



# RESEARCH2REALITY

Shining a light on research & innovation.

## Activating the Brain's Self-Repair Mode

An interview with **Cindi Morshead**, Neuroscientist  
University of Toronto

My research is really focussed on the identification and characterization of neural stem cells. So we're really interested in using these cells, that are found in the brain, for brain repair.

Stem cells are really the building blocks for development for all the tissues in your organs. What we've found out is that even in an adult, even after development has ceased, we still have some of these stem cells available. What's special about them is that they can make all the different cell types, depending on the tissue that they're in. So if they're in the brain, the stem cells can make brain cells; if they're in the liver, the liver stem cells can make liver cells.

There's a whole bunch of different pockets of these stem cells in the body, and the idea is we can activate them so that we can induce them to repair an injured tissue. We don't want to just change what's going on in the disease, we want to actually repair the body, and use our own body to do that.

### What is your lab focusing on right now?

We're really trying to figure out how to activate the cells. There's a number of different ways that people have approached it, and we've had some really great success. We've used some repurposed drugs, things that are normally found in the clinical setting that are used to treat other diseases, like type II diabetes. And we've been able to show that if you stimulate resident brain stem cells with drugs that are already in the clinical setting, we can get the brain to repair itself after a neonatal injury, or in a young brain.

TODAY'S RESEARCH. TOMORROW'S REALITY.



### **What contributions have you made to your field?**

We've made a really promising investment in trying to figure out how we can activate cells through age. They change during aging. They change after injury. So it's not enough to know, oh, a stem cell can do x. We have to know, can a stem cell from an early-born brain do x? And will that change in an old-age brain? So we're really interested in now, and I would say that looking through age is one of the things that we really contributed to the field.