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**[Activation of CXCR4 in human glioma stem cells promotes tumor angiogenesis]**

[Article in Chinese]

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**OBJECTIVE:** To isolate, culture and identify glioma stem cells from human malignant glioma cell line U87, and investigate the changes of pro-angiogenic factors production by glioma stem cells followed by activation of CXCR4 and observe their tumorigenesis as well as the expression of vascular endothelial growth factor when implanted into nude mice. **METHODS:** The ratio of CD133 positive cells was detected by flow cytometry. Magnetic separation of CD133 positive cells was carried out on the magnetic cell sorting system (MACS). Expression of nestin, glial fibrillary acidic protein (GFAP) and CXCR4 on tumorspheres was detected by indirect immunofluorescence under confocal laser scanning microscopy. The functional activation of CXCR4 was assessed by calcium mobilization experiments. ELISA was used to detect the production of vascular endothelial growth factor (VEGF) and interleukin-8 (IL-8) in conditioned medium. Glioma stem cells were implanted into nude mice to assess their tumorigenesis ability and the expression of VEGF. **RESULTS:** The ratio of CD133 positive cells with stem cell property was 0.5% in U87 cells. Activation of CXCR4 on glioma stem cells induced calcium mobilization and increased VEGF and IL-8 protein secretion. CD133 positive cells secreted more VEGF and IL-8 than their negative counterparts in vitro. Tumors derived from CD133 positive cells grew more rapidly and expressed elevated level of VEGF than their negative counterparts. **CONCLUSIONS:** There are a small fraction of glioma stem cells in human glioblastoma cell line U87. Expressing functional CXCR4 and secreting more pro-angiogenic factors may be involved in tumor angiogenesis mediated by glioma stem cells.

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