

Further breakthroughs for breast cancer patients

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Researchers at the Tenovus Centre for Cancer Research at Cardiff University have made a breakthrough in breast cancer treatment that could help save the lives of women who become resistant to breast cancer drugs such as tamoxifen.

While drugs such as tamoxifen have been a huge success in treating breast cancer, for a significant proportion of sufferers the drugs either fail to work, or after an initial successful response the patient relapses as the cancer acquires or possesses resistance to the drug.

However the researchers have discovered that inhibiting the activity of a certain protein in the cancer could prevent or even reverse the resistance to tamoxifen. The researchers noticed that when breast cancer cells grown in the laboratory develop resistance to tamoxifen, they show a large increase in the activity of a protein known as Src – and by stopping this activity resistance to tamoxifen can be prevented and even reversed.

Dr Stephen Hiscox of the Welsh School of Pharmacy, who led the research team and has just been appointed as one of the Cancer Research UK Cardiff University Research Fellows explained: “We have previously shown that when breast cancer cells become resistant to medicines such as tamoxifen in the laboratory they become more aggressive with an invasive behaviour. These are characteristics that can be promoted by Src, a protein which we have recently shown to be more active in tamoxifen-resistant than tamoxifen-sensitive breast cancer cells.

“As part of collaborative research between Tenovus and AstraZeneca, it was found that this aggressive, invasive behaviour could be reduced by treating the cells with a specific inhibitor of Src activity, AZD0530. Surprisingly, AZD0530 also made the tamoxifen-resistant cells sensitive to tamoxifen again. In addition, we found that co-treating the cells with a combination of tamoxifen and AZD0530 could actually prevent drug resistance occurring in the first place.”

The Src inhibitor AZD0530 developed by AstraZeneca is currently in early clinical trials. If the results seen in the laboratory can be reproduced in the clinic, this approach could offer a substantial clinical benefit to a large number of women with breast cancer, as Professor Robert Nicholson, Director of the Tenovus Centre for Cancer Research, explains:

“Whilst little is known about the mechanisms used by breast cancers to become resistant to common therapies such as tamoxifen, it remains a significant clinical problem. Therefore the ability to restore sensitivity to therapy, or to even prevent resistance arising in the first place, could be of huge benefit to a large number of breast cancer patients.”

Source: Cardiff University

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