

The inhibition of Breast cancer cell Metastasis by anti-ErbB2 humanized antibody chA21 with a new recognition epitope

Guodong Shen

University of Science and Technology of China, China

It is well known that ErbB2 (HER2/p185her2/neu) overexpression in human malignant cancers correlates with poor prognosis and chemo-resistance. Monoclonal antibody drug trastuzumab (herceptin) is used in the treatment of clinical tumors with considerable success, but the insensitivity or resistant phenomenon in tumor therapy is increasingly serious. Our previous results demonstrate that our independently developed new humanized antibody chA21 has a different ErbB2 recognition epitope from those of trastuzumab and other antibody drugs, and also exerts a marked inhibition effect for ErbB2-positive breast cancer and ovarian cancer growth *in vitro* and *in vivo*. In this study, we found that chA21 might significantly inhibit ErbB2-overexpressing breast cancer cell migration and invasion by BT-474 and SKBR-3 cell adhesion, invasion and spreading assays, and in contrast, trastuzumab had no remarkable effects. Further, it was shown that chA21 might promote cell-cell attachment, decrease cell migration capacity and inhibit the interaction between cell and extracellular matrix (ECM), which was not mediated by E-cadherin protein, but presumably through promoting the internalization and degradation of ErbB2 and other family receptors by inducing the polymerization of receptor complexes. These results indicated that chA21 might not only inhibit ErbB2 downstream signal transduction, but also down-regulate signaling crosstalk with other receptors. In conclusion, our findings show that chA21 may represent a unique anti-ErbB2 antibody with potentials as therapeutic candidate alone or combination with other tumor-targeted drugs in cancer therapy.

Biography

Guodong Shen has studied cellular and molecular characteristics and immunotherapy of breast, ovarian and stomach tumors with ErbB2 overexpression more than six years, during which time he has authored more than 20 peer-reviewed papers. Currently, he is the director of Molecular Medicine Key Lab of Anhui Provincial Hospital, a premier organization for cancer immunotherapy in China. He is also serving as an editorial board member of a Chinese clinical medicine journal and a council member of Anhui Provincial Health Administration Society in China.

gdshen@ustc.edu.cn