New drug combo could make cancer more sensitive to chemo

Combining chemotherapy with new drugs that target a protein that helps cancer cells to withstand chemotherapy could drastically improve treatment, according to research published in the journal Cancer Cell.

Researchers at the University of Manchester carefully studied a network of proteins that kick into action when cancer cells in the lab are treated with a class of chemotherapy drugs called taxanes*. These drugs are commonly used to treat several cancers - including breast, ovarian and prostate cancers. But not all cancers respond to them, and it's difficult to predict which patients will benefit.

The Cancer Research UK-funded scientists teased apart this network in a range of cancers** to try and find out why some can survive taxane-based chemotherapy.

The team identified one particular component of this network - a protein called Bcl-xL - which helps the cancer cells survive treatment by blocking the self-destruct process that normally kills cells when treated with chemotherapy drugs.

By combining drugs to block Bcl-xL with taxanes, the researchers showed that the combination of treatments killed far more cancer cells in the lab than taxanes alone.

Study leader Professor Stephen Taylor, Cancer Research UK Senior Research Fellow and Leech Professor of Pharmacology at the University of Manchester, said: "This important research shows us there's potential to boost the cancer-fighting power of chemotherapy - and do more with less.

"This new combination could 'soften-up' cancer cells, making it easier for chemotherapy to deliver the final blow and destroy the tumour. And the good news is that drugs targeting Bcl-xL are already out there and being tested in clinical trials.

"Using this combination of drugs could improve treatment for patients receiving taxanes and lower their chemotherapy dose, which would also help to reduce side-effects."

Dr Emma Smith, senior science information officer at Cancer Research UK, said: "Predicting which patients will benefit most from different types of chemotherapy is essential if we're going to make cancer treatments more effective and kinder.

"In cases where patients don't benefit from taxane-based chemotherapy, doctors could add drugs that target Bcl-xL to overcome cancer's defences. It's still early days for this research but, if the results are confirmed in clinical trials, it has the potential to improve treatment for thousands of cancer patients."

*Examples of taxane chemotherapy agents include paclitaxel (Taxol) and docetaxel (Taxotere)

**The researchers studied the effects of taxenes in cell lines derived from colon, lung, breast, cervical and ovarian cancers.

Source: Cancer Research UK