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'Canadian Science Boxes Above Its Weight Class'

An interview with **John E. Dick**

2022 Canada Gairdner International Award laureate

My name is John Dick and I'm a senior scientist at Princess Margaret Cancer Centre. I work on stem cells of the blood.

When I began my work in the late 1980s, I was very interested in trying to understand what a normal human blood stem cell looks like, and how the process for leukemia began. So over the course of 30 years, we basically narrowed down the kind of cell that actually is a human blood stem cell. And that has led to advances in trying to use stem cells for therapy.

On the cancer side it was the same problem. Leukemia can grow massively in the bloodstream of a person, but we still don't have ways of growing them in a lab dish. And as we started to do that work, we basically asked the question, well does every leukemia cell have the ability to grow blood? And it turned out that only about one in a million cells had that ability. And then we went on and we basically purified those cells and realized that these cells had similar kinds of properties of normal blood stem cells. And that led to the idea that there was such a thing as a leukemia stem cell: in other words, a stem cell for the leukemia.

After about 10 years, people realized that that actually is true for solid tumours as well, and that that led to the whole idea that there are cancer

