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Selecta To Perform Preclinical Malaria Vaccine Work For SAIC

Having received a grant from the Juvenile Diabetes Research Foundation in June to work on an experimental vaccine for type 1 diabetes, Selecta Biosciences again has looked to a non-traditional financing route, this time obtaining a subcontract with the Science Applications International Corp. to develop a targeted synthetic vaccine particle product for malaria.

Using its proprietary Synthetic Vaccine Particle (SVP) platform to develop antigen-specific immune activation or immune tolerance vaccines in a variety of indications, Watertown, Mass.-based Selecta has several in-house projects as well as its two collaborations. Furthest along is a nicotine vaccine (SEL-068) for smoking cessation and relapse prevention which the biotech plans to bring into clinical development in November.

Selecta was chosen Aug. 31 by SAIC to receive funding under the Malaria Vaccine Production and Support Services contract administered by the National Institute of Allergy and Infectious Diseases, a division of NIH. NIAID and the U.S. Agency for International Development jointly are providing \$76.5 million in funding to develop novel therapeutics and vaccines for malaria.

In an interview, Selecta President and CEO Werner Cautreels would not say how much funding his firm will receive from SAIC, but explained that, somewhat like a milestone-based licensing contract between two biopharmaceutical companies, Selecta will receive payments based on deliverables up to and through providing an SVP-derived malaria vaccine for preclinical testing by SAIC contractors.

“The key, like for a number of other infectious diseases, is to have access to the appropriate

antigen,” Cautreels said. “As the government through SAIC has done a lot of good work on that, I think this is a real opportunity to combine our platform combined with the best antigen SAIC will have designed.”

Nanoparticles Designed To Mimic Natural Pathogens

Selecta will be given slightly less than a year to deliver its vaccine candidate - a fully integrated synthetic nanoparticle vaccine engineered to mimic the shape, size and other properties of natural pathogens - at which time the testing by SAIC contractors could provide crucial validation for the biotech’s SVP platform.

“While we get access to the antigen, we also get access to well-established testing systems that SAIC has established through the government,” Cautreels said. “So this is a very interesting collaboration in which we can benchmark the results of our research by adapting our technology to that antigen.”

Cautreels said Selecta’s vaccines should offer four specific value propositions: efficacy by delivering the antigen and several adjuvants to the target organ, the lymph nodes; safety because the

nanoparticles remain intact after being injected, meaning the patient faces no systemic exposure; a self-assembly process in which different parts of a particle can be optimized by composition and release rates for optimal efficacy; and a modular, synthetic manufacturing process which avoids the biological process development necessary with many vaccines.

Selecta, which now has seven programs ongoing, most in the discovery stage, is seeking to develop prophylactic, therapeutic and tolerogenic vaccines, in indications such as universal human papilloma virus, prostate cancer, influenza and pneumococcal infection. On June 9, the privately held firm agreed to a milestone-based arrangement with JDRF under which it will attempt to develop a tolerogenic vaccine which specifically targets the antigen that causes type 1 diabetes ('Deals Of The Week: Selecta/JDRF, Lilly/Synthes, Merck/Roche,' 'The Pink Sheet,' June 13, 2011).

Besides its arrangements with JDRF and SAIC, Selecta most recently raised \$15 million in a Series C last year. A 14-investor syndicate was led by Orbimed Advisors and included returning backers Polaris Venture Partners, Flagship Ventures, NanoDimension and Leukon Investments

('Selecta raises \$15mm from 14 investors in Series C round,' Elsevier's Strategic Transactions Database, March 2010).

Cautreels said Selecta has a cash runway adequate to move the smoking-cessation vaccine into clinical development on its own but could be interested in partnering after that. It is planning another funding round, which may be some combination of a venture round and a source of non-dilutive funding, he added.

Also on Aug. 31, Selecta announced the addition of Takashi Kei Kishimoto to its management team as chief scientific officer. Kishimoto brings extensive pharmaceutical industry experience to Selecta, having served as an associate director of research at Boehringer Ingelheim, senior director of inflammation research at Millennium Pharmaceuticals, now a subsidiary of Takeda, and most recently as VP of research at Momenta Pharmaceuticals.

Cautreels said Kishimoto would bring both important pharmaceutical industry experience to Selecta along with "very good, fundamental scientific knowledge" that will help the biotech evolve from a nanoparticle company to an immunology specialist.

-Joseph Haas (j.haas@elsevier.com)