

Tapeworm drug fights prostate cancer

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Karl-Henning Kalland's research group has done experiments with hundreds of drugs to fight cancer. Credit: Kim E. Andreassen

Cancer researchers at the University of Bergen (UiB) in Norway have in the recent years experimented with hundreds of known drugs, to see how they influence cancer cells.

Recently they found that a substance in medicine against parasites like Giardia and Tapeworms, acts like tailored medicine against prostate- and colon [cancer](#).

"We discovered that this specific substance is blocking the signalling pathway in the [cancer cells](#), and make them stop growing. It is not often that researchers discover a substance that targets specific molecules as precisely as this one, " says Professor Karl-Henning Kalland at the Department of Clinical Science, at UiB. He is the leader of the research group.

Hyperactive cells

The researchers at Kalland team saw that the cells in prostate- and [colon cancer](#) contain high amounts of activated Beta-catenin. Activation of this protein makes the cells go amok and divides at high tempo. In addition, Beta-catenin makes the cancer cells more resistant and more able for survival.

In the study, the researchers discovered that it was the substance NTZ (nitazoxanide), a well known and approved anti-parasite drug, that decompose the activated Beta-catenin.

"We are the first researchers who have mapped the complex molecular mechanisms involved in this process," Kalland says.

Recycling old medicines

Experiments with well-known drugs show that a medicine may have different and unknown targets in the cells.

"The advantage of testing already approved drugs, is that we know they

work in the human body and have no serious side effects, which means that a future treatment may happen quicker," Kalland explains.

Strengthen the immune system

NTZ attacks cancer cells by hindering the activated Beta-catenin. It appears that this hindering also stimulates central parts of the immune system, that attacks cancer [cells](#).

"At the moment, we are working on how to strengthen our on going immune therapy against prostate cancer by using the mechanisms we discovered of the NTZ," Kalland says.

Kalland and his research-team is in the first phase in a clinical trial using [immune therapy](#) against [prostate cancer](#) (cryoIT).

More information: Yi Qu et al, Small molecule promotes β -catenin citrullination and inhibits Wnt signaling in cancer, *Nature Chemical Biology* (2017). [DOI: 10.1038/nchembio.2510](https://doi.org/10.1038/nchembio.2510)

Provided by University of Bergen

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