

Promising results for Swedish cancer drug candidate

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A new study conducted by scientists from the Dana-Farber Cancer Institute at Harvard Medical School and Karolinska Institutet in Sweden presents very promising results for the treatment of the cancer form multiple myeloma. The drug candidate used in the research has been developed by scientists from Karolinska Institutet and a Swedish company following its initial identification at the same university. The findings are so promising that the scientists are teaming up with Harvard to bring the drug to clinical trials on patients.

The journal *Blood* has published a new study on a drug candidate for [multiple myeloma](#), a form of [cancer](#) that affects about one per cent of all tumour patients, with some 600 people a year developing the disease in Sweden. Multiple myeloma is a life-threatening disease and there is a dire medical need for new therapies, especially for the patients whose [tumour cells](#) have become resistant to the conventional drugs.

"The discovery that our substance works on multiple myeloma cells resistant to conventional therapy is very promising for the future," says Professor Stig Linder at Karolinska Institutet's Department of Oncology-Pathology. "We're now very hopeful that we and our colleagues at Harvard Medical School will be able to develop an effective treatment."

The study demonstrates that the drug candidate, called VLX1570, inhibits tumour growth and prolongs survival in preclinical multiple myeloma models. The exact mechanism of action of the substance was identified earlier at Karolinska Institutet (*Nature Medicine*, 2011); put

simply, the tumour cells can be said to be more sensitive than normal cells to disruption to the machinery that breaks down defective proteins. When this machinery is blocked, it triggers apoptosis (programmed cell death) in the tumour cells.

"We show that the drug candidate kills multiple myeloma cells from cancer patients," says Professor Linder. "The substance is also effective against myeloma [cells](#) that have developed a resistance to the clinically used drug bortezomib."

Dr Dharminder Chauhan at Harvard Medical School says that the mechanism of action is very interesting as regards the development of new cancer drugs and adds, "We're delighted to be able to study the therapeutic potential of this new [drug candidate](#) in clinical studies. We hope that the joint research we're doing will lead to improved cancer treatments."

The study also found that the new substance could be combined synergistically with other cancer therapies. Karolinska Institutet and Harvard Medical School are due to launch a large-scale clinical study next year in association with drug discovery company Vivolux AB (Uppsala, Sweden).

"If the study proves successful it will represent a great step forward, mainly for all cancer patients but also for the Swedish drug industry," says Professor Linder.

More information: 'A novel small molecule inhibitor of deubiquitylating enzyme USP14 and UCHL5 induces apoptosis in myeloma cells and overcomes Bortezomib resistance', Tian Z, D'Arcy P, Wang X, Ray A, Tai Y-T, Hu Y, Carrasco R, Linder S, Chauhan D, Anderson K, *Blood*, online 6 December 2013.

Provided by Karolinska Institutet

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