

Single gene linked to many cancers

► It plays important role in growth of tumours

► Scientists 'excited' by chance of new therapies

David Rose

A gene has been found to play an important role in tumour growth in nearly three quarters of cancers, raising hopes for potential new treatments for the disease, scientists will say today.

Research to be presented to the European Cancer Conference in Barcelona found the gene, known as Trop-2, to be active in an unprecedented range of common tumours, including cancers of the breast, colon, stomach, lung, prostate, ovaries and pancreas.

The exact function of the naturally occurring gene is little understood, but it is known to play a significant role in the development of babies in the womb and in later cell division and growth.

Italian researchers said it was "greatly significant" that it was found in so many different cancers during experiments on mice and in tumours cultivated in the laboratory.

Saverio Alberti, who led the research at the University of Chieti, said that high levels of Trop-2 activity were found in between 65 and 90 per cent of the tumour types analysed, with an average of 74 per cent across

the board. "The function of the Trop-2 gene was a mystery until now, but this study reveals it is involved in tumour growth in an average of three quarters of human cancers, which has not been seen before," he said. "Most other markers known to date show lower figures or can be detected in only a sub-group of tumours, so Trop-2 really stands out."

"It is a unique marker of cancer [spreading] in different tumour types — including colon, stomach, breast, and ovary in humans — and across a number of species," he said.

The announcement follows the news last week of new genetic tests for breast and prostate cancers, which could help to screen potentially high-risk patients in Britain and help them to get treatment early.

The Chieti team has been examining the action of the Trop-2 gene for three years, after inferring that its generative action during pregnancy might mean it was also involved in tumour growth. Researchers analysed the gene's activity in human tumours and found that Trop-2 was active in the vast majority of human cancers. Over-activity of the Trop-2 gene was also found in 1,755 tumours that were grown in the lab.

Separate studies in colon-cancer patients have also found that it is also associated with more aggressive disease and death due to cancer.

Using this evidence the researchers now hope to develop medicines based on antibodies that will target the gene's activity and potentially slow

or stop the progression of disease.

Any resulting therapies could form the first way of tackling types such as pancreatic cancer, for which there is at present no effective treatment.

"If we can identify such molecules we will be approaching a situation where we could influence their activity and hence either encourage or prevent it," Professor Alberti said. "This could be an important step towards stopping cancer in its tracks."

"It is still early days, but we are very excited about the prospects for therapy which we can see arising from this discovery."

He added that the first clinical trials

for antibody-based treatments could begin by the end of next year, with the potential to be available to patients within five years.

Joanna Owens, Cancer Research UK's senior science information officer, said: "Understanding how cancer spreads is very important if we are to help more people survive the disease. This study adds to the evidence that Trop-2 is overactive in many cancer cells, and is a good starting point for further research into the role of this gene in cancer."



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