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Oral Presentation

Interaction of Cancer Stem Cells and Microglia in Glioblastoma Multiforme

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Abstract

Malignant gliomas are highly invasive brain tumors with the occurrence of multiple microglia/macrophages in the tumor microenvironment. Macrophages/microglia that found in glioma microenvironment, as tumor-infiltrating immune cells, can play a harmful role in tumor progression. In addition, glioblastoma multiforme (GBM) contains multiple aberrant differentiation and tumorigenic cancer stem cells (CSCs) that contribute to tumor heterogeneity and resistance to anti-cancer therapies. The present study was aimed to understand the interaction between microglial cells and CSCs in a co-culture system. Specific markers used for the characterization of CSCs and microglia in GBM tissues obtained from patients. Then, we applied a co-culture system consisting of permeable membrane allowