



Goodwin Biotechnology and Transporin Announce a Technology Collaboration that Enhances the Ability of Antibody Drug Conjugates to Target and Deliver Payloads into Diseased Cells

January, 2015 -- Plantation, Florida -- Goodwin Biotechnology, Inc., a biological Contract Manufacturing Organization (CMO) that specializes in Mammalian Cell Culture expression systems and Bioconjugation technologies, and Transporin, Inc., a Silicon Valley R & D company with full ownership of IP rights to a broad array of life science and software technologies, have announced a collaboration whereby Goodwin Biotechnology has been granted a worldwide, exclusive license to utilize the proprietary metal-binding domain (MBD) of human insulin-like growth factor binding protein-3 (IGFBP-3) conjugated to monoclonal antibodies or antibody fusion proteins, and perform process development and manufacturing services using such conjugates for research, evaluation, and clinical trial purposes.

“This is a significant milestone for our company,” noted Karl Pinto, CEO of Goodwin Biotechnology. “We have been committed to investing in and advancing the field of Bioconjugation for nearly 15 years, and this collaboration enables us to offer our clients a proprietary, enabling technology that promises to enhance the targeting ability of our clients’ antibodies, then enhance the ability for the payload to enter the target cell where it can do its job. This unique technology is designed to enhance the therapeutic ratio of efficacy while minimizing side effects and it may also reduce the cost of therapy—All of which have a positive impact on the quality of care for patients and their families.”

“Transporin has developed a peptide carrier molecule consisting of approximately 20 amino acids based on the metal-binding domain of IGF-binding proteins, which form part of a new generation of proprietary peptides,” said Desmond Mascarenhas, PhD, CEO of Transporin. “When covalently attached to other peptides, large proteins or small nucleic acids, the MBD-peptide complex can deliver these biomolecules intracellularly, differentiating between normal cells and cells under stress, and targeting the latter. Possible targets include many types of cancer, metabolic disease as well as autoimmune conditions. The MBD-peptide complex rapidly transports its cargo into cytoplasmic and nuclear compartments of targeted cells.”

“When augmenting Goodwin Biotechnology’s expertise in Bioconjugation with our proprietary MBD-peptide technology, the potential value of the resultant conjugate is increased multi-fold,” continued Dr. Mascarenhas. “There are a number of applications that can be explored:

- The MBD peptide sequence can be incorporated as a linker to bind to a client’s functional monoclonal antibody to generate an antibody-linker-drug conjugate.
- The MBD peptide sequence can be genetically incorporated into the DNA sequence of a client’s product to develop a unique cell line.
- For clients who have a monoclonal antibody linked to a radioactive metal and who may desire a formulation-based solution, the MBD peptide sequence can be used as an excipient to bind the metal and possibly shield the radioisotope to protect healthy cells while the complex is in circulation

and enhance the ability of the complex to target diseased cells via a non-covalent interaction that doesn't require a significant drug change.

- The ability of the peptide sequence to bind to metals, specifically nickel, cobalt, zinc, iron and possibly other metals (including radioisotopes) may also help enhance the purification process for difficult-to-purify proteins using metal-affinity columns.

The resultant MBD-peptide agent can be used for diagnostic purposes, for monitoring diseases and / or as a therapeutic modality.”

The potential value of the MBD-peptide technology can best be appreciated when put in perspective. While modern medicine has made significant strides in a number of disease conditions, a number of diseases remain where advancements are needed to improve the detection, monitoring, and treatment of these conditions.

In a variety of cancers, for example, conventional chemotherapy has limited specificity for the diseased cells. Therefore, high doses of systemic chemotherapy are used with limited success and the patients experience significant side effects. Monoclonal antibodies (mAbs) conjugated with a payload such as a drug or radioisotope are showing some promise based on their ability to target diseased cells; however, based on the complexity of the antibody:linker:payload conjugate, premature cleavage of the payload from the conjugate, inability of the conjugate to breach the cell wall, binding to non-target sites and / or getting eliminated from the body prematurely, some suggest that greater than 95% of the administered dose never reaches the intracellular target. Therefore, higher drug doses are needed, which increases the cost of therapy and the side effect profile. Fortunately, the possibility of improving the selectivity of therapy for a number of diseases can be enhanced by the use of targeting agents.

