

Combining chemotherapy with an immune-blocking drug could stop cancer growing back

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Giving patients a drug that blocks part of the immune system from going into overdrive might help prevent cancer coming back in some people, according to research published today in *Cancer Research*.

Cancer Research UK-funded scientists from the University of Sheffield found that the cancer-killing action of chemotherapy can trigger a swarm of wound-healing, [white blood cells](#) to cluster around blood vessels in a treatment-hit tumour. These cells - called M2 macrophages - [repair tissue damage](#) and build new [blood vessels](#), a process that sometimes helps the tumour to grow again after treatment.

But by treating mice with cancer with a drug that stops these repair cells from working, the researchers markedly reduced the speed at which tumours grew back after chemotherapy.

The lead scientist on the study, Professor Claire Lewis at the University of Sheffield's Department of Oncology, said: "Scientists already knew that the body's drive to heal itself can sometimes backfire when the immune system reacts to tissue damage. Our research shows that treating tumours with chemotherapy can activate this part of the immune system, and this then helps tumours re-grow afterwards.

"But combining chemotherapy with a drug that switches off this part of the body's repair system, slowed the growth of tumours after

chemotherapy. This could be particularly important for patients who can't have surgery and, therefore, need chemotherapy to help them live for as long as possible."

Clinical trials of patients are needed to confirm these early findings to see if the drug - already used in patients for other reasons, such as [bone marrow transplants](#) - could help cancer patients after chemotherapy.

Dr Áine McCarthy, science communications officer at Cancer Research UK, said: "Chemotherapy is a cornerstone cancer treatment that saves thousands of lives, but sometimes tumours come back, reducing patients' chances of survival. We don't understand all the reasons why tumours do come back, but this study sheds new light on the role of the immune system in causing tumours to grow again and, importantly, identifies a drug that could block this happening if given at the same time as [chemotherapy](#).

"But this is early research carried out in mice and more work is needed to see if blocking M2 macrophages can also slow down [tumour](#) re-growth in patients."

More information: 'Perivascular M2 macrophages stimulate tumour relapse after chemotherapy' - Russell Hughes et al. [DOI: 10.1158/0008-5472.CAN-14-3587](#)

Provided by Cancer Research UK

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