

New way to target the growth of breast cancer cells

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An international team of researchers led from Karolinska Institutet and Science for Life Laboratory in Sweden have found a new way of halting the growth of breast cancer cells. In their study, which is published in *Nature Communications*, the researchers explore a new way to starve cancer cells from their molecular energy source. They hope that their discoveries can be further developed into a new way of treating breast cancer, and possibly other types of cancer.

Breast and [prostate cancer](#) are the most common forms of cancer in Sweden, and the number of cases is increasing yearly. Often, these tumours use hormones, such as oestrogen or testosterone, to drive their growth, and thus normal treatments aim to block the activity of these hormones. While modern treatments are often successful, cancers can also become resistant to these treatments and develop new ways of propagating.

In the current study, the researchers confirmed that hormone-driven [breast cancer cells](#) use a newly discovered protein, NUDT5, to produce energy in the cell nucleus. This nuclear energy source provides energy for the expression of genes that drive cancer growth.

In the next stage of their research, they developed a molecule able to block NUDT5 activity and thus deprive the cancer cells of their means of [nuclear energy](#) production. They demonstrated that this new molecule can stop the growth of breast cancer cells in isolated laboratory experiments.

The original purpose of the project was to understand the biological function of NUDT5, but this has now shifted and the aim is to progress NUDT5 inhibitors towards clinical testing where these molecules can hopefully help improve treatment options for [cancer patients](#).

"They're exciting findings, but the path ahead is long since we still know very little about how NUDT5 operates," says Professor Thomas Helleday at the Department of Medical Biochemistry and Biophysics, Karolinska Institutet.

More information: Brent D. G. Page et al. Targeted NUDT5 inhibitors block hormone signaling in breast cancer cells, *Nature Communications* (2018). [DOI: 10.1038/s41467-017-02293-7](https://doi.org/10.1038/s41467-017-02293-7)

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