



RESEARCH2REALITY

Shining a light on research & innovation.

Shining a Spotlight On Cancer Cells

An interview with **Christine Allen**, Pharmaceutical Scientist
University of Toronto

We are designing nanotechnologies that target tumours, that will make the surgeon's job easier. They go in, they see the tumour, they can quickly remove it, and they can also identify metastatic lymph nodes — that's where the cancer has spread to.

For many, many decades, we've been using chemotherapy. Chemotherapies are just small molecule drugs that are administered largely intravenously, so into the bloodstream, and these drugs go all throughout the body. And this is why when you see patients with cancer, you'll see that they lose their hair, they become very nauseous. There are a lot of awful side effects that they experience. And to the extent that it's possible, we're using nanotechnology to decrease those toxic side effects and improve the effectiveness of the drug.

What is nanoparticle? What is a nanotechnology? So, they're just very, very small particles that are smaller in diameter than even the width of a human hair. So the nanoparticles, we take the drug, we put it in the nanoparticle, and we're trying to prevent the drug, then, from getting to all the normal tissues where the cancer is not, and increase the accumulation where the cancer actually is. So we reduce toxicity, reduce those side effects, and increase efficacy.

What's the future promise of your research?

As every day goes by, we're gaining a much better understanding of the disease, of biomarkers associated with the disease. And I think we're going to realize that we shouldn't even use the word cancer because there is no

TODAY'S RESEARCH. TOMORROW'S REALITY.



cancer, it's just so many different kinds of disease. My hope down the road is that we're able to develop treatments that will suit a specific person's cancer, that will be dedicated to that individual's cancer, and the molecular profile of that cancer. And we'll be rid of the toxic side effects that we've seen with a lot of the chemotherapy that's used today.