

Researchers uncover new clues about how cancer cells communicate and grow

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(Medical Xpress) -- Researchers have shown that the communication signals sent around the body by cancer cells, which are essential for the cancer to grow, may contain pieces of RNA – these substances, like DNA, are pieces of genetic code that can instruct cells, and ultimately the body, how to form. The same study also found early indications that these genetic instructions can be intercepted and modified by chemotherapy to help prevent cancer cells growing.

The researchers, from St George's, University of London, believe that these findings add to the body of evidence investigating a new wave of cancer treatment that stimulates the body's immune system to fight the disease. Most current treatment attacks the cancerous cells directly. However, the researchers emphasise that this is an early-stage study and there is much more research to be done before patients will benefit.

The findings are published online by the [British Journal of Cancer](#).

It is believed that when tumour cells develop they can, as part of this process, produce chemicals that travel around the body instructing it to create the ideal environment for the tumour to flourish. An element of this is the creation of new blood vessels, which feed the tumour cell in the same way they would healthy cells – a process known as angiogenesis.

Previously, it has been thought that this angiogenesis process is sparked by chemical messengers called cytokines. But in laboratory-based

experiments conducted with human lung cancer cells outside of the body, researchers at St George's discovered the tumour may also send out packets of [RNA](#) that, like the cytokines, instruct blood vessels to form and feed the tumour.

The researchers went on to investigate the effects that two frequently prescribed cancer drugs - cyclophosphamide and oxaliplatin – had on angiogenesis. They cultivated RNA messages sent by untreated cancer cells as well as those messages sent by cancer cells that had been treated by the drugs.

They found that when lung cancer cells were treated with oxaliplatin, the RNA and cytokine messages produced by the tumours were no longer capable of influencing vessels to grow.

Lung [cancer cells](#) treated with cyclophosphamide, however, were still able to instruct vessels to feed the tumour via these chemical messengers.

Lead researcher Dr Wai Liu, from St George's, University of London, says:

“Currently, drugs fight cancer either by attacking the tumour cell itself or by disrupting the physical interaction between the tumour and the body, which can dislodge the cell. Only very few target the signals sent between tumour cells and those that make up the micro-environment. Partly, this is because little is known about the form of these signals. This study tells us a bit more about how cancer forms and provides a further avenue to explore. Plus it suggests that there may also be existing drugs that can help fight cancer in different ways.

“Although these are early findings and more research is needed, they add to the growing interest in training the body's own immune system to fight [cancer](#) and will hopefully help to form the foundations for future

medications that exploit this approach.”

More information: The full paper (Supernatants derived from chemotherapy-treated cancer cell lines can modify angiogenesis) can be found on the British Journal of Cancer [website](#).

Provided by St George's University of London

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