

## **Combination of osteopontin and activated leukocyte cell adhesion molecule as potent prognostic discriminators in HER2- and ER-negative breast cancer.**

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### **Source**

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### **Abstract**

#### **BACKGROUND:**

To analyse the discriminative impact of osteopontin (OPN) and activated leukocyte cell adhesion molecule (ALCAM), combined with human epidermal growth factor 2 (HER2) and oestrogen receptor (ER) in breast cancer.

#### **METHODS:**

Osteopontin, ALCAM, HER2 and ER mRNA expression in breast cancer tissues of 481 patients were analysed (mRNA microarray analysis, kinetic RT-PCR). Hierarchical clustering was performed in training cohort A (N=100, adjuvant treatment) and validation cohorts B (N=200, no adjuvant treatment, low-risk) and C (N=181, adjuvant treatment, high-risk).

#### **RESULTS:**

Negative/low ER and HER2, high OPN and low ALCAM mRNA expression helped to identify patients at particularly high risk, showing shorter DFS,  $P < 0.001$ , and OAS,  $P = 0.001$ . Although both validation cohorts showed diverse risk and treatment profiles, this marker constellation was concordantly associated with shorter DFS and OAS ( $P < 0.001$  and  $P = 0.075$  for cohort B and  $P = 0.043$  and  $P < 0.001$  for cohort C, respectively). In multivariate analysis, this algorithm was the main independent prognostic factor. Cohort B: DFS,  $P = 0.0065$ , OAS, not significant; cohort C: DFS,  $P = 0.026$ , OAS,  $P < 0.001$ .

#### **CONCLUSION:**

Activated leukocyte cell adhesion molecule and OPN mRNA expression has a strong discriminative impact on survival within cancer patients with low or negative expression of ER and HER2, so called 'high-risk' breast cancers, and might help in identifying patients who could benefit from new treatment approaches like targeted therapies in the adjuvant setting.