



# RESEARCH2REALITY

Shining a light on research & innovation.

## Pumping up the Beat

| An interview with Professor Milica Radisic  
| Biomedical Engineer, University of Toronto

### How close are we to creating new organs in the lab?

The main research area in my lab is making a living heart tissue that beats and looks like a normal, adult human heart tissue. And so we do that by taking beating heart cells, that we get from either embryonic stem cells or induced pluripotent stem cells and we seed them into biomaterials and bioreactors that are designed to specifically enhance and promote their function. We essentially made a gym for the heart cells. Sometimes we have a boot camp for the heart cells depending on what we wish to achieve with them, and after about 2-4 weeks, you end up with a piece of tissue that's beating and it behave in many ways like a heart tissue from a person.

### What is the focus of your research?

You could start from a skin cell, from a certain person and then tailor make a tissue for them. In terms of this idea of personalized medicine, you could use these individualized heart tissues to test drugs and have some opportunity to optimize therapy for a specific patient.

### What does the future hold for your research?

Next up for the field, for us, we're going towards building what some people call heart tissue-on-a-chip or body-on-a-chip; we actually are going to build a person-on-a-plate. So that you can have this plate that has different organ compartments in it, and then you can apply drugs and study interaction. It's going to be amazing!