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## The Inhibitory Effect of Allicin on Invasion and Migration of Breast Cancer Cell: Involvement of ERK1/2 and NF- $\kappa$ B Pathways

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Allicin, the major component of garlic (*Allium sativum*), is attributed to it the most of garlic biological activities. The main of this study was to examine the effect of allicin on the invasion and migration and its mechanism in human breast cancer cells. Western blot analysis showed that pretreatment of allicin (0.1–10 ng/ml) resulted in decrease in TNF- $\alpha$ -induced VCAM-1 protein expression in MCF-7, but not in MDA-MB-231. In addition, cell migration and invasion assays showed that allicin inhibited the migration and invasion of MCF-7 cells. TNF- $\alpha$  decreased protein interaction between ER- $\alpha$  and p65, and this effect was reversed by allicin. Allicin also strongly suppressed TNF- $\alpha$ -induced activation of p38 MAPK and ERK1/2 in MCF-7 cells. Moreover, pretreatment with MEK inhibitor resulted in the suppression of TNF- $\alpha$ -induced migration and invasion in MCF-7 cells, indicating that ERK1/2 appear to play a key role to turn on VCAM-1 gene expression and migration and invasion in TNF- $\alpha$ -treated MCF-7 cells. Taken together, the present data suggest that allicin inhibited the TNF- $\alpha$ -mediated expression of VCAM-1 through the suppression of ERK1/2 pathway and NF- $\kappa$ B activation as well as the enhancement of interaction between ER- $\alpha$  and p65, leading to the inhibition of metastasis of MCF-7 cells. Therefore, allicin could be useful for preventing the advancement of breast cancer and other inflammatory diseases.

### Biography:

Yeon Jeong Jang was born in 1989 and raised in South Korea. She received the Bachelor's Degree from Jeju National University, Jeju, Korea, in 2011. Currently she is a Ph.D. candidate under Professor Suhkneung Pyo at Sungkyunkwan University. She has particular interests in metabolic syndrome, obesity and type 2 diabetes mellitus.