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## Chemotherapy can backfire

Cancer-busting chemotherapy can cause damage to healthy cells which triggers them to secrete a protein that sustains tumour growth and resistance to further treatment, a study said.

**“Our results indicate that damage responses in benign cells... may directly contribute to enhanced tumour growth kinetics.”**

Researchers in the US made the “completely unexpected” finding while seeking to explain why cancer cells are so resilient inside the human body when they are easy to kill in the lab.

They tested the effects of a type of chemotherapy on tissue collected from men with prostate cancer, and found “evidence of DNA damage” in healthy cells after treatment, the scientists wrote in Nature Medicine.

Chemotherapy works by inhibiting reproduction of fast-dividing cells such as those found in tumours.

The scientists found that healthy cells damaged by chemotherapy secreted more of a protein called WNT16B which boosts cancer cell survival.

“The increase in WNT16B was completely unexpected,” study co-author Peter Nelson of the Fred Hutchinson Cancer Research Centre in Seattle said.

The protein was taken up by tumour cells neighbouring the damaged cells.

“WNT16B, when secreted, would interact with nearby tumour cells and cause them to grow, invade, and importantly, resist subsequent therapy,” said Dr Nelson.

In cancer treatment, tumours often respond well initially, followed by rapid re-growth and then resistance to further chemotherapy. Rates of tumour cell reproduction have been shown to accelerate between treatments.

“Our results indicate that damage responses in benign cells... may directly contribute to enhanced tumour growth kinetics,” wrote the team.

The researchers said they confirmed their findings with breast and ovarian cancer tumours.

The result paves the way for research into new, improved treatment, said Dr Nelson.

“For example, an antibody to WNT16B, given with chemotherapy, may improve responses (kill more tumour cells),” he said.

“Alternatively, it may be possible to use smaller, less toxic doses of therapy.”