

Chemotherapy 'can make cancers more resistant to treatment and even encourage them to grow'

- **Chemotherapy may affect healthy cells surrounding cancer cells**
- **Research suggests that some forms of cancer treatment can make the disease tougher to tackle**

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Chemotherapy treatment for some cancers may actually encourage tumours to grow, researchers have claimed. The treatment triggers the healthy body cells around the tumour to produce a protein that helps the disease to resist treatment.

The surprise discovery suggests that some forms of the cancer treatment are doing more harm than good.

Scientists believe the effect is caused by the impact of chemotherapy drugs on healthy connective tissue cells called fibroblasts.

In lab experiments they found the drugs caused DNA damage which made fibroblasts pump out 30 times more of a protein than normal.

This protein encouraged prostate tumours to grow and spread into surrounding tissue, as well as to resist chemotherapy.

'Cancer cells inside the body live in a very complex environment or neighbourhood,' said lead scientist Dr Peter Nelson, from the Fred Hutchinson Cancer Research Centre in Seattle, U.S.

'Where the tumour cell resides and who its neighbours are influence its response and resistance to therapy.'

Blocking the treatment response of fibroblasts could improve the effectiveness of chemotherapy, say the scientists whose findings are reported in the journal Nature Medicine.

The team examined cancer cells from prostate, breast and ovarian cancer patients who had been treated with chemotherapy.

Professor Fran Balkwill, from Cancer Research UK, said that this finding ties in with other research that has shown that 'cancer treatments don't just affect cancer cells, but can also target cells around tumours'.

This effect can sometimes be a positive one, Professor Balkwill said, as is the case when chemotherapy stimulates healthy immune cells to attack tumours nearby.

'But this work confirms that healthy cells surrounding the tumour can also help the tumour to become resistant to treatment. The next step is to find ways to target these resistance mechanisms to help make chemotherapy more effective,' Professor Balkwill added.