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## **Giving Your Muscles Superpowers**

| An interview with Professor Penney Gilbert  
| Stem Cell Biologist, University of Toronto

### **How can we grow new muscle tissue?**

My research lab works on skeletal muscle. And your skeletal muscle is the tissue that's found throughout your body that's responsible for you being able to move, and also you being able to breathe, and you being able to swallow. And that tissue has an ability to repair itself. So if it gets damaged, either by some sort of injury or in the course of aging, then there are a little tiny sub-population of cells that sit inside that muscle that wake up and make lots of copies of themselves, and repair the tissue. What we try to do is to come up with ways to understand what in the body is making those cells wake up and do their job.

### **How can we repair muscle tissue?**

One of the premises of this type of therapy is that we want to take your own cells and give them superpower and go back into the body with that superpower, and repair your own tissue. And by doing something like that, you avoid all of the issues of rejection of those cells. The source is you, you're the best source for yourself. The cells are there. They're just, kind of, they just need a little tweaking. They're starting right off where they left behind, but now with again, sort of their little superpowers. They can go in, and now instead of only making maybe one copy of themselves, they'll make twenty copies of themselves. And by being able to make twenty copies of themselves, you're able to make more muscle.

### **How can we understand disease?**

I'm really excited about our project that's creating a model of the human neuromuscular junction in a dish. It gives us just a limitless possibility to understand how that tissue works, and how we can create therapies that can restore function to those tissues.