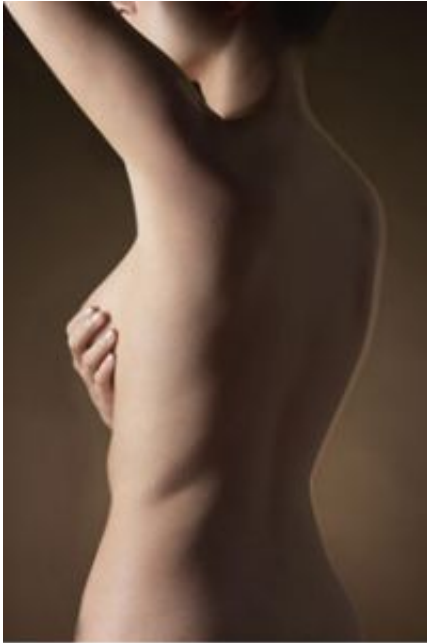


Scientists develop new drug to outflank cancer resistance

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The new drug, STX140, has shown promising results against breast cancer cells and tumours that are resistant to conventional hormone-based treatments.

A new drug has shown promising results against breast and prostate cancer cells and tumours that are resistant to conventional hormone-based treatments, according to research published in the *British Journal of Cancer* today.

Cancers such as breast and prostate cancer are often fuelled by sex hormones, such as oestrogen or testosterone. Hormone therapy for breast or prostate cancer aims to reduce the levels of these hormones in the body, "starving" the cancer of these signals and halting tumour growth. Some cancers are resistant to this treatment from the outset while many build up a resistance to these drugs over time, their growth becoming hormone-independent – such cancers are a major challenge to treat.

Now, researchers have shown that a new drug – STX140 – directly targets hormone-independent cancer cells by initiating a natural suicide process within them. They also show that STX140 starves cancer cells of essential nutrients by stopping the growth of new blood vessels inside the tumours of mice.

Around eight out of every ten men with prostate cancer will respond to hormone therapy, but many of them will become resistant to the drugs during their treatment. Although breast cancer treatments are now very effective, there are fewer treatment options for patients with hormone-independent cancer.

Dr Simon Newman, lead author of the paper based at Imperial College London, said: "Although at an early stage, the results of our study show that by targeting tiny structures within cells we can overcome the huge problem of resistance to hormone therapy. STX140 works by disrupting the action of microtubules – components of cells involved in cell division – causing the cell to stop dividing and eventually die.

"We hope that our new drug, STX140, will enter clinical trials so we can test whether this treatment will be effective in humans. If the trial results reflect what our lab tests show, we could produce a treatment for cancer patients resistant to hormone therapy, hopefully with fewer side effects than conventional drugs."

After showing great promise in cell lines, STX140 was given to mice orally each day for 60 days. Five out of eight tumours shrank in size, with two disappearing completely after 88 days. The three tumours that did not get smaller responded to the drug by staying the same size.

Conventional treatments for hormone-independent cancers, including the taxane family of drugs, are associated with side effects that mean they can

only be given every three weeks by injection into the blood stream. Not only could STX140 be given orally, it was also found to be more effective than taxanes tested on the same mouse tumours.

Dr Lesley Walker, director of cancer information at Cancer Research UK, which owns the British Journal of Cancer, said: "Research into how to overcome resistance to cancer drugs is vitally important, as this is a common problem that affects the treatment of many people with cancer. Building on existing drugs to create smarter targeted therapies is an exciting field of cancer research.

"Further tests are needed before we can tell if this drug can be used in people, but many thousands of patients stand to benefit from treatments that beat the mechanisms involved in resistance to cancer drugs."

Source: Imperial College London

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