

# TURNING THE TABLES

Øystein Rekdal and Edwin Klumper are leading a team at Lytix Biopharma that's making crucial developments at the forefront of cancer treatment

**W**hat if we turn the tables and set cancer against itself? This may sound like a crazy idea but it could soon be a viable option. In fact, this approach is called immunotherapy and is possibly the most promising way forward to cure more cancer patients.

**“LTX-315 could be the missing link to unleashing the full potential of the body's immune system”**

That's according to two leading scientists at Lytix Biopharma, a Norwegian biotech company based in Oslo. Professor Øystein Rekdal, founder and scientific director, and Dr Edwin Klumper, managing director, have both dedicated decades of their professional lives to cancer research and developing new treatments. Now they have joined forces to develop a whole new class of immunotherapy drugs that activate the patient's own immune system to fight the cancer.

Lytix's lead drug LTX-315 is a first-in-class oncolytic peptide – a small protein that dissolves cancer cells. Put simply, once directly injected into the patient's tumour, LTX-315 opens up the cells in a special way to reveal the unique characteristics of the cancer, or its 'barcode'. The immune system is then able to recognise the patient's cancer cells by this barcode and build its own army of 'killer' T-cells to attack the affected areas.

To eradicate cancer, it must be taken out at its roots, right down to the very last cell. If diagnosed early enough, surgery and radiation therapy can remove small cancers completely and cure patients. Unfortunately, by the time most people are diagnosed, the majority of cancers will have already spread throughout the body. Although there are a few remaining treatments, such as chemotherapy, they have a reduced success rate.

Why is it that once the cancer starts to spread within the body, its removal becomes more difficult? The main reason is that cancer is heterogeneous – each individual

tumour contains a variety of cancer cells, different from each other and with varying levels of drug sensitivity. This makes treating the disease challenging. Often treatment will only kill the most sensitive cells, resulting in a short-lived regression, while the resistant cells grow

back even more aggressively.

Heterogeneity remains the big unsolved problem in cancer treatment today. Each patient carries their own unique cancer cells with different characteristics; you could go as far as saying that there are as many cancers as there are cancer patients. As a result, there's no magic bullet or one-drug solution to cure cancer. This has led to the realisation that treatment must be personalised.

Professor Rekdal and Dr. Klumper believe that LTX-315 could be the answer to tackling this problem, in that it encourages the generation of 'killer' T-cells that are able to tackle all of the different types of cancer cells called 'clones', whether sensitive or resistant; what is known as a polyclonal T-cell response.

Immunotherapy is already being described as the great hope for cancer treatment – a fourth pillar, along with radiotherapy, chemotherapy and surgery. After passing initial safety tests, Lytix is now accelerating development of LTX-315 by further testing its effectiveness in cancer patients. Its research has aroused widespread interest across the globe, with Rekdal and Klumper currently working alongside leading teams in the US and Europe.

This new direction could be the first step towards unleashing the full potential of the body's immune system, providing the ultimate personal treatment. Using the patient's own tumour as the source of its cure – now that would really be turning the tables.

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