

# Paradox of cancer drugs gives clue to why some treatments fail

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(PhysOrg.com) -- Scientists have found that some types of cancer drugs called angiogenesis inhibitors can encourage tumour growth rather than stunt it - according to research published in *Nature Medicine*\* yesterday.

These drugs are designed to block the supply of blood to the tumour to prevent it from growing. This research focused on an experimental [angiogenesis inhibitor](#) called cilengitide that has not yet been licensed for patients.

The scientists based at The Institute of [Cancer](#), Queen Mary, University of London, the Institute of Cancer Research (ICR) and the Beatson Institute for Cancer Research found evidence to suggest that low doses of cilengitide in laboratory studies can have the opposite effect to what was expected and promote cancer growth.

Study author, Dr Andy Reynolds, from the Breakthrough Breast Cancer Research Centre at the ICR, said: "Our study revealed a previously unknown mechanism through which drugs such as cilengitide behave. It showed that while higher concentrations of cilengitide can block angiogenesis, lower concentrations can actually stimulate the supply of blood to the tumour and can promote its growth. These results may explain why initial results from early stage clinical trials have not been as promising as hoped.

"Knowledge of this mechanism will help us develop new ways to make these drugs as effective as possible. In the future, we may be able to

combine these inhibitors with other drugs to maximise their effectiveness for patients."

Dr Lesley Walker, director of cancer information at Cancer Research UK said: "Drugs redirect the body's complex signalling systems. Sometimes very subtle alterations to the way a drug is administered, or subtle changes to a drug's structure, can have a huge impact on its effectiveness.

"This study is important because it may help to explain the mixed results previously seen in patients and turn around disappointing results so people may still benefit from the drug without the potential harm."

"Other anti-angiogenesis drugs like sunitinib (Sutent) and bevacizumab (Avastin) have proven effective enough for use in the NHS but there is still need to understand why they can sometime fail. It may be that there are similar mechanisms at work."

\*More information: Stimulation of tumor growth and angiogenesis by low concentrations of RGD- mimetic integrin inhibitors. A Reynolds et al. *Nature Medicine*. March 2009.

Provided by Queen Mary, University of London ([news](#) : [web](#))

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