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LETTER TO THE EDITOR

The role of RACK1 as an independent prognostic indicator in human breast cancer

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To the Editor,

We have read with great interest the recent article by Cao et al. [1] in which the authors looked at the protein expression of RACK1 in human breast cancer and showed that high levels were predictive of a poor clinical outcome in vitro and in vivo.

We have analyzed RACK1 mRNA expression RACK1 (primers: aaaaccatcaagctatggaa, RACK1F1actgaacctgaccg tacaacaggagacgatgataggg, RACK1Zr1) in 127 human breast cancer and in 33 non-cancerous breast tissue specimens using RT–PCR technology following RNA extraction from frozen samples. We then normalized the mRNA copy numbers for RACK1 against the epithelial marker CK19 to adjust for epithelial cellularity in the examined breast specimens.

We have observed that RACK1 expression levels were higher in the normal breast tissue compared with the cancer specimens (mean levels were 136 vs. 32 in paired samples, $P = 0.44$) and that RACK1 mRNA levels were significantly lower in TNM3 tumours compared with TNM1 tumours (0.08 vs. 33, $P = 0.04$).

After a median follow-up of 10 years, high levels of RACK1 mRNA expression were associated with a good clinical outcome.

The mean level of expression in patients who remained disease-free was 36 compared with 2.4 in those who had systemic relapse ($P = 0.042$) or those who had local recurrence (mean = 3.86, $P = 0.05$).

Furthermore, we observed significant correlations with other molecular markers of apoptosis. RACK1 is significantly correlated with DEATH-ASSOCIATED PROTEIN 3: DAP3 ($r = 0.4$, $P < 0.01$). DAP3, is also known as MITOCHONDRIAL RIBOSOMAL PROTEIN S29; MRP S29 (Gene mapped to locus 1q21) and is known to be involved in mediating interferon-gamma (147570)-induced cell death and is a positive mediator of cell death. Dap3 may be a tumour suppressor gene subject to loss or inactivation in tumors [2].

These results have been consistent with a recent published research in which the authors showed that RACK1-induced apoptosis of human colon cells by inhibiting the expression of anti-apoptotic pathways and Src activity thus leading to death of colon cancer cells [3].

Therefore, the role of RACK1 as an independent prognostic indicator in human breast cancer is still a subject of further research until new data emerge.

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REBUTTAL LETTER

Response to the role of RACK1 as an independent prognostic indicator in human breast cancer

Xi-Xi Cao · Xiu-Ping Liu

To the Editor,

Our experiments in 160 breast carcinoma cases, survival analyses established that RACK1 is an independent prognostic factor for poor outcome ($P < 0.001$) [1]. Furthermore, in breast carcinoma cell lines stably-transfected with RACK1, as well as nude mouse models, showed that RACK1 promotes breast carcinoma proliferation, migration, and invasion/metastasis in vitro and in vivo [2, 3]. Our results are consistent with the finding of Wang et al. in oral squamous cell carcinoma [4, 5].

We strongly suggest that the authors should consider experiments in breast cancer cell lines to verify the findings in vivo.

References for Rebuttal letter

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