

New drug protects against side effects of chemotherapy

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A drug developed at Linköping University in Sweden protects against the side effects of cancer treatments while strengthening the effects on the tumour. An international drug evaluation is now starting up on a larger group of patients.

The results of the studies with the compound, known as calmangafodipir, were published in the latest issue of the cancer journal *Translational Oncology* with Professor Rolf G. G. Andersson as the main author.

The research was initiated on a substance called mangafodipir, which was used as a contrast media in magnetic resonance scans. But pharmacologists at LiU discovered that it also protected healthy cells in connection with cancer treatments.

"We found that the substance could affect the formation of [oxygen radicals](#), which are a cause of side effects in chemotherapy," says Professor Andersson.

For example, the number of [white blood cells](#) decreases drastically in almost all the patients, which opens the door to infections that could even be fatal.

The researchers began with cell tests, and then went on to mice infected with [cancer cells](#). The mice were treated with chemotherapy and were administered mangafodipir at the same time. Tumour formation

decreased while white blood cells were protected.

One problem was that a large portion of the manganese in the substance was released; as a consequence, the positive effect subsided. The free manganese can also be poisonous and cause brain damage.

"We remade the substance and replaced a lot of the manganese with calcium. This yielded a more stable complex, which turned out to be even better at protecting cells, thereby increasing the anti-cancer effect," says Professor Andersson.

The effect of mangafodipir was confirmed in a smaller study on patients with [colon cancer](#), which was published in *Translational Oncology* in February 2012.

More information: Karlsson, J. et al. Superior therapeutic index of calmangafodipir in comparison to mangafodipir as a chemotherapy adjunct, *Translational Oncology*, Vol. 5 No. 6, pp. 492–502, December 2012. www.trasonc.com/abstract.php?msid=337

Provided by Linköping University

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