中文題目：抑制HOXA9表現有效阻止人類間質幹細胞所誘發胃癌細胞的移動

英文題目：Inhibition of human bone marrow mesenchymal stem cells-induced cell motility by HOXA9 knockdown in human gastric cancer cells

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Background/Aim: Epidemiological studies report that gastric cancer is one of the most common cancers worldwide, and is also the second leading cause of cancer-related mortality. The poor prognosis of gastric cancer may be partly attributed to the complicated molecular networks operating the aggressiveness of gastric cancer. Although a large body of studies has revealed the deregulation of certain genes in gastric carcinogenesis, the molecular mechanisms behind gastric tumor development are not yet fully understood.

Methods: We measured the *HOXA9* expression in human gastric tissues including gastric cancer tissue, gastric polyp, gastritis, gastric ulcer, duodenal ulcer, and human gastric cell lines (CSN, AGS, CS12, NCI-N87 and MKN45). We applied the HOXA9 short haipinRNA (shRNA) to successfully knock down the expression of *HOXA9* gene and subsequently explore the role of *HOXA9* in CS12 gastric cancer cells. We co-culturedCS12 cells (control shRNA-stable CS12 or HoxA9 shRNA-stable clones) and HBM_MSCs, and then respectively measured the motility of CS12 cells and HBM_MSCs in the co-culture system. We also observed the expression of cytokins and chemokines in CS12 cells and HBM_MSCs. IL-6, IL-8, CXCL-1 and CCL-5 were used to identify the effect in the motility of CS12 cells.

Results: In the present study, we found that homeobox A9 (*HOXA9)* is over-expressed in gastric cancer tissue more than in other tissues including gastric polyp, gastritis, gastric ulcer and duodenal ulcer. We further found that human bone marrow mesenchymal stem cells (HBM_MSCs) induce cell motility in human CS12 gastric cancer cells by secreting cytokins and chemokines. The motility of CS12 cells mainly were promoted by IL-6, IL-8 and/or CXCL-1 form HBM_MSCs. When applying *HOXA9* shRNA in CS12 cells to silence *HOXA9* expression, we observed that *HOXA9* knockdown inhibits HBM_MSCs-induced CS12 cell motility, and even reduces CS12 cells-enhanced the capacity of motility in HBM_MSCs.

Conclusion:

Homeobox A9 (*HOXA9)* gene is over-expressed in gastric cancer tissue more than in other tissues including gastric polyp, gastritis, gastric ulcer and duodenal ulcer. Human bone marrow mesenchymal stem cells (HBM_MSCs) induce cell motility in human CS12 gastric cancer cells by secreting cytokins and chemokines (e.g. IL-6, IL-8 and CXCL-1). Silence of *HOXA9* gene reduces HBM_MSCs-mediated cell motility in human CS12 gastric cancer cells. *HOXA9* knockdown in human CS12 gastric cancer cells reduces HBM_MSC motility.