RNA interference toward MMP-2 may be an effective therapeutic strategy for cancer

March 9 2009

The invasion or metastasis of pancreatic cancer has been known to be a complex process involving many molecular mechanisms, of which proteolytic degradation of extracellular matrix (ECM) exerted by matrix metalloproteinases (MMPs) was considered to be an essential step. Some data suggest that MMP-2 is involved in pancreatic cancer invasion and metastasis, and a high level of MMP-2 has been found to correlate with poor prognosis in patients with pancreatic cancer. Therefore, inhibition of MMP-2 may be of great value in both preventing pancreatic cancer and blocking metastasis of established tumors.

A study will be published on March 7, 2009 address the question. The research team led by Professor Song from Department of General Surgery, Affiliated Beijing Tiantan Hospital, Capital Medical University utilized RNA interference system by using the vector □pGPU6□to specifically knock down MMP-2 expression in pancreatic cancer cell. MMP-2 expression was measured by reverse transcription polymerase chain reaction (RT-PCR) and Western blot. Cell proliferation, apoptosis were examined by MTT, flow cytometry, respectively. The abilities of adhesion and invasion were detected by cell adhesion assay and cell invasion assay using Transwell chambers.

Data provide evidence that RNA interference against MMP-2 successfully inhibited the mRNA and protein expression of MMP-2 in the pancreatic cancer cells line Bxpc-3, leading to a potent suppression of tumor cells adhesion and invasion without affecting cells proliferation and apoptosis. These findings suggest that RNA interference towards

MMP-2 may be an effective therapeutic strategy for the clinical management of pancreatic tumor. Although the leap to clinical practice remains elusive, gene therapy targeting MMP-2 is attractive and warrants further investigation.

More information: Zhi YH, Song MM, Wang PL, Zhang T, Yin ZY. Suppression of matrix metalloproteinase-2 via RNA interference inhibits pancreatic carcinoma cell invasiveness and adhesion. *World J Gastroenterol* 2009; 15(9): 1072-1078, www.wjgnet.com/1007-9327/15/1072.asp

Source: World Journal of Gastroenterology