Analysis of the metastasis of human lung cancer cells transfected with shDSC2-497-4 by xenograft into zebrafish larvae

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ABSTRACT

Lung cancer is the most common cause of cancer death in the world. The zebrafish (Danio rerio) and their transparent embryos represent a promising model system in cancer research. Desmocollin-2 (DSC2), a calcium-dependent transmembrane glycoprotein, is the most widely distributed form of desmocollin that plays a critical role in the maintenance of normal tissue architecture in epithelia. The expression level of DSC2 gene in lung cancer cells was negatively correlated with the invasion activity of panel of lung cancer cell lines. By DSC2 shRNA transfection, we found that DSC2 may function as a tumor suppressor gene. The DSC2 gene knockdown expression in lung cancer cells can promote cancer cells proliferation, anchorage-department growth, and migration. In the present study, CM-Dil stained pG2PZ-6 (control group) and shDSC2-497-4 transfected human lung carcinoma cells (CL1-0 and CL1-5) were transplanted into the perivitelline space of zebrafish larvae at 48 hpf, try to study the effect of DSC2 on the metastasis of human cancer cells by in vivo system. Results showed that in the survival rate of control group (pG2PZ-6 transfected) was higher than those of shDSC2-497-4 transfected, however, the metastasis capacity of shDSC2-497-4 transfected human lung carcinoma cells in zebrafish larvae was higher than that of control group and this was observed 24 to 48 hours post xenograft. This study will provide not only a powerful in vivo analysis system but also can be the reference for related researches and applied in further biomedical, tumor/cancer and drug screening researches of human lung cancer.

Keywords: metastasis, human lung cancer cells, xenograft, zebrafish

REFERENCES