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Avila Raises \$30M, Pulls Down \$200M Deal with Novartis Fund

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Biotech start-up Avila Therapeutics Inc. not only raised \$30 million in a Series B financing, but snagged a deal potentially worth \$200 million in up-front and milestones plus royalties with Novartis Option Fund.

The Novartis Option Fund, which was created within Basel, Switzerland-based Novartis AG's venture fund group to seed start-up companies during the early stages, led the Series B round, which included Avila's existing investors Abingworth, Advent Venture Partners, Atlas Venture and Polaris Venture Partners.

Added to its \$21 million Series A financing, completed in February 2007, the Waltham, Mass.-based biotech has raised \$51 million to date. Proceeds from the financing will be used to advance Avila's first program into clinical development, which it anticipates doing by next year, while continuing to advance its Avilomics covalent drug discovery platform.

Avila's pipeline is focused on developing drugs for cancer, viral infections and autoimmune diseases. Avila's technology has demonstrated preclinical activity in targeting hepatitis C virus protease and Bruton's tyrosine kinase, an emerging target in autoimmune disease and certain cancers.

The \$200 million deal with Novartis Options Fund involves an undisclosed third program, said Avila CEO Katrine Bosley. "We definitely feel very privileged to have the quality of investors we have. The size of this round as well as the strategic nature of the overall relationship is definitely a great validation of the potential of where we can go with covalent drugs and what we believe to be a very important drug class that can really achieve some differentiated best-in-class product profiles," Bosley told *BioWorld Today*.

Covalent drugs not only bind to a protein but form a permanent bond to that target, completely shutting down the protein's activity, she explained. "By doing that, you are actually able to achieve a complete silencing of that protein," Bosley noted. Protein silencing enables a more profound pharmacological impact on a target, "more than you could achieve with a traditional approach," she maintained.

Currently marketed covalent drugs, such as the acid reflux treatment omeprazole or the anticlotting drug clopidogrel, in addition to penicillins, were discovered serendipitously, whereas Avila's approach, based on its Avilomics technology, systematically generates covalent drugs, constituting a

platform for creating drug products that fight disease through protein silencing.

Avila's Avilomics platform uses informatics technologies to identify sites amenable to selective covalent modification and target silencing, a library of highly selective chemistries for target silencing and design tools that integrate target analysis and covalent chemistry to create novel medications. Through its Avilomics platform, Avila is able to "intelligently design covalent drugs to achieve the pharmacological benefit in a way that is very specific and selective," Bosley said.

Henry Skinner, managing director of Novartis Venture Funds, said his group was immediately drawn to Avila's science. "They've taken a highly innovative approach to covalent inhibition, and there is some chemistry around that, which is very compelling," he told *BioWorld Today*. Through its systematic approach to covalent drug discovery, Avila has developed a "core competency and proprietary know-how that others simply won't have, primarily because while covalent inhibition has been around for decades, it largely has been an ad hoc approach," Skinner insisted.

While other drugmakers have used the covalent approach "at moments of convenience and then gone on to other things," Avila's systematic and focused approach is "establishing the rules for covalent inhibition and how to be successful with it and all of the nuanced issues around it," he said.

Skinner said the "breath of the opportunity, which is intrinsically exciting and certainly fits the option's philosophy," and Avila's success in applying its technology to the company's pipeline were highly attractive to Novartis. Another motivator was the company's strong management team, he added.

"It is always a pleasure to work with professional scientists and drug discoverers in biotech managements in furthering the goals of a young company," Skinner said. "I think they really do have a very special group together there, and that certainly extenuates the opportunity."

The Novartis venture fund, he said, is always looking for innovative companies in biotech. "We are constantly on the lookout for furthering innovative discovery, and from the option point of view, platform opportunities that have multiple threads to them, multiple product opportunities that can be generated from the platform. We are hunting for that year-round in real time." ■

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