

BULLETIN

Fighting cancer one cell at a time

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UP UNTIL HIS LAST YEAR OF UNIVERSITY, David Ko didn't have a clue what flow cytometry was. Now, five years later, this highly specialized laboratory technique is what he does every day at work... and he couldn't be happier.

Ko works at the BC Cancer Agency where he provides flow cytometry services to researchers, aiding them in their quest to find a cure for cancer.

A Google search of "flow cytometry" turns up dozens of definitions that would be incomprehensible to the vast majority of people, but Ko seems able to sum it up in plain English:

"It is a technology that allows you to analyze individual cells one by one!" he says enthusiastically. "And you can detect molecules on the outside and inside of a cell too. So, you start with a pool of cells ... for instance, from a blood or bone marrow sample ... and you use high pressure hydrodynamics to push the material through a very small opening, so small the cells go through in single file."

As the cells file through the very small opening, different types of lasers are shone on them. The reflected light helps single out particularly interesting cells and provides an array of useful information about them. Optical filters also come into play; and computers, which analyze the incoming data, are an essential part of the process.

"When I first heard about this technology I said, "That sounds like magic!" Ko says.

Magical it may be, but primarily, it is science. Ko's work is immensely useful to the researchers at the BC Cancer Agency. For instance, he explains, many researchers study healthy stem cells, because if they can figure out how a healthy cell works, they stand a better chance of stopping cancerous cells. In particular, if they can find out what "turns on the switch for the healthy stem cell to replicate, they can hopefully figure out how to "turn off the switch that makes cancer cells proliferate. Flow cytometry, says Ko, is the only lab technology that can literally sort out the stem cells from the other cells and then provide a means to learn more about them.

Ko studied molecular biology and biochemistry at Simon Fraser University. He had been interested in science and medicine since he was a young boy ... perhaps because his father worked in first aid and shared many medical stories with him, says Ko.

Ko learned about flow cytometry at a lecture during his final year.

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