

## Inhibition of HER2/estrogen receptor cross-talk, probable relation to prolonged remission of stage IV breast cancer: a case report

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### ABSTRACT

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Metastatic breast cancer to the liver is considered incurable. Though many patients with liver metastases may enjoy response to chemo-, immuno- and hormonal therapy, those so inflicted rarely remain disease-free from the time of diagnosis for longer than 6-11 months. New laboratory and clinical research identified that cross-talk between activation of the epidermal growth factor family of tyrosine kinase transduction pathways (EGF/HER2) and estrogen receptor (ER) activation plays a role in resistance to hormonal therapy.

A 59-year-old woman with a 4.5-cm invasive ductal, ER-positive/PR-negative, grade III adenocarcinoma of the breast was treated with mastectomy. Staging revealed biopsy-proven liver metastases. Surgery was immediately followed with vinorelbine, trastuzumab, tamoxifen and exemestane. The patient underwent a bone scan and PET/CT documented complete remission. She has remained in complete remission for 7 years.

It is proposed that a possible mechanism for prolonged remission of stage IV breast cancer in this patient may be related to suppression of EGF/HER2 by trastuzumab, thus inhibiting cross-talk-associated tamoxifen/estrogen withdrawal resistance.

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**Key words:** cross-talk, epidermal growth factor, HER2, estrogen receptor, breast cancer, liver metastasis, trastuzumab, tamoxifen, exemestane.

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