

Of Vampires And The Challenges Of Longevity Drugs

For an example of how hard it is to develop an anti-aging medicine, check this out. It's some of the coolest and creepiest science to have been published in major academic journals. But is it ready to form the basis of a pharmaceutical company?

The research, you've heard of—that old mice seem physically younger when they are infused with blood from younger ones. The animals seem to regenerate faster. This work, done by Amy Wagers, a professor of stem cell and developmental biology at Harvard, has led to identification of a protein, called GDF11, that some data indicate could be part of the reason that young mouse blood helps old mice regenerate.

"People who are getting older have a risk of many diseases that aren't classically thought of as linked," she says. Targeting aging itself "has the potential to lead you to interventions that would be broadly applicable."

A researcher at Novartis cast doubt on Wagers' results, saying that GDF11 doesn't go down with age as she had originally posited. Wagers has called those claims "unpersuasive." Wednesday evening, a new company based on her work, Elevian, announced that it has raised \$5.5 million from Bold Capital WTI, Stanford StartX fund, Longevity fund, Kizoo Ventures, Thynk Capital and other investors as part of its participation in a contest at the TechCrunch Disrupt conference.

Bold Capital, which is leading the round, is run by X-Prize creator Peter Diamandis, who says longevity research is one of the largest and most lucrative opportunities out there. He's already made bets in the space, helping to start the DNA-sequencing firm Human Longevity and backing the stem-cell-focused company Celularity. He says he expects progress to be slow. "It's not about figuring it all out today," Diamandis says. "It's about the notion that if you buy yourself an extra ten healthy years, you are buying ten years of exponential technology." Living a bit longer will give people access to new technology, which will allow them to live longer still.

It's an amazing idea, and it could represent a feedback loop where for every year of life gained, new technological advances will add another year. It's really neat to think about. But pharmaceutical drug development, where 9 out of 10 drugs fail, takes neat things to think about and bites them in the neck. This is an extremely risky bet on a new technology that may or may not lead to drugs.

Wagers, who teaches a course whose syllabus evinces a deep knowledge of drug development, says that the creation of the company was a kind of meeting of the minds with the entrepreneurs running it. Mark Allen, Elevian's chief executive, comes off more as a dreamy optimist. (The company's tagline: "Aging doesn't have to suck.") He admits that

right now the company can't manufacture GDF11 easily and will have to look for other ways to raise levels of the protein—for instance, creating antibodies that block other proteins that break it down. He also says that the company is a few years from starting clinical trials.

When asked about where he'd start, he points to the potential of GDF11 in treating cardiovascular disease and Alzheimer's. But those are two of the hardest areas in drug development, in part because you have to follow people for a long time, at great cost, to figure out if the drug is working. His odds of success will go up if he finds an easier proving ground. It makes sense to take a \$5 million flier on this tech. But it also shows how tough developing drugs for aging is going to be.

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