ProBioGen
Intelligent Biopharmaceutical Solutions

GlymaxX®
Fucose Targeted Glyco-Engineering

PRESS RELEASE

ProBioGen's GlymaxX® ADCC Enhancement Technology used by Betta Pharmaceuticals

- Bispecific Antibody for Cancer Treatment Optimized by GlymaxX® Technology -

Berlin, Germany, January 3rd, 2019: ProBioGen AG, a premier service & technology provider for complex therapeutic antibodies and glycoproteins, announced today that the company achieved an undisclosed milestone payment from Merus N.V. (Nasdaq:MRUS) based on Merus' grant of an exclusive license to Hangzhou, Zhejiang Province based Betta Pharmaceuticals Co., Ltd to develop and commercialize in China Merus' novel MCLA-129, Biclonics® bispecific antibody for the potential treatment of cancer, which utilizes ProBioGen's GlymaxX® antibody-dependent cell-mediated cytotoxicity (ADCC)-enhancing technology for greater cell-killing potential.

Merus' use of the GlymaxX® ADCC enhancement technology in MCLA-129 is the result of an agreement executed between ProBioGen and Merus in 2016. Under the terms of that agreement, Merus obtained non-exclusive rights to use the GlymaxX® technology for Merus' Bioclonics® pipeline of bispecific antibodies designed to treat various forms of cancer to enhance their ADCC activity. MCLA-129 is the third commercial GlymaxX® license activated by Merus after MCLA128 anti-Her2/Her3 and MCLA-158 anti-EGFRxLGR5 bispecific antibodies.

GlymaxX® is a stable modification, applicable to any producer cell, leading it to produce antibodies without fucose in the sugar chain. Such GlymaxX®-modified, afucosylated antibodies recruit and activate immune effector cells much more effectively, possess a much higher tumor cell killing activity and potentially require lower doses.

ProBioGen offers access to GlymaxX® royalty-free as part of cell line development service projects or as standalone technology licenses.

About Antibody-Dependent Cell-Mediated Cytotoxicity (ADCC)

ADCC (Antibody-Dependent Cell-Mediated Cytotoxicity) activity is an important antibody function, leading to the selectively killing of target cells, i.e. cancerous cells or pathogen-infected cells. Several therapeutic antibody drugs on the market rely on ADCC as mechanism of action. ADCC enhancement has the potential to increase the therapeutic effect and/or to greatly reduce antibody dosage requirements, resulting in fewer side-effects and treatment costs.

About GlymaxX® - www.GlymaxX.de

The GlymaxX® technology, developed by ProBioGen, prevents the synthesis of the sugar "fucose" and hence, in antibody-producing cells, its addition to the N-linked antibody carbohydrate part. 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 literally eliminates the producer cells' fucose biosynthesis pathway. As a unique feature, differentiating it from other approaches, GlymaxX® can be applied to both novel and already existing antibody producer cell lines and entire antibody expression and discovery platforms, without negatively affecting their productivity or product characteristics. Moreover, it is

simple, rapid, potent, and universally applicable to different CHO hosts and all other eukaryotic cell species. GlymaxX® can be rapidly applied in a few weeks to any existing antibody producer cell line, can be used in the context of ProBioGen's pre-engineered GlymaxX® host cells, or can be introduced into entire animal cell expression platforms by modifying the host cell line.

ProBioGen offers its GlymaxX® technology royalty-free as service or as individual license.

About ProBioGen – www.probiogen.de

ProBioGen is a specialist for the development and manufacturing of complex therapeutic glyco-proteins. 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 is operational since more than 20 years and is located in Berlin, Germany.

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