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Do Bad Stem Cells Cause Tumours?

An interview with Dr. Sheila Singh
Cancer Biologist, McMaster University

How are children affected by brain cancer?

My life as a surgeon scientist is a balancing act. When I am on the clinical side, I spend time looking after children who have paediatric neurosurgical disorders such as hydrocephalus, or water on the brain, or brain tumours. The rest of the time I have a lab in the Stem Cell and the Cancer Research Institute and we apply a developmental neurobiology approach to the study of brain tumours. And that means that we like to take ideas from normal development of the brain and apply them to cancer because there's a lot of theories out there that cancer is simply development gone awry.

How do children inspire your research?

It is a challenge, but an inspiration to take care of children when they are sick. Children don't have any self-pity. They're not like adults and they don't feel sorry for themselves when something bad happens to them; they just keep on moving. And I actually find that inspirational. It's very easy to perform both jobs for me because I find my inspiration on the side with the patients, and I am able to go over to the lab and the people we are all working for in the lab are those children with brain tumours. So it's not hard to wake up every morning and find motivation to do what we do.

What does the future hold for your research?

The concept of a cancer stem cell evading therapy at this point is largely theoretical. It's a beautiful idea, but now we have designed novel experimental models to test exactly that question. Do cancer stem cells evade therapy and which cancer stem cells evade therapy? And how do we target them? The only way to do that is to actually treat, with all the same therapies, patients when they have brain tumours. And then to find out at the end of the day what are the cells that have actually escaped, that will be a breakthrough. And that's something that my lab is working very hard to do.