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Straight to the Source on Stem Cell Bioengineering

An interview with **Peter Zandstra**, Biomedical Engineer, University of British Columbia
Director, UBC School of Biomedical Engineering

Biomedical engineering is an evolving discipline that brings together fundamentals in biology, technology, engineering, design, and mathematics to solve real-world problems in healthcare.

We're really interested in trying to recapitulate blood development, and use the cells from the blood-forming system as therapeutics. What's really exciting is that these mature blood cells themselves can then be engineered to target certain types of tumours or cancer therapeutics. A good example is T cells, where they can be engineered to have targeting moieties or receptors on their surface that seek and destroy cancer cells.

So what we're trying to do is understand, how can we move from a stem cell population — which we can grow up in huge vats and get lots of — to specific cell types which can be used therapeutically.

Cellular therapeutics and engineered cells are really the fourth pillar of medicine, and we're already seeing that. There are products approved and commercialized on the market to treat cancers based on living cell products: T cells, bone marrow transplantation which started in the 1960s. So we know that these therapies are efficacious.

The question is, can we use the understanding that we now have that may actually solve some of these problems in diseases, and start to think about

