

GENETICS

HER3 overexpression in breast cancer conveys a poor prognosis

HER2 testing and targeted therapy are well established in the management of breast cancer. Now, a study by Chiu and colleagues reports that HER3 status is also an important prognostic marker of breast cancer-specific survival.

“...HER3 expression was... significantly associated with decreased disease-specific survival”

HER2 cellular signaling is affected by the expression of other type 1 growth factor receptor family members (T1GFR), notably HER3. Moreover, “HER2:HER3 heterodimers represent the most mitogenic couplet among all T1GFR dimers or heterodimers,” explains lead investigator Sam Wiseman. “Thus, the investigation of HER3 as a prognostic marker in invasive breast cancer appeared

a highly promising and clinically applicable candidate.”

Tumor samples from 4,046 patients with invasive breast carcinoma were assessed for expression of T1GFR family members HER1, HER2, HER3 and HER4. In 10% of these tumors, HER3 overexpression was identified and was significantly associated with decreased disease-specific survival.

Furthermore, in tumors with normal HER1 and HER2 expression, HER3 conveyed a negative prognostic effect on breast cancer-specific survival. “HER3 may represent a target for anticancer therapy in this patient subset that otherwise do not express molecules targeted by current molecular treatments,” Sam Wiseman concludes.

Lisa Richards

Original article Chiu, C. G. *et al.* HER-3 overexpression is prognostic of reduced breast cancer survival: a study of 4,046 patients. *Ann. Surg.* **251**, 1107–1116 (2010)