

Researcher discovers a protein that spreads cancer

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Nils Halberg at the University of Bergen has identified a protein that makes it possible for cancer cells to spread.

The cells inside a [tumour](#) differ a lot. While some remains "good" and do not cause trouble, others become aggressive and starts to spread to other organ sites. It is very hard to predict which cells become aggressive or not.

Nevertheless, by isolating these aggressive cancer cells in in vivotests on animals, Nils Halberg at the Department of Biomedicine at the University of Bergen (UiB) and the researchers Dr. Sohail Tavazoie and Dr. Caitlin Sengelaub at The Rockefeller University have discovered a certain protein (PITPNC1) that characterise aggressive cancer cells.

"We discovered that the aggressive cancer cells that are spreading in colon, breast, and [skin cancer](#) contained a much higher portion of the protein PITPNC1, than the non-aggressive cancer cells," says researcher Nils Halberg of the CELLNET Group at the Department of Biomedicine at UiB.

"This means we can predict which of the cancer cells are getting aggressive and spread, at a much earlier stage than today."

How cells penetrate tissue

The researcher also discovered that this protein, that characterizes the [aggressive cancer](#) cells, has got a very specific function in the process of spreading cancer.

The cancer cells spread from one place in the body to another, through the blood vessel. To get into the blood vessels, the cell needs to penetrate tissue, both when it leaves the tumour and when it is attaching to a new organ.

"The protein PITPNC1 regulates a process whereby the cancer cells are secreting molecules, which cut through a network of proteins outside the cells, like scissors. The cancer cell is then able to penetrate the tissue and set up a colonies at new organ sites," Halberg explains.

The researchers discovery is recently published in the journal *Cancer Cell*.

Custom-made therapy

A tumour that is not spreading, is usually not dangerous for the patient if it is removed. The hard part in cancer therapy is when the tumour starts to spread. Guided by the new discoveries, supported by the Bergen Research Foundation's (BFS) Recruitment Programme, Halberg hopes to contribute to a better treatment of cancer patients.

"If we get to the point where we can offer a custom-made therapy that targets the function of this [protein](#), we might be able to stop it spreading," says Nils Halberg.

More information: Nils Halberg et al. PITPNC1 Recruits RAB1B to the Golgi Network to Drive Malignant Secretion, *Cancer Cell* (2016).

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