

Companies To Watch: Landos Biopharma

Source: Life Science Leader

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Aiming for better targeting and better delivery of treatments for GI and other autoimmune diseases.

SNAPSHOT

The novel mechanism of action (MoA) of Landos Biopharma's lead candidate is stimulating Lanthionine Synthetase C-Like 2 (LANCL2), a therapeutic target that can play a role in numerous autoimmune conditions. Unlike current treatments that target a single cytokine, the Landos compounds suppress multiple inflammatory proteins such as TNF-alpha, interferon gamma (IFN γ), and monocyte chemoattractant protein-1 (MCP-1) rather than only a single one, while boosting the body's own anti-inflammatory response. Lead candidate BT-11, an orally active, gut-targeting small molecule therapeutic, is heading into Phase 1 development in mid- 2018 for treating both clinical manifestations of inflammatory bowel disease (IBD), Crohn's disease (CD), and ulcerative colitis (UC).



Josep Bassaganya-Riera

WHAT'S AT STAKE

Desperate sufferers of IBD, UC, CD, and any number of the peripheral and hybrid GI conditions gratefully buy into relatively risky IV treatments that offer only partial relief. But what if they could get much more? An obvious medical need and large potential market exist for a therapeutic agent with wide efficacy versus multiple disease mechanisms, negligible toxicity, and oral administration. Landos believes it has such a drug, and other autoimmune treatments, in development.

The company's name combines LAN, for the lead product's MoA, with the Spanish and Catalan word "dos" or "two" for the MoA's two main effects — suppressing inflammatory mediators and upregulating anti-inflammatory responses. The target and related compounds came out of the company's research into abscisic acid (ABA), a natural LANCL2 ligand with anti-inflammatory and glucose-lowering effects contained in fruits and vegetables, especially figs.

“We identified the pathway by which ABA elicited its anti-inflammatory and metabolic actions, but because it is a naturally occurring compound, we would not be able to secure composition of matter claims on it,” Landos chairman and CEO Josep Bassaganya-Riera explains. “So we initiated the medicinal chemistry program around the LANCL2 pathway that enabled securing several patents with life up to 2035.”

Landos tested new chemical entities with a variety of approaches, starting computationally, then moving through biochemical analysis of target binding, in vitro studies, and animal models. In tests with five mouse models of inflammatory bowel disease, lead drug BT-11 came up as the most promising compound. Further tests identified BT-11 as the lead therapeutic candidate for CD and UC.

“Our comparative analysis of BT-11 versus standard- of-care drugs and drugs currently in development shows BT-11 outperforms them all,” says Bassaganya-Riera. “Our translational data from studies in CD and UC patients also shows the findings in animal models clearly translate to the human data.”

Landos plans to file two related INDs for BT-11 in mid-2018, moving toward single-ascending dose and multiple-ascending dose in Phase 1 clinical trials. The company initially raised \$10 million from Perceptive Advisors, but at the end of the Phase 1 studies, it will conduct a Series B round of about \$30 million to complete Phase 2 proof-of-efficacy data for the two lead indications. After that, the company may consider an IPO, M&A, or strategic partnership. “Our preferred path right now, although we are adaptable, is to go the IPO route.” Bassaganya-Riera says the IPO would “allow us to contribute to capturing more of the upside.”

The aggregator firm Xontogeny, led by Chris Garabedian, is helping Landos with operational advice and support, including keeping down costs for the lean startup. Garabedian also serves as corporate advisor on the Landos executive team and board member. Landos has more compounds and a second MoA platform to develop, so prolonged independence may be the best option all around for the company, its investors, and potential patients.

Vital Statistics

Employees: 18

Headquarters: Blacksburg, VA

Finances: \$10M Series A

Lead Investor: Perceptive Advisors

Latest Updates

Q2 2018: Publication of mechanistic and human translational results for BT-11 in IBD

Q2 2018: Filing of two INDs to evaluate BT-11 for ulcerative colitis and Crohn’s disease

Q2/Q3 2018: Initiate Phase 1 clinical trial for BT-11