Getting to know Noxopharm

Welcome to the PharmaVOICE Webcast Network.

In this episode, I meet with Dr. Graham Kelly, CEO and Managing Director, Noxopharm. We talk about the history of Noxopharm and some of their groundbreaking work in drug discovery and development.

I'm Dan Limbach, your host and producer of the PharmaVOICE Webcast Network.

Dan: Welcome to the podcast program, Dr. Kelly.

Dr. Kelly: Dan, it's good to be here.

Dan: Noxopharm may not be well-known to many people in the industry yet, so let's get to know more about the company. Who is Noxopharm?

Dr. Kelly: We're an Australian company. We're listed on the Australian stock exchange. We've been a public company for five years on drug discovery and drug development. We have a big focus on human degenerative disease, and we believe that we have a technology that certainly is novel, and we think is emerging as a whole new future therapy for major degenerative diseases.

Dan: Excellent. That sounds very promising. So tell us what the basis is of the Noxopharm approach. How do you differentiate yourself from other drug development discovery companies?

Dr. Kelly: There's two perhaps answers to that question, Dan. The first one is that if you take out infections and trauma, you're really left with most community health issues coming down to what's called degenerative diseases. This is a catch-all phrase that really covers cancer, heart disease, the neurological disorders like Alzheimer's and Parkinson's. So these are the diseases that touch almost everybody at some part of their life. I think I even left out of there the chronic inflammatory diseases, like rheumatoid arthritis and the various autoimmune diseases. So we're talking about probably the most common diseases that lead us into a doctor's surgery or in the hospital.

The track record in treating and managing these disease has not been good, and there's a solid reason for that. And that is that with the exception of some genetic disorders where you have a single mutation involved, almost all degenerative diseases involve errors of multiple proteins. So we've got about 30,000 different proteins in our body and they're all interconnected, interrelated, interdependent. And most degenerative diseases will involve more than one of those proteins going on. It could be half a dozen. It could be a dozen. It could be hundreds. We truly haven't got to the bottom of just how many mutations there are present in all these degenerative diseases.

And there lies the problem that almost every drug that humans take is designed to target a single protein. So if you have a disorder that has a single mutation, then the likelihood of getting a drug to cure that condition is high. If it's got half a dozen mutations, not so high because you've got to have

multiple drugs. So here's the major point of distinction between almost everybody else and Noxopharm, and that is that Noxopharm has discovered a class of chemicals or drugs that have the ability to correct multiple errors and that's the key point of distinction.

And if you're interested in where we or how we discovered this then the answer goes back to work I was involved with is an academic medical researcher and back in the 1990s, which was the interest I had in the link between diet and cancers, particularly the Japanese and Chinese diets and how the levels of range of cancers, particularly those of the prostate and breast, for example, were much lower in those communities and including vegetarian communities. So this led me down the path of looking at what might be present in the human diet that is apparently protecting those communities from a range of different cancers, as well as things like Alzheimer's and Parkinson's and so forth.

And what we discovered was that there are certain chemicals in plants that act as hormones in plants, and that these compounds are in our diet, and when we get them they come into our bodies and, in fact, they are biologically active compounds. And the human body, in fact, can change some of these into even more active compounds.

So that was really the basis of this work and from that work, we identified a number of key plant hormones that having this ability to detect and to correct abnormalities. They're obviously doing that in the plant and they appear to be able to do it in humans, too. So that's where it's come from.

So we now are working on compounds that have their roots in a naturally occurring plant compound, but the ones we're using don't exist in plants anymore. These are classic drug discoveries where we've taken the original compound and then created much more potent compounds that are more applicable to humans.

So that's the point of distinction. We've got compounds now that have their origins in plants and how these compounds manipulate and moderate abnormal functions and when they find an abnormal function they identify it, correct it. And that's what our compounds do in humans, too. So that's the difference.

Dan: Outstanding. Well, it certainly sounds like an excellent discovery with virtually unlimited potential, so I'm really excited to see where this goes. With that said, let's talk a little bit more about the Noxopharm story. You've talked a little bit about your past experience and a little bit about what the company's history was, but let's dig a little deeper there. How did you get started and where do you see yourself and the company going in the future?

Dr. Kelly: Okay. Well, I had over 20 years in medical research in a medical school in Australia in a university, became very interested in cancer and I touched on the interest I developed back in the late 1980s and early 1990s and the relationship between diet and many human cancers. That's when I

discovered the very first compound called idronoxil that had this capacity to identify abnormal proteins and then correct them.

I started a company that was called Novogen that was listed on NASDAQ. It was a US and Australian public company. We went through about 15 years of understanding this technology and because it was so novel, because it was really quite challenging, there was no textbook to guide us with this entirely new concept. I worked very closely with some very imminent scientists starting at Purdue and then moving on to Yale University. Yale, they got very much involved in the company. They were quite excited by what they saw. So for about 15 years we worked on this and basically struggled with understanding how to really apply it to humans. And finally I cracked it, and I've been moved out of that other company and went and started what is Noxopharm. That was started in 2015. We went public in 2016, and so this is where we are now.

We now have a pretty good grasp on the concept of the science and how to make it work in humans. So we are now at the point of being in clinical stages. We have four clinical studies running now that involve hospitals around the world, not only Australia but also in the United States and in Europe. So we're in the clinic, and I would say we're about halfway to where we need to be for the rest of the world to understand what exactly we've got.

Dan: Very good. So do you anticipate that you'll keep growing your pipeline or are you going to just focus on some specific areas for now?

Dr. Kelly: Well, at the moment we're focused on oncology. We've recently opened up into inflammation – so between cancer and inflammatory diseases, you're really covering off a huge proportion of human degenerative disease. And within each of those areas of cancer and inflammation, we are drilling down on focusing on specific areas.

We have a pipeline of compounds that we're developing, and what we have is this enormously rich ore of opportunity and we just really are digging down into it. I regard it something like a mine where we can just go and dig out some ore, bring it out and see how it's applicable to a different disease.

Our major drug is a drug called Veyonda, which is now being used in a range of cancers. We're looking at using that drug to make other forms of cancer therapy more effective and a lot safer. So we're using it with chemotherapy, with radiotherapy and with some of the newer immunotherapies.

We've identified other drugs, in fact, in the same technology platform that we're now working with the National Cancer Institute in the US on for brain cancer, and we've discovered that these compounds can actually reduce the aggressive nature of brain cancer and make the cancer instead of being this highly aggressive that just wants to take over a person's brain. We want to be able stop that growth and just hold it almost in a state of suspended animation so that other treatments will be able to work and have it be more effective.

So that's the sort of thing we're doing. We also are exploring areas of chronic inflammation. This is things like rheumatoid arthritis, autoimmune diseases like motor neuron disease. We have a broad range of opportunities that we're pursuing.

Dan: That's very exciting and it's definitely groundbreaking stuff. You are quite the trailblazer. Dr. Kelly, thank you for sharing this with us today and I look forward to watching Noxopharm in the future. Good luck mining that ore.

Dr. Kelly: Thank you, Dan. It was a pleasure. Thank you.

And that will do it for this episode. For more information about Noxopharm, visit noxopharm.com. And don't forget to check out our other podcasts, white papers, webinars, virtual panels, videos and more at pharmavoice.com.

Until next time, I'm Dan Limbach.