

PRESS RELEASE

Chiome Bioscience Selects ProBioGen for GlymaxX[®] Antibody Manufacturing Program

Cancer Cell Killing-Optimized mAb, Stable Cell Line Development till GMP Manufacturing

Berlin, Germany and Tokyo, Japan, October 5th, 2017:

ProBioGen AG, a premier service & technology provider for complex therapeutic glycoproteins and Chiome Bioscience Inc., a Japanese antibody discovery and development company, today jointly announced signing a service and license agreement. Under the agreement ProBioGen will apply its enhanced cancer cell-killing technology GlymaxX[®] to LIV-1205, a clinical candidate, in an antibody manufacturing program for Chiome.

Specifically, ProBioGen will develop a stable GlymaxX[®] cell line, followed by process development and GMP manufacturing of the ADCC-enhanced cancer stem cell antibody, which will be optimized for enhanced antibody-dependent cell-mediated cytotoxicity (ADCC) cancer cell-killing activity.

Dr. Koji Nakamura, head of drug discovery laboratories and former CEO of LivTech explained: “We have tested ProBioGen’s GlymaxX[®] technology for our antibody before and saw *in-vivo* in animal models an obviously potentiated cancer cell-killing efficacy of its afucosylated version. This, together with our long-standing relationship with the ProBioGen team, the company’s demonstrated track record in developing stable cell lines up to reliable GMP manufacturing for small and big biotechs, and the favorable, royalty-free commercial GlymaxX[®] Terms, made our selection quite simple”.

ProBioGen’s CEO Wieland Wolf, commented: “We look much forward to a productive partnership which combines Chiome’s outstanding antibody drug candidate, LIV-1205, with our own antibody development expertise and our GlymaxX ADCC enhancement technology to make together with Chiome a marked contribution to combat various cancers”.

Dr. Volker Sandig, CSO of ProBioGen, added “We are really impressed with Chiome’s approach to use their own, smart and innovative target, and the fact that the antibody targets cancer stem cells. We all expect that GlymaxX[®] confers this antibody an even greater competitive advantage”.

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About ProBioGen AG - www.probiogen.de

ProBioGen is a specialist for developing and manufacturing complex therapeutic glycoproteins. Combining both state-of-the-art development platforms together with intelligent product-specific technologies yields biologics with optimized properties. Rapid and integrated cell line and process development, comprehensive analytical development and following reliable GMP manufacturing is performed by a highly skilled and experienced team. All services and technologies are embedded in a total quality management system to assure compliance with international ISO and GMP standards (EMA/FDA). ProBioGen was founded 1994, is privately owned, and located in Berlin, Germany.

About Chiome - www.chiome.co.jp

Chiome Bioscience is a preclinical stage biotechnology company. Chiome's focus is on discovery and development of antibody-based therapeutics in the disease areas with unmet medical needs, especially in oncology field. Chiome has proprietary antibody generating technology named ADLib® System and has several antibody discovery and preclinical programs. Chiome was founded in 2005, is listed in Tokyo stock exchange Mothers (code: 4583), and located in Tokyo, Japan.

About GlymaxX® - www.glymaxx.com

The GlymaxX® technology, developed by ProBioGen, prevents the cellular synthesis of the sugar "fucose" and hence, in antibody-producing cells, its addition to the N-linked carbohydrate part of the antibody. The absence of fucose is known to greatly enhance ADCC. The GlymaxX® technology is based on the stable introduction of a gene for an enzyme which blocks the producer cells' fucose biosynthesis pathway. As a unique feature, differentiating it from other approaches, GlymaxX® can be applied to both novel or already existing antibody producer cell lines, and entire antibody expression and discovery platforms, without negatively affecting their productivity or other product characteristics. Furthermore, a single GlymaxX® cell line can be flexibly used to produce differently fucosylated products, depending on the upstream process: In fucose-free medium the antibody is literally afucosylated. The same GlymaxX® cell line grown in fucose-containing medium however, uses the provided fucose and produces fully fucosylated antibody. Thus, a GlymaxX cell line can be employed to produce different products: For instance ADCC-enhanced GlymaxX® antibodies or wildtype-like, fully fucosylated mAbs, for a parallel Antibody-Drug-Conjugate (ADC) project. Finally, GlymaxX® has been used by biosimilar-developing companies to adjust a specific content of fucose in order to match the originators glycoprofile. Overall, GlymaxX® is simple, rapid, potent, and universally applicable to different CHO hosts and all other eukaryotic cell species. ProBioGen offers its GlymaxX® technology royalty-free and non-exclusively as a service or as an individual license.

About LIV-1205 - <http://www.chiome.co.jp/english/service/pipeline.html>

LIV-1205 is a humanized monoclonal antibody targeting cell surface antigen "DLK-1 (Delta-like 1 homolog)" of liver cancer and other solid cancers. DLK-1 is expected to control the proliferation and differentiation of stem cells, progenitor cells, and other immature cells. Chiome's R&D team discovered that LIV-1205 have shown potent anti-tumor activity in various cancer models and is expected to have beneficial clinical efficacy.

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