ProQR Therapeutics was founded in 2012 in a quest to beat cystic fibrosis (CF) in one child. Now, ProQR’s quest leads far beyond, as its mission is to develop innovative treatments for patients with rare genetic diseases. The company, with offices and labs in Leiden (the Netherlands) and Palo Alto (California, USA), is a great example of people impacted by a disease starting their own quest for a cure. In just four years, ProQR has advanced QR-010, an innovative potential inhaled therapy for CF based on RNA, from an idea to an early clinical trial.

In this interview Daniel de Boer, Chief Executive Officer and Noreen Henig M.D., Chief Development Officer at ProQR Therapeutics, tell us more about the company and reflect on what it means to have reached the important milestone of first clinical data in CF patients.
Why did you start ProQR Therapeutics? What makes it special as a biotechnology company?

DANIEL When my son was born with cystic fibrosis, it sparked me to start ProQR Therapeutics to find a solution for his disease. I collected a group of experienced drug developers and entrepreneurs around me to start developing an invention that was made by a famous professor in Boston. My passion and experience with my son made me realize that it is important to learn from all patients. This is the motivation for the patient-centric strategy that is at the core of everything we do at ProQR. Everyone at ProQR strives to make a meaningful impact on the lives of patients and their loved ones. We combine innovative technologies and entrepreneurism to develop products to potentially transform the lives of patients suffering from severe genetic disorders. This way of working is a source of pride and defines who we are and how we work at ProQR.

Can you tell us more about ProQR patient-centric philosophy and what patient centricity means to you?

DANIEL It’s a commitment, really. We recognize that patients play a crucial role in developing any drug therapy, and so ProQR from our beginnings has had a very patient-centric strategy, as we integrate the patient voice throughout our drug development process. We have a dedicated team which represents the patient voice internally as decisions are made. In doing so, we aim to make more relevant therapies faster and to improve patient care.

What is so different about the medicine you are developing for CF, called QR-010?

DANIEL CF is a disease caused when a very specific channel, named the CFTR, does not work properly. There are different ways of trying to make the CFTR channel work better. ProQR’s approach to making the CFTR channel

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Daniel de Boer
work better is to target the messenger RNA; this is essentially the blueprint that creates the channel. QR-010 is specifically designed to target the messenger RNA in CF patients who have the F508del mutation with the goal of restoring the channel’s function.

Tell us about how you are testing QR-010 in the F508del CF population.

NOREEN In my early professional life, I ran an Adult CF Center and worked on many clinical trials for patients with CF. It taught me about what patients go through and the commitment they make to helping learn if a potential therapy can work. QR-010 is being studied in the first of many clinical trials that help us learn about how it works, if it is safe, and what clinical benefit it will provide. There are now two studies of QR-010 in CF patients to learn if it could be a potential treatment. Both studies are being conducted with the support of very experienced clinical investigators.

The first is a Phase 1b study looking at the safety of inhaled QR-010 in 64 CF patients that are homozygous- or carrying two copies- for the F508del mutation. This study also includes other measurements, such as lung function, that could provide early evidence of the efficacy of QR-010. This study is being conducted in Europe, the United States, and Canada.

The second study is designed to answer the question, "Can QR-010 restore the function of CFTR?" We are so excited to tell you that this study has completed, we have answered the question, and we just presented these initial findings at the North American CF Conference in Orlando. The study does show that QR-010 helps CFTR work better in individuals with CF with the F508del mutation. This is a very exciting finding and gives ProQR the confidence to keep testing QR-010 to understand how it may help people living with CF. We would like to thank everyone who helped us reach this important goal— the patients living with CF who participated in the study and the CF experts who helped us design and conduct this important study.

Tell us more about these findings.

NOREEN The study included CF patients with two copies of F508del as well as those with one copy plus another CF causing mutation.

We studied a specific measurement that shows if CFTR works or not, named the nasal potential difference, or NPD. It is well-recognized that NPD is a direct measure of the CFTR channel, and individuals with CF have a different NPD measurement than people who do not have CF. We looked at the NPD before and after giving QR-010 in the nose. In the study participants with two copies of the F508del mutation, the NPD showed that the CFTR channel functions more like someone who does not have CF after being given QR-010. In study participants with one copy of the F508del mutation, we did not see the same effect but we did learn a lot. We are still analyzing that data.

What do the NPD results really mean right now to those affected by CF?

NOREEN The bottom line is that these early results are encouraging, and it gives us the confidence to move forward with an aggressive development plan for QR-010. We still have much to learn about how QR-010 may help individuals with CF.

DANIEL These first clinical results are a very important step towards better therapies for CF. Confirming QR-010’s
ability to improve CFTR channel function is a strong validation and enforces our belief that QR-010 can make a transformative difference in the lives of CF patients in the future.

Can people still participate in your other study- the larger phase 1b study? How?
NOREEN Yes, the study is still open for new participants. It is recommended to talk to your physician to find out if you meet the criteria to participate. If so, together you can visit www.clinicaltrials.gov or email patientinfo@proqr.com to find the site contact information nearest you.

How long do we have to wait before QR-010 becomes available for CF patients?
NOREEN Our clinical studies are still in the early phases of development, which means the initial testing phase in humans. We are working as quickly as possible, but our success depends on the support of the CF community.

What is your hope for the future of QR-010?
DANIEL Our goal is to stop the progression of cystic fibrosis with only one therapy. I hope that we continue to work collaboratively with the CF community to further the development of QR-010 to be able to make a significant and positive impact on the lives of those affected by CF and their loved ones. We are on this journey together and we all share a common hope for a transformative therapy for CF patients. We have reached a significant milestone with our first clinical data, which encourages us to work even harder to achieve our goal.

“We would like to THANK everyone who helped us reach this important goal”
Noreen Henig

ProQR has developed this newsletter article as a way to provide an update on our QR-010 development program and as part of our ongoing commitment to keeping the CF community informed.

If you have any questions, please consult your treating physician or you can contact ProQR at patientinfo@proqr.com