

Class of breast cancer drugs could treat other types of cancer

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(Medical Xpress) -- A class of drugs used to treat breast cancers which overproduce a protein called HER2 could also treat other types of cancer – particularly head and neck cancers, according to research presented at the National Cancer Research Institute (NCRI) Cancer Conference in Liverpool this week.

Scientists in the US at Massachusetts General Hospital [Cancer](#) Centre, Harvard Medical School and the biotechnology firm, Genentech, scanned nearly 700 human cell lines from a range of cancer types.

They identified all cells that responded to lapatinib, a type of HER2 kinase inhibitor, which blocks HER2 – a cell-signalling receptor.

HER2 kinase inhibitors, are used to treat breast cancers with high levels of HER2. Up to one in four women with early breast cancer have high levels of this protein on the surface of their cells. HER2 receives signals from other proteins called growth factors – which drive tumour development.

But surprisingly, the scientists discovered that some cells with low levels of HER2, and head and neck cancers in particular, also responded well to the drug.

These cells had high levels of a signalling protein called NRG1* which was found to switch on a protein ‘cousin’ of HER2 called HER3. This ‘switched on’ HER3 can partner with and activate HER2.

The results showed that NRG1 enables very small amounts of HER2 to become activated to a greater extent than would be expected.

This suggests that treatment with HER2 inhibitors could be beneficial in patients even if they only had low levels of the protein. Usually drugs like lapatinib would not be considered as an effective treatment for these tumour types.

Paper author, Professor Jeff Settleman, from Massachusetts General Hospital Cancer Centre and Harvard Medical School, said: “These findings reveal that the [protein](#) NRG1 can act as a ‘biological flag’ and identify another patient group who may benefit from HER2-targeted kinase inhibitors.

“It’s particularly exciting because it may mean that some head and neck cancers can be effectively treated with currently available drugs, such as the [breast cancer drug](#), lapatinib.”

Dr Jane Cope, director of the NCRI, said: “This research shows how more detailed analyses of tumour samples could help doctors predict who will benefit most from a particular treatment. It also suggests that using existing drugs in new ways could bring benefit to a wider group of cancer patients.”

More information: *Neuregulin-1

View the conference abstract [here](#).

Provided by Cancer Research UK

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