Conjugate Sensitivity to Anti-mitotic Chemotherapy Versus Targeted Therapy is Revealed and Predicted by Tumor-invasion Gene-expression Profiling

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Abstract

Metastasis is the most life-threatening factor of malignant cancers. The migration and invasion ability of cancer cells is the first critical factor of metastasis. Because most treatment failure and death in cancer patients are due to the highly metastatic potential of the neoplasm, finding biomarkers that may distinguish the invasive ability of different cancer cells can lead to the discovery of new gene signature to improve the prediction of patient survival. In this study, we generated invasion profile of NCI-60 cell lines. We conducted statistical analysis to bridge the association of gene expression profiles with invasion profile and sensitivity profiles of anticancer compounds. Our analysis revealed a sharp conjugate pattern of sensitivity to targeted therapy and anti-mitotic chemotherapy that can be predicted by invasion associated genes. Our study may provide clues to the mechanism of cancer metastasis and pave ways for determining the effective combination of two or more drug treatments in clinical applications.

Keywords: Tumor invasion; Gene expression; Combined therapy; NCI-60 cell lines.

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