



Effect of specific silencing of EMMPRIN on the growth and cell cycle distribution of MCF-7 breast cancer cells

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ABSTRACT. The extracellular matrix metalloproteinase inducer (EMMPRIN, CD147) is a member of the immunoglobulin family and shows increased expression in tumor cells. We examined the effect of RNAi-mediated *EMMPRIN* gene silencing induced by lentiviral on the growth and cycle distribution of MCF-7 breast cancer cells. Lentiviral expressing EMMPRIN-short hairpin RNA were packaged to infect MCF-7 cells. The inhibition efficiency of EMMPRIN was validated by real-time fluorescent quantitation polymerase chain reaction and western blotting. The effect of EMMPRIN on cell proliferation ability was detected using the MTT assay and clone formation experiments. Changes in cell cycle were detected by flow cytometry. EMMPRIN-short hairpin RNA-packaged lentiviral significantly down-regulated EMMPRIN mRNA and protein expression, significantly inhibited cell proliferation and *in vitro* tumorigenicity, and induced cell cycle

abnormalities. Cells in the G0/G1 and G2/M phases were increased, while cells in the S phase were decreased after infection of MCF-7 cells for 3 days. The *EMMPRIN* gene facilitates breast cancer cell malignant proliferation by regulating cell cycle distribution and may be a molecular target for breast cancer gene therapy.

Key words: Breast cancer; Extracellular matrix metalloproteinase inducer; Targeting silence