

Ensemble Reels in Novartis to Develop Oral, Mid-Sized Inflammation Drugs

Ben Fidler | 8/6/13

Ensemble Therapeutics has attracted a number of Big Pharma companies who want access to its library of synthetic mid-sized drugs, which are supposed to be able to hit molecular targets that other drugs can't. For the first time, however, Ensemble has struck a deal to go beyond the discovery stage, and see how far it can travel down the road of development.

Cambridge, MA-based Ensemble is announcing today that it has inked a two-pronged partnership with Novartis (NYSE: NVS). While the collaboration allows Novartis to tap into Ensemble's drug discovery engine to find drug candidates for certain undisclosed disease targets—the type of agreement it has struck with existing partners such as Pfizer and Bristol-Myers Squibb—the new partnership goes one step further. Novartis is getting the rights to develop a specific class of Ensemble's own in-house experimental drug candidates that block the inflammatory protein interleukin-17, which is implicated in a number of autoimmune diseases. Financial terms of the agreement weren't disclosed.

The latest deal is important because while the discovery deals Ensemble has struck in the past have added needed cash and credibility to its discovery technology, a partnership like this builds on that momentum and brings in dollars on a bigger scale. It also serves as a template for the type of deals it hopes to focus on going forward, according to CEO Michael Taylor.

"We want to kind of move up the value chain and take products that we own, invest in those programs, de-risk them to some point, and to clearly demonstrate proof of principle for a heretofore undruggable target—at least [in terms of] small molecules," Taylor says. "It's the kind of deal we want to do more of in the future."

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Ensemble, for example, hopes to polish up another drug development program next year with the goal of attracting a partner. Ensemble is focusing on inflammation and oncology, and is "increasingly" interested in targets for these programs that are inside cells, rather than targets on the cell surface that are more accessible to traditional antibody drugs, according to Taylor.

Ensemble will get an upfront payment from Novartis as well as an unspecified amount of research funding during the length of the collaboration (a term Taylor wouldn't identify). Ensemble also stands to receive various milestone payments tied to development and sales targets, and could garner tiered royalties on future sales if any of the drugs created from the collaboration get developed and win approval from regulators.

Taylor says it represents the most significant financial haul the company has brought in through a deal since its founding in 2002.

"It's the best one we've done so far," he says.

The deal gives Novartis the chance to complement an injectable antibody it is developing to target IL-17, known as secukinumab, with an oral pill from Ensemble. IL-17 has become a popular biological target for inflammatory disorders such as psoriasis and psoriatic arthritis, and Novartis is ahead of a pack that includes Amgen and Eli Lilly in creating an antibody that blasts it. In June, Novartis said that secukinumab sailed through a late-stage clinical trial in patients with psoriasis. Amgen and Eli Lilly's contenders are both injectable antibodies, like the lead candidate from

Novartis. Ensemble, however, says it believes it has the only oral drug candidate designed to target IL-17, which has the potential advantage of being more convenient than those injectable treatments.

“It’s really great that they recognize the value that we bring in this complementary small molecule modality,” he says.

Of course, Ensemble and Novartis have a lot of work to do to show that value is tangible. So far, Ensemble has only showed Novartis preclinical signs that it can create a drug that hits IL-17, and can do so in pill form. Novartis will now work with Ensemble to pick one or more specific compounds forward to begin clinical trials. Taylor declined to estimate just when that would be.

“I felt this was the best stage to have these conversations, rather than us picking a compound, not having it meet the requirements of the partner and having us do additional rework,” Taylor says of doing a deal so early.

The collaboration also puts another notch on Ensemble’s belt. Just weeks ago, Ensemble inked a partnership with Cheshire, CT-based Alexion Pharmaceuticals (NASDAQ: ALXN), adding to a list of names that also includes Roche’s Genentech unit, Boehringer Ingelheim, Bristol-Myers Squibb (NYSE: BMY), and Pfizer (NYSE: PFE).

That sizeable cast is interested in Ensemble’s library of synthetic macrocycles, which are mid-sized compounds that have the potential to combine the precision targeting capability of a biologic drug with the advantages of a small molecule, which can be made into an oral pill. Those engineered macrocycles are designed to home in on biological targets inside cells and hit the protein-protein interactions that can’t be reached by other drugs.

Ensemble hasn’t yet created a drug that has passed through clinical trials and been approved by regulators, but the approach—and, specifically, the size of Ensemble’s library and the efficiency with which it can screen that library for drug candidates against certain targets—has been enough to woo pharmaceutical companies and lock in enough partnership dollars to keep Ensemble from seeking an infusion of venture capital since 2007. Ensemble has raised a total \$38.5 million in equity financing to date from Flagship Ven-

tures, Arch Venture Partners, CMEA, Harris & Harris, Kisco Ltd., and Boston University.

Ensemble is one of several companies trying to develop mid-sized drugs through different approaches, which seek to combine the best features of antibodies and small-molecule chemical compounds. Others include Cambridge-based Aileron Therapeutics and U.K.-based Bicycle Therapeutics.

With the Alexion and now Novartis deals in the bag, Ensemble isn’t going to muddy the waters with anything else anytime soon, according to Taylor. Ensemble will now focus on delivering for its six drug discovery partners, and taking a deep dive into its next potential preclinical program for a deal down the road.

“We’ve got a pretty full plate now,” he says. “We’re going to take a break and pause after this.”

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