveo.

1 https://www.contractpharma.com/issues/2010-04/view_features/cmc-activities-for-development-of-mabs