HUSTLING ON HALF-LIVES

Caisson Biotech licenses heparosan-based delivery technology to Novo Nordisk to extend half-lives on drugs

BY JEFFREY BOULEY

OKLAHOMA CITY—Caisson Biotech LLC, a biopharmaceutical company with a patented heparosan-based drug delivery technology, announced in early May that it had entered into a development and license agreement with Danish company Novo Nordisk A/S. The agreement, which is the first license transaction between the two companies, gives Novo Nordisk the exclusive rights to use Caisson's proprietary heparosan-based drug delivery technology to engineer and develop compounds within undisclosed therapeutic areas.

Under the terms of the agreement, Caisson will receive an undisclosed upfront payment in addition to contract research and manufacturing payments. In addition, Caisson will be eligible to receive milestone payments upon achievement of certain predefined clinical, regulatory and commercial targets plus royalties on the global sales of the therapeutic products developed under the agreement, representing a total deal value potentially in excess of $100 million.

Novo Nordisk is continuously looking for external innovation to complement its own technical capabilities and help develop superior protein and peptide therapies in the area of diabetes, hemophilia, growth disorders and autoimmune/inflammatory diseases, says Jens Aakerso, licensing director for Novo Nordisk, and the deal with Caisson fits into that strategy.

As noted by Dr. Paul DeAngelis, chief scientist at Caisson, his company recently completed feasibility studies with Novo Nordisk that seem to validate Caisson's heparosan-based drug delivery technology for product pharmacokinetics and enhanced half-life in relation to at least one undisclosed therapy area, and Per Falk, senior vice president of Novo Nordisk's Biopharmaceutical Research Unit, calls the heparosan technology "an interesting approach for generating novel therapeutics with prolonged half-lives."

"Our technology utilizes a naturally occurring sugar polymer that is stable and inert in the bloodstream, but is biodegradable inside cells for the purpose of cloaking, enlarging and/or protecting drug cargo," DeAngelis said in the news release about the license deal. "We can customize heparosan with respect to polymer size and conjugation chemistry, thus providing flexibility to enhance a variety of therapeutic proteins, peptides, delivery platforms *(e.g.,* liposomes, viruses or nanoparticles) and small molecules."

"Novo Nordisk is continuously looking for external innovation which is complementary to our own technical capabilities and which will support our vision to develop superior protein and peptide therapies in the area of diabetes, hemophilia, growth disorders and autoimmune/inflammatory diseases," Jens Aakerso, licensing director for Novo Nordisk, tells *ddn*. "As part of our innovation sourcing initiatives, we came across Dr. DeAngelis' highly interesting work on heparosan, and we are convinced that this technology holds promise for fine-tuning the half-life and pharmacological properties of our compounds to even better match patients' needs for less frequent administration."

Under the terms of the agreement with Novo Nordisk, Caisson will receive an undisclosed upfront payment in addition to contract research and manufacturing payments, as well as other potential payments that could lead to a total deal value in excess of $100 million.

As for what the deal means strategically for Caisson, CEO Thomas Harlan tells *ddn*, "The extensive diligence process undertaken by Novo Nordisk, a global healthcare company and leader in diabetes care, will provide important independent third party validation and credibility to companies interested in evaluating Caisson's technology, thus setting the stage for future drug delivery partnerships. Revenue from these partnerships will provide sustainable internal capital to launch the development of Caisson's internal clinical pipeline, leveraging the long-term value of its drug delivery technology."

The genesis of the deal goes back to May 2009, when DeAngelis recalls that he met a Novo Nordisk scientist, Dr. Carsten Behrens, at the Carbohydrate Bioengineering Meeting in Italy, where he was giving a talk on the heparosan modification system.

"Carsten asked several questions at that time, and we started a dialogue. Within about six months, we began collaborating on feasibility projects. Over the next year, we obtained and delivered positive data to Novo Nordisk," he recalls. "In 2011, Caisson CEO Thomas Harlan and Managing Director Dr. Breca Tracy and I met a team from Novo Nordisk at BIO in Washington, D.C., and began term sheet negotiations. Due diligence began in early 2012, and negotiations continued until May, at which time the deal was finalized and signed."

Caisson Biotech is a wholly owned subsidiary of Heparinex LLC, also located in Oklahoma City, but is funded and managed by Emergent Technologies Inc. a life-sciences technology investment and management firm headquartered in Austin, Texas.

Novo Nordisk, of course, is known as an industry leader in diabetes care, with 89 years in that area, but also boasts prominent market status in areas like hemophilia care, growth hormone therapy and hormone replacement therapy. The global healthcare company employs approximately 32,700 employees in 75 countries, and it markets products in more than 190 countries. **ddn**

EDITCONNECT: E061228

DRUG DISCOVERY NEWS ddn Discovery / Development / Diagnostics / Delivery

Reprinted with permission from *Drug Discovery News* ▪ June 2012, Volume 8, Issue 6
Old River Publications, LLC ▪ 19035 Old Detroit Road ▪ Rocky River, OH 44116
www.drugdiscoverynews.com ▪ Tel: (440) 331-6600 ▪ Fax: (440) 331-7563