

PHLOX THERAPEUTICS IS PIONEERING GENE THERAPY FOR RARE HEREDITARY HEART DISEASE - HERE'S HOW

Phlox Therapeutics, is developing RNA-based therapies for genetic cardiomyopathies. Founded by Prof. Dr. Eva van Rooij and Prof. Dr. Yigal Pinto in 2022, the company has made significant progress with Dr. Margien Boels, PhD, as Chief Operating Officer. In this interview, they discuss the company's journey toward groundbreaking RNA-based therapies for genetic cardiomyopathies. They share insights on the challenges of academic research, the importance of collaboration, and the promising future of gene therapy for heart disease.

CARDIOVASCULAR PATIENTS NEED NEW SOLUTIONS

"A man, an accountant, lost his brother to a hereditary heart disease. He put both his brother's and his own data into a graph. When he looked at it, he said, 'Isn't there anything you can do for me?' That was when I realized that there was nothing for this disease, no treatments. Unfortunately, for him and his family, he passed away, like his brother, at a young age. That was 15 years ago. That is our driving force. Currently, we are testing gene therapy to alleviate and cure cardiomyopathies in mice. If successful, in a few years, we will be able to treat the first patients. A cruel irony is that other people with heart failure can take a pill and feel better. But that doesn't work for young people with certain forms of hereditary heart disease. There is no medicine yet, and that's why we believe what Phlox Therapeutics is doing is so relevant," said Yigal.



SPIN-OFF CREATION

Yigal explained, "In the academic environment, one can find the basis for a new therapy, but the massive costs and time involved to bring this to patients make it almost impossible to develop a new medicine for patients within academia. It's like saying, 'I want to play football, so why did I join a basketball team?' Product development doesn't happen in academia, which is why Eva, and I founded Phlox Therapeutics after receiving a voucher from the TTT-program, where we met Margien."

Margien added, "We got into contact through the TTT-program and through the DCVA voucher we checked business feasibility. While building the business strategy, we had many talks with experts and lawyers to set up the company. It took time. We did this before the company even existed. As this is an adventure, the team is very important. You have to be able to collaborate well as you know you will go through highs and lows together, which is why I started working with Eva and Yigal."

SPIN-OFF FUNDING

The DCVA/RegMed XB TTT program, started in 2020 by the Dutch Cardiovascular Alliance (DCVA) and Regenerative Medicine Crossing Borders (RegMed XB), with support from the Netherlands Enterprise Agency. BioGeneration Ventures (BGV) is the registered fund manager of the associated FIRST-fund. FIRST provided Phlox Therapeutics with pre-seed investment in 2022. Eva shared, "We started with a pre-seed investment from FIRST. During this bridging phase, FIRST helped us sharpen our business strategy."

GENE THERAPY

"Gene therapy is gaining traction. It's making progress and becoming more accepted, showing promising results. It's one of the best ways to deliver treatments to the heart. Strong progress has been made, with the first two positive clinical trial results recently published for gene therapies targeting heart/muscle diseases. For the first time, there is a lot of hope for these patients. I believe in it. I think a lot is possible, and it's really what I love doing scientifically. We're doing a lot in the lab on cardiomyopathies and developing new therapies for these patients. It's important to emphasize that the possibilities for patients with gene therapy for cardiomyopathy are becoming clearer, and this is something we should be very excited and hopeful about. It's something that will make a real difference for these patients, for whom there is currently no therapy," said Eva.

"But it will take time," Yigal added. "There's always long lag time before anything happens for the patient, but we've already started, thanks to the funding from the TTT program."

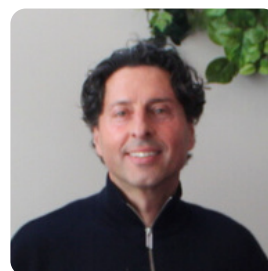
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Prof. Dr. Eva van Rooij

INVESTMENT AND ACCEPTANCE

Yigal continued, "There's almost no other way to solve genetic cardiomyopathies. What we're up against is that we're at the forefront of new therapies, but there's still little chance of getting them to market. They're starting to accept that new therapies need to be developed, but institutions are still very cautious about investing large amounts of money. That's where we run into trouble as academics. So, involvement from companies and investors is certainly necessary. When we see convincing data that supports further development, we can approach the next investors and raise the capital required to bring these therapies to the patients. Previously, we've relied on academic funding which has allowed us to make great progress from the initial idea. Research is a highly iterative process, meaning experiments and studies often need to be refined or even started from scratch to get reliable results. As a result, substantial financial costs are associated with each phase of the process. At that point, Venture capital is required to get to the next phase, clinical trials."



Prof. Dr. Yigal Pinto

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THE FIRST SEED FUNDING

The first pre-seed investment is being used to advance Phlox's lead program focused on rare genetic laminopathies. Existing therapies fail to halt the progression of hereditary forms of heart failure, particularly in young patients. This often results in a therapy-resistant form of heart failure caused by mutations in the lamin A/C gene, also known as laminopathies, a distinct and often aggressive form of heart failure. Phlox aims to develop a therapy that could potentially cure this genetic disease.



Dr. Margien Boels, PhD

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IMPACT

"I'm really happy that gene therapy has moved forward," says Yigal. "One patient, now 32 years old, does not have any symptoms yet, but we can already see the first signs of the disease on the ECG. This patient probably has three to four more years before they really start to develop heart failure, which can't be cured with currently available drugs. I hope that we can progress fast enough with Phlox's therapy to make a difference for this person."

Eva added, "The impact we can make is huge. We have a lot of knowledge and a way to get gene therapy into the heart."

Yigal continued, "Our combination is quite unique." His team agrees. Yigal explains, "Eva is an RNA biologist, but aside from her academic biological expertise, she also brings experience about drug development."

ADVICE FOR ASPIRING FOUNDERS

Eva shared, "It's only fun if you truly enjoy working on a start-up. Otherwise, you shouldn't do it, because it requires a lot of effort to create a company. I've known Yigal for a long time, and I'm impressed by his work. I've been involved with a biotech company before, and I thought I could really contribute something here. The combination of people, science, and opportunities makes it enjoyable for me to push this forward. How beautiful would it be if, as a scientist, you could truly contribute to the development of a drug that helps patients? That's something very few people can do. It's already amazing to be a scientist discovering new things, but if it also contributes to helping patients, then that's something that makes me proud to do my job."

Yigal offered advice, "Don't just surround yourself with knowledge, but also with people you think you could have a beer with after work. Besides funding, the team is extremely important."

Margien concluded, "You can't develop everything yourself. For example, you have to consider timelines, production, and regulations. As a start-up, you must, as quickly as possible, collaborate with other companies and gather experts around you to travel this route together."

More information:

www.phloxtherapeutics.com

www.regmedxb.com