

## HER-3 status by immunohistochemistry in HER-2-positive metastatic breast cancer patients treated with trastuzumab: correlation with clinical outcome

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### ABSTRACT

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**Aims and background.** HER-3 signaling might contribute to resistance to trastuzumab. To clarify the role of HER-3 in HER-2-positive breast cancer, it is important to evaluate the level of HER-3 and its correlations with clinical outcome in metastatic breast cancer patients treated with trastuzumab.

**Methods.** HER-3 status by immunohistochemistry was evaluated in HER-2-positive metastatic breast cancer patients treated with trastuzumab-based therapy at our institution. Two scorings were utilized for interpreting staining for HER-3, and the correlation between HER-3 status and clinical outcome was evaluated.

**Results.** We evaluated HER-3 status in 61 of 76 HER-2-positive metastatic breast cancers treated with trastuzumab-based therapy at our institution from 4/1999 to 3/2006. We observed 55.2% objective responses; median time to progression and overall survival from start of trastuzumab therapy were 9.6 months (0.921-78.87) and 29.1 months (1.4-129.5+), respectively. With a cutoff of 50% staining tumor cells, we found 30 HER-3-negative and 31 HER-3-positive tumors. HER-3 status was not significantly associated with clinical outcome, but a shorter time to progression and overall survival were observed in patients with HER-3-positive tumors.

**Conclusions.** HER-3 status by immunohistochemistry was not significantly associated with clinical outcome in HER-2-positive metastatic breast cancer patients. Further studies are necessary to evaluate the prognostic and predictive role of HER-3.

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**Key words:** HER-2-positive metastatic breast cancer, HER-3 status, resistance to trastuzumab.

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