

# Fish oil reduces effectiveness of chemotherapy

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Researchers at University Medical Center Utrecht, the Netherlands, have discovered a substance that has an adverse effect on nearly all types of chemotherapy - making cancer cells insensitive to the treatment. Chemotherapy often loses effectiveness over time. It is often unclear how or why this happens.

It now appears that chemotherapy is made ineffective by two types of fatty acid that are made by [stem cells](#) in the blood. Under the influence of cisplatin chemotherapy, the stem cells secrete these fatty acids that induce resistance to a broad spectrum of chemotherapies. These substances are referred to by researchers as 'PIFAs' which stands for platinum-induced fatty acids. [Cisplatin](#) is a type of chemotherapy that is widely used for the [treatment of cancer](#), including cancer of the lungs and ovaries.

## Tumors under the skin

The researchers studied the effect of PIFA's in mice and [human cells](#). The mice studied had tumors under the skin. Under normal conditions, the tumors would decrease in size following the administration of chemotherapy. In the study, after administering the fatty acids to the mice, the tumors were found to be insensitive to chemotherapy. The fatty acids were isolated from the medium in which chemotherapy exposed stem cells were grown. But also stem cells in the blood of patients produce the fatty acids that desensitize tumors to chemotherapy.

The fatty acids are also found in commercially-produced [fish oil supplements](#) containing omega-3 and omega-6 fatty acids as well as in some algae extracts. In the experiments conducted in mice, the tumors became insensitive to chemotherapy after administration of normal amounts of fish oil. Natural products that include fish oil are frequently used by [cancer patients](#) in addition to their regular treatment.

## "Don't use these products"

Professor Emile Voest, a medical oncologist at UMC Utrecht, supervised the research. "Where resistance to chemotherapy is concerned, we usually believe that changes in the [cancer cells](#) themselves have occurred. Now we show that the body itself secretes protective substances into the blood that are powerful enough to block the effect of chemotherapy. These substances can be found in some types of fish oil. Whilst waiting for the results of further research, we currently recommend that these products should not be used whilst people are undergoing chemotherapy."

Researchers at the University Medical Center Utrecht, the Netherlands, describe these findings, that will appear online on September 12, in the journal *Cancer Cell*.

Provided by University Medical Center Utrecht

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