STAT

Tuesday, January 11, 2022

## Biotech

# Amgen, Arrakis Therapeutics partner to develop oral drugs that eliminate troublesome RNA

**By Adam Feuerstein**
*Senoir Writer, Biotech*
*@adamfeuerstein*

Amgen and the biotech startup Arrakis Therapeutics announced a research collaboration Tuesday to discover and develop a new class of oral drugs that selectively destroy RNA molecules that turn genetic instructions into disease-causing proteins.

Called "targeted RNA degraders," this emerging technology will go after targets that traditional drug-development methods can't reach.

And by selectively eliminating troublesome RNA, this new drug class could theoretically stop any disease-causing protein from being made, no matter where it's produced in the body, said Ray Deshaies, senior vice president of global research at Amgen.

The partnership between Amgen and Arrakis has its roots in a day-long conversation that Deshaies had with Arrakis CEO Michael Gilman at a University of California, Berkeley, science symposium in 2019. The two men were invited to participate in the meeting because they had each earned their doctorates there, although at different times.

Deshaies had joined Amgen in 2017 after nearly three decades in academia to help the biotech giant with the emerging and increasingly competitive field of drug research known as protein degradation. In that same year, Gilman, a serial biotech entrepreneur, had become CEO of Arrakis, which was trying to develop oral drugs that act against RNA.

In the back of a Berkeley lecture hall, Deshaies and Gilman discussed recently published science that showed it was possible to select and destroy RNA that, if left unchecked, would make disease-causing proteins. Amgen was already working to identify enzymes that could destroy certain RNA, but needed help to find molecules that would bring these enzymes into close proximity to the RNA being targeted.

"When I talked to people on the outside, all the players in the RNA space, what I heard back was that Arrakis was just ahead of everyone else," said Deshaies.

Initially, Amgen and Arrakis will work separately but with a common purpose, like tunnel-boring machines that drill towards each other to meet in the middle of a mountain. Arrakis will identify small molecules that bind to target RNA. These molecules will then be combined with RNA-degrading enzymes discovered in Amgen's labs.

Amgen is paying Arrakis $75 million to fund its discovery work on five initial programs, with the option to nominate additional programs. Once a drug candidate is identified and built, Amgen takes over further preclinical and clinical development. Arrakis is eligible for additional payments totaling "several billion dollars" based on the success of the programs. It will be years before this early work is ready for testing in people.

For Arrakis, the Amgen collaboration is the second deal struck with a large industry partner. In 2020, Roche paid $190 million upfront to license Arrakis's RNA-targeting technology. On its own, Arrakis is working on programs, also still preclinical, that aim to develop oral drugs that interfere with the function of RNA, but don't necessarily eliminate them.

Between the two partnerships, Arrakis has raised $265 million in non-dilutive capital along with another $116 million in venture capital funding, Gilman said.

**Adam Feuerstein**
*Senoir Writer, Biotech*
Adam is STAT's national biotech columnist, reporting on the intersection of biotech and Wall Street. He's also a co-host of "The Readout LOUD" podcast