中文題目:雌激素經由 IL-8 訊息途徑調節間質幹細胞所誘發之胃癌細胞移動

英文題目: IL-8 Signaling Pathway Suppressesion by 17β-Estradiol Inhibits Mesenchymal Stem Cells-Mediated Gastric Cancer Cell Motility

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Background: Epidemiologic studies have reported that the prevalence of gastric cancer in male is about 2-fold higher than that in female. It also has been suggested that later age at menarche, older menopause, and nulliparity are associated with increased risk of development of gastric carcinoma in women. These findings contribute to the co-relation between reduction of estrogen and development of gastric cancer. Mesenchymal stem cell (MSC), a type of stem cell, is shown that it might be involved in cancer metastasis. Here we will investigate the role of estrogen in human mesenchymal stem cell-mediated growth and motility in human gastric cancer.

Method and Material: We culture human gastric cancer cells and human bone marrow mesenchymal stem cells (HBMMSCs) in the co-culture system. The motility of gastric cancer was measured using modified Boyden chambers with filter inserts for 24-well dishes containing 8- m pores. IL-8 and IL-8 neutrolizing antibody were used to measure the inhibitory effect of motility in gastric cancer cells. Human gastric cancer cells were pre-treated with 17β-estradiol for 1h, and followed by IL-8 treatment for 16~24h. Human gastric cells were then harvested for immunoblotting assay.

Result: The results from human cytokine arrays showed that HBMMSCs notably secrete IL-8 protein. Administration of IL-8 specific neutralizing antibody significantly inhibits HBMMSCs-mediated motility activity in human gastric cancer cells. Treatment of recombinant IL-8 soluble protein confirmed the role of IL-8 in mediating HBMMSCs-upregulated cell motility. IL-8 mainly up-regulates motility activity via activation of Src signaling pathway in human gastric cancer cells. We further observed that 17β-estradiol treatment inhibit HBMMSCS- induced cellular motility via suppressing activation of IL-8 signaling pathway in human gastric cancer cells.

Conclusion: These results suggest that 17β-estradiol treatment significantly inhibits HBMMSCS-induced motility in human gastric cancer cells.