中文題目: HOXA9 調節癌症幹細胞的表面標記因子與幹細胞特性因子

英文題目: HOXA9 regulates expression of cancer stem cell(CSC) surface factor and stemness factor

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Background: Gastric cancer is one of the most common human cancers. According to Globocan 2000 estimates from World Health Organization (WHO), gastric cancer incidence and mortality are 950,319 and 714,452 respectively. Nowadays, an increasing number of studies have demonstrated that suppressing the expression of certain genes could influence the development of gastric cancer. Also, cancer stem cell model is established firmly in many kinds of cancers, and CD24, CD44, and CD133 are considered CSC markers. Therefore, we want to study whether the expression of *HOXA9* gene can influence the expression of stemness factors and CSC markers; and change the cancerization of gastric tumor.

Method and Material: We selected five human gastric cancer cell lines (AGS, CS12, N87, and MKN45) and analyzed the HOXA9 protein expression by Western Blot. Furthermore, we utilized HOXA9 short hairpin RNA (shRNA) to practice RNA interference (RNAi) and successfully carried out the knockdown of the *HOXA9* gene in CS12, N87 and MKN45 cells. In MTT assay, we measured the cell viability of these human gastric cancer cells. Moreover, we measured sphere-forming ability and expression of stemness factor and CSC factors.

Result: HOXA9 expression was different in four human gastric cancer cell lines. In MTT assay, the cell viability of HOXA9-knockdown gastric cancer cell clones was inhibited. After *in vitro* culture for 2-3 weeks in non-adherent conditions, control CS12, N87 and MKN45 clones showed more capacity to sphere formation. Moreover, we found that expression of stemness factor and CSC factor in HOXA9-knockdown MKN45 clones were less than control clones.

Conclusion: This study demonstrated that suppressing HOXA9 expression can reduce cell survival capacity, sphere formation capacity and the expression of stemness factor/CSC marker in human gastric cancer cells.