



# RESEARCH2REALITY

Shining a light on research & innovation.

## It's Like Google Maps, but for Your Cells

An Interview with **Gary Bader**, Computer Scientist  
Medicine by Design, University of Toronto

A computational biologist is someone who uses computers to study biology. We're trying to understand how biological systems, like the cell, works. In the past we had textbooks, but the rest of the world has moved much further along. We don't use paper maps anymore, we have Google Maps. What we need to do with biology is build a map of how all the pieces are connected.

The Human Genome Project gave us information about all the pieces of the cell, and now we're trying to put that puzzle together and make a functioning machine.

### What is single cell genomics?

The thing I'm most excited about these days is a new technology called single cell genomics. Previously, when we were looking at the cell and how it works, we could take snapshots of one cell using a microscope, or we could use genomic technology to make thousands of millions of measurements, but only for millions and billions of cells all together.

Now we actually have the power of combining those. We can take thousands of millions of detailed measurements of thousands of millions of cells, and that's giving us an unprecedented view of how the body is working. That's a brand new technology that was just invented a couple of years ago and we've just got it started working in Toronto in the past six months. And we're getting tons of amazing data that are opening up huge new avenues of research that we didn't think about before.