

Gilead Test Drives A-Alpha Bio Platform to Find Long-Acting Biologics Against HIV

By Luke Timmerman, June 13, 2023

Seattle-based A-Alpha Bio is going to put its synthetic-biology-and-machine-learning drug discovery platform to the test, attempting to discover long-acting biologics for HIV that can neutralize the shifty virus in its many variants.

Gilead Sciences, the world's largest maker of HIV drugs, has agreed to a discovery partnership with A-Alpha Bio, the five-year-old company that spun out from the Institute for Protein Design at the University of Washington. A-Alpha Bio is getting an undisclosed upfront payment and is eligible for more if Gilead exercises its option to develop any drug candidates.

Gilead will bring some potential therapeutic protein constructs to the table, along with HIV viral variants to evaluate. A-Alpha will do its thing -- high-volume synthetic biology to make protein constructs that are the basis for evaluating protein-protein interactions. Those interactions are then analyzed with machine learning. The company uses fast-dividing yeast cells as the basis for its platform.



David Younger, co-founder and CEO, A-Alpha Bio

A-Alpha Bio expects to deliver results to Gilead in 12-18 months, said CEO David Younger. Gilead will have the option to pursue drug development from there.

“My goal, our goal, is to have impact,” Younger said. “We think this is a place where we can really use the full capabilities of the platform.”

Securing the partnership to work on HIV, with the world's largest maker of HIV medicines, is an important external validating event for the small company, Younger said.

Gilead surely has its reasons for seeking to move fast to come up with new long-acting injectables for HIV. It has competition from ViiV Healthcare, the GSK-majority owned specialist company, which won [FDA approval](#) for the first long-acting injectable for HIV in January 2021. Gilead secured FDA approval of its own long-acting biologic, lenacapavir (Sunlenca) in [December 2022](#). That drug is a subcutaneous injection, given twice a year, for

patients who have developed resistance or can't take other medicines because of intolerance or safety issues.

The long-acting injectables could offer advantages in fending off resistance, and potentially in adherence over once-daily oral pills. Plus, they may offer a long-term commercial advantage, as small molecule patents don't last forever, and more market pressure is being put on small molecules in the wake of the Inflation Reduction Act.

HIV is still a global health concern. The CDC [estimated](#) there were about 35,000 new HIV infections in the US in 2019. Gilead generated \$17.2 billion in revenue from its HIV product lineup in 2022 -- almost two-thirds of its total product sales of \$27 billion.

A-Alpha has been steadily building its roster of partners and projects. It announced a \$2.8 million seed investment round in 2019, followed by a \$20 million Series A financing in 2021 led

by Seattle-based Madrona Venture Group. Its work today is focused on a variety of protein-protein interactions, including antibody-antigen interactions and others that appear amenable to molecular glue therapies, Younger said.

A-Alpha's molecular glue work is being done in partnerships with Kymera Therapeutics and Bristol Myers Squibb. During the pandemic, A-Alpha garnered support from the Bill & Melinda Gates Foundation, Twist Biopharma and Lumen Biosciences to help develop COVID-19 antibodies.

A-Alpha has about 45 employees, Younger said.