

Another step toward resisting breast cancer

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Medical researchers at the University of Leeds have come a step closer to understanding how to stop breast cancers from coming back.

Their findings, published in the [International Journal of Cancer](#), suggest that some novel drugs that are being developed to tackle other cancers should be considered as a future treatment for breast cancer too.

Hormone therapies, such as [tamoxifen](#), that target a protein responsible for [tumour](#) growth, have dramatically improved the treatment of breast cancer. Survival rates have improved considerably for patients whose breast cancer is spotted at an early stage and many patients with advanced disease can now have a much better quality of life.

But hormone therapies do not work in all patients and the tumours continue to grow and spread. In other patients, the hormone therapies work well at first but then their cancer often develops resistance and the tumour starts to grow again.

Leeds researchers have now pointed the finger at a key protein that they believe helps breast cancer to become resistant to hormone treatments. Laboratory studies on breast cancer tissue revealed that resistant tumours contained excessive levels of a protein known as FGFR3. Levels of this protein were much, much lower in tumours that had responded to hormone treatment. This suggests an important link between FGFR3 and resistance to [hormone treatment](#).

"The options available for treating breast cancers that return are

relatively limited at the moment. It is therefore of utmost importance to identify the factors that cause this resistance to help promote the development of [novel drugs](#) that can be used to target recurrent breast cancers," said Dr Darren Tomlinson, lead author of the research.

"Drugs are currently being made to target this protein – FGFR3 - in other types of cancers. Our work suggests that these drugs could potentially be made available to treat some breast cancers too and help tackle this problem of resistance.

"Similar work has already been done on different proteins that belong to the same family. We've added to this research by identifying a further family member. If drugs could be developed to target these different family members, then in the future, patients could be given a personalised treatment programme, depending on how their particular cancer was trying to evade the [hormone](#) therapy," he said.

The work is very encouraging. We know that resistance to breast cancer is complex, so identifying the proteins involved brings us closer to understanding how to prevent [breast cancer](#) from coming back," said Dr Valerie Speirs, the study's principal investigator.

More information: Mechanisms of FGFR3 actions in endocrine resistant breast cancer, Tomlinson D, Knowles M, Speirs V, is published in the International Journal of Cancer [doi:10.1002/ijc.26304](https://doi.org/10.1002/ijc.26304)

Provided by University of Leeds

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