MedicalXpress

Researchers identify a test to target cancer drug

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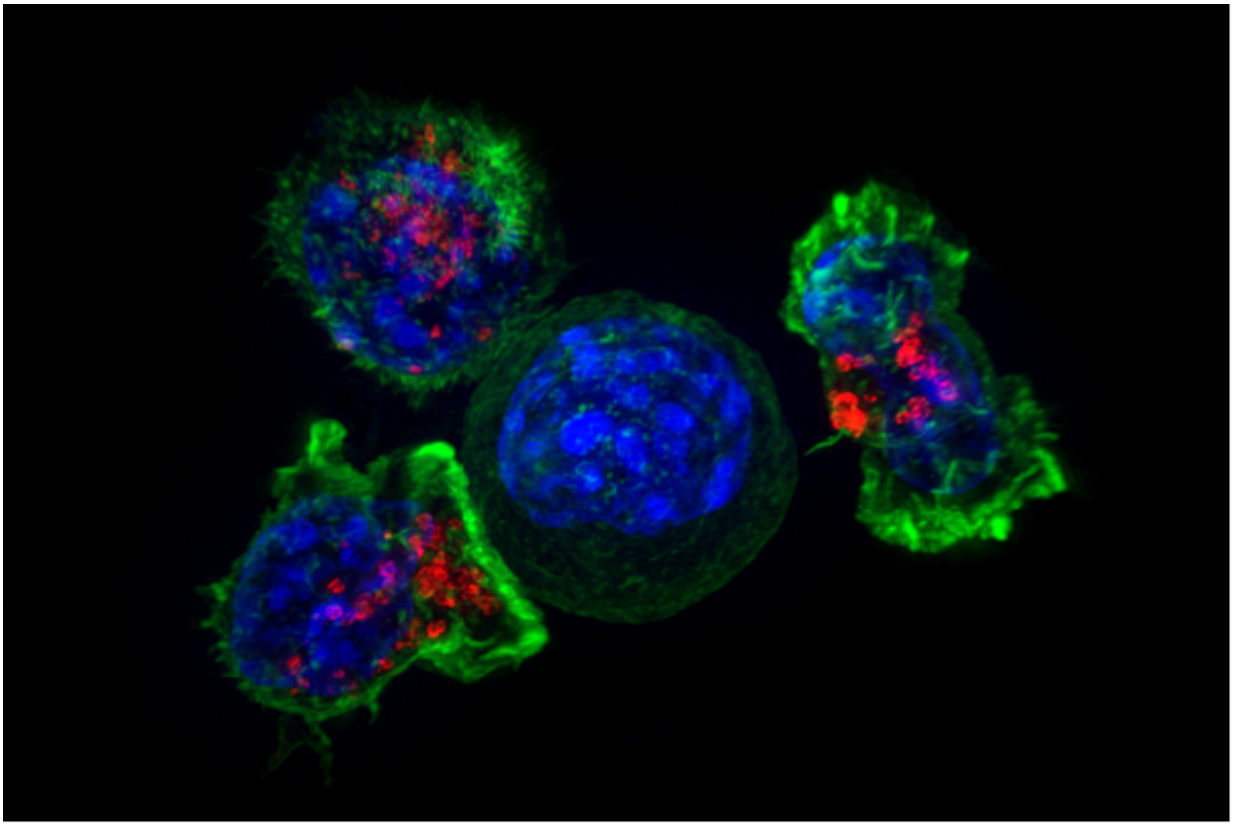

Killer T cells surround a cancer cell. Credit: NIH

Doctors are developing a more personalised approach to the treatment of bowel cancer, thanks to research which has found a way of screening tumours for their susceptibility to drug therapy.

Delivering 'customised care' is important because every cancer is different - so may respond differently to treatment.

The cancer drug panitumumab is one option for patients with advanced bowel cancer, and doctors already use a genetic test called RAS to select patients who may be helped by it. But even using the RAS test, although panitumumab can control symptoms and extend life for some patients, for others it is ineffective and may cause unpleasant side-effects.

The problem is that currently doctors do not know in advance who is going to benefit and who is not.

Now researchers at the University of Leeds, collaborating with scientists at Duke University in North Carolina in the USA, have identified a protein called HER3 in tumours which could help predict if treatment with the drug will be effective.

They have found that a patient whose cancer has a high level of HER3 are likely to benefit from the drug. On the other hand, a patient whose cancer lacks the protein may get no benefit and still suffer the drug's side-effects.

Writing in the journal *JAMA Oncology*, the researchers report that patients with a raised level of HER3 saw their tumour shrink or stabilise for - on average - an extra four months if treated with panitumumab. In patients with low HER3 levels, panitumumab had no effect.

Last year, the same research team published a paper reporting that the presence of other proteins, called ligands, can also help predict who will benefit from panitumumab. An analysis in the current paper combined information from both HER3 and ligands, and showed that panitumumab performs best in the 20% of patients whose cancers have high levels of both these markers.

Dr Jenny Seligmann, a CRUK Clinical Trials Fellow at the University of Leeds, lead author of the paper said: "HER3 appears to be a helpful test - in about half the patients who might otherwise receive panitumumab it shows that the drug would be ineffective or even harmful, and these patients could instead be offered another treatment option.

"And if we combine both indicators - HER3 and ligands - we can identify the 20 per cent of patients for whom panitumumab is the most effective in prolonging cancer control, making it a compelling treatment choice for them".

The study used tumour samples donated for research by 308 patients from all over the UK who, between 2006 and 2010, took part in a trial testing the addition of panitumumab to their cancer treatment.

The team was able to see how patients had responded to the drug and then went back and tested their stored tumour samples for levels of the ligands and HER3 proteins.

Professor Matt Seymour, who led the research team, said: "These findings are important in that we are now closer to developing a test to identify patients for whom panitumumab is a powerful and effective therapy.

"We are hugely grateful to the patients who participated in the trial and gave permission for us to use their cancer samples to perform this research.

"More work still needs to be done before the test can be offered to patients routinely. We need to confirm our results in other trials, and to work out how best to test for these proteins rapidly and reliably, so that doctors can be advised whether to offer the drug."

The research adds to the growing picture of the importance of personalised medicine in cancer care. Through a clearer understanding of some of the biochemical mechanisms involved in an individual's cancer, doctors are better able to target various therapies.Bowel cancer is the fourth most common form of cancer and around 110 new cases are diagnosed every day in the UK, according to statistics from Cancer Research UK.

Advanced bowel cancer is seen when the disease spreads from the bowel to another part of the body. At this stage the disease cannot be stopped but successful treatment can slow its progress.

Provided by University of Leeds