A number of cancers (breast, prostate, colon, ovarian, pancreatic, gastric, lung, etc.), chronic conditions (arthritis, osteoporosis, atherosclerosis and other cardiovascular diseases), autoimmune diseases, and other maladies are now increasingly being viewed as secondary to chronic inflammatory conditions. As such, they are under stress. The condition of cellular stress can be any type of stress such as thermal, immunological, cytokine, oxidative, metabolic, anoxic, endoplasmic reticulum, protein unfolding, nutritional, chemical, mechanical, osmotic and glyceemic.

The MBD peptide sequence can enhance the ability of the mAb to target diseased cells and improve targeting specificity an estimated 3x to 10x fold by binding to the cell surface transferrin receptor and integrin beta-3. Therefore, it can help reduce the off target effects of the drug and increase the speed of the agent to the target.

The MBD peptide carrier also provides active transport into the target cell. MBD uptake correlates with the expression of genes associated with cellular stress-coping mechanisms commonly up-regulated in cancer (nuclear factor-kappaB and HSP-70B), for example. Once inside the cell, their payload can modify the disease process.

Transporin has protected the MBD-peptide technology with a comprehensive portfolio of issued patents in the U.S. and worldwide (US Pat. Nos. 8,536,135; 7,662,624; 7,618,816; 7,611,893; 7,371,813; 6,914,049; 6,887,851; 6,861,406).

About Goodwin Biotechnology, Inc.

Goodwin Biotechnology is a world-class CMO that offers a Single Source Solution™ through partnerships with clients for cell line development or exploratory proof of concept projects through process development and cGMP contract manufacturing of monoclonal antibodies, recombinant proteins, vaccines, and Antibody Drug Conjugates (ADCs) and other Biologic Drug Conjugates for early and late stage clinical trials. By working with Goodwin Biotechnology, our clients can enhance the value of their product candidates with clear development and manufacturing strategies as well as a road map to meet the highest quality product requirements from the milligram and gram range to kilogram quantities as the product candidates move along the clinical approval pathway in a cost-effective, timely, and cGMP compliant manner to enhance patients' lives. With over 20 years of experience as an independent contract manufacturer, Goodwin Biotechnology has worked as a strategic partner with companies of all sizes from small university spin-offs to major research institutes, government agencies and large, established and multi-national biopharmaceutical companies. Based on the impressive track record, Goodwin Biotechnology was recently awarded Frost & Sullivan's Customer Value and Leadership Award for Mammalian Contract Manufacturing! Additional information may be found at <http://www.GoodwinBio.com>.

About Transporin, Inc.

Transporin, Inc. is a Silicon Valley R & D company with full ownership of IP rights to a broad array of life science and software technologies. Its business model emphasizes licensing and subscription revenue streams. It is Transporin's goal to operate with a minimum of fixed overhead costs. Corporate and academic collaborative projects are thus central to achieving its objectives, and joint R & D and business enterprises between Transporin and partner organizations form the bulk of its operations.

The company's area of strength lies in its above-average "innovation index". Many of its technologies represent first-in-class concepts for treating human disease and managing user knowledge and preference through advanced software-based psychological and knowledge segmentation strategies.

Transporin's MBD transporter platform supports a range of extraordinary products facilitating the targeted delivery of interventions inside the human body. Its Transfexa(TM) line of generic reagents enables researchers to deliver nucleic acids intracellularly both in vitro and in vivo with a precision and effectiveness not hitherto possible (and without requiring lipid-based carriers).

Ongoing collaborative R&D projects with academic and corporate partners employ MBD transporter technology to functionalize antibody and peptide-based biopharmaceutical drugs, including Nephrlin(TM) — a first-in-class drug for the treatment of neuroinflammatory stress. Additional information can be found at <http://www.Transporin.com/>

For more information, please contact:

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