

# New drug active against most aggressive type of lung cancer cells

July 10 2014, by Alison Barbuti

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Electron microscopic image of a single human lymphocyte. Credit: Dr. Triche National Cancer Institute

(Medical Xpress)—Manchester scientists have shown that a new drug could prove useful in treating small cell lung cancer - the most aggressive form of lung cancer.

Scientists from the Cancer Research UK Manchester Institute, based at The University of Manchester and part of the Manchester Cancer Research Centre, teamed up with experts at AstraZeneca, as part of a collaboration agreed in 2010, to test a [drug](#) – known as AZD3965 - on small cell [lung cancer cells](#).

The research, published in the journal *Clinical Cancer Research*, also helps identify which patients are most likely to respond to the treatment.

One treatment approach currently being investigated by cancer scientists is finding drugs that exploit the change in energy production in tumours. In cancer cells there is a switch to using glycolysis, a process that requires less oxygen and produces lactate as a by-product. Certain molecules – monocarboxylate transporters (MCTs) – are involved in the movement of lactate out of cells and drugs that target MCTs have been shown to stop [tumour growth](#).

The Manchester researchers tested a new drug that targets one of these molecules, MCT1, in lung cancer cells and in mouse models.

Professor Caroline Dive, who led the research, said: "Small cell lung cancer has a dismal prognosis and we have seen little improvement in treatment for many years. More targeted therapies are needed to help those patients whose tumours become resistant to chemotherapy. This new drug – AZD3965 – is currently in clinical trials, but it has not yet been tested in small cell lung cancer."

The team investigated the sensitivity of small cell lung [cancer cells](#) to AZD3965 and showed that in those cells lacking an alternate lactate

transporter, MCT4, the drug had an effect. They found that the drug increased the level of lactate in cells and, more importantly, reduced tumour growth.

They then looked at tumour samples taken from [lung cancer patients](#) and found that high levels of MCT1 were linked to worse patient prognosis.

Professor Dive added: "We propose that this drug will be most useful in this subset of patients who have elevated MCT1 levels and need more effective treatments.

"Our laboratory results are promising and certainly provide encouragement to test this treatment clinically in patients with small cell [lung cancer](#)."

Susan Galbraith, head of the oncology innovative medicines unit at AstraZeneca, said: "Lung cancer is still the leading cancer killer, and we are working on a number of potential treatment options that could provide [patients](#) with a better chance of beating the disease. Targeting tumour cell metabolism represents a novel and exciting approach, and we are delighted to be working with The University of Manchester and Cancer Research UK to investigate the utility of AZD 3965 as a potential novel cancer treatment."

**More information:** "Activity of the monocarboxylate transporter 1 inhibitor AZD3965 in small cell lung cancer." Polański et al. *Clin Cancer Res.* 2014 20(4):926-37. [DOI: 10.1158/1078-0432.CCR-13-2270](https://doi.org/10.1158/1078-0432.CCR-13-2270).

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