



# RESEARCH2REALITY

Shining a light on research & innovation.

## If an Organ's Broke, Do Fix It

An Interview with **Philip Marsden**, Kidney Doctor, Medicine by Design, University of Toronto

**Alison McGuigan**, Biomedical Engineer, Medicine by Design, University of Toronto

### Philip Marsden

We have a team of about eight principal investigators, each of which has their own research theme, each bringing in unique expertise into how to fix broken organs. We've decided to focus upon the injured skeletal muscle. For instance, if I get into a car accident and my leg gets crushed by the car door, the muscle can repair itself, and it's pretty darn good at that. And we understand some of the basics.

### Alison McGuigan

We're trying to build a model of muscle regeneration to try to really understand the way that different cell types in the body - so from blood vessels and immune cells - interact with muscle cells and muscle stem cells to regenerate the muscle after an injury, and can we use materials to enhance that process?

### Philip Marsden

My own interest is blood supply, and my own lab's interest is in the injured blood vessels. And in injured blood vessels of organs like the kidney and the heart, it's the blood vessels that don't seem do it all properly.

TODAY'S RESEARCH. TOMORROW'S REALITY.



### **Alison McGuigan**

So we're building models to try and explore those mechanisms that really complement some of the work other team members are doing, like Phil Marsden, for example, and really incorporate some of the molecules that they find into a place where we can make human muscle. So we can start translating the work by doing it in a dish first before translating it into patients. These are very, very complex problems, and coming at them from different angles and having a platform or a forum where this can all be integrated together is really valuable, and something that's quite unique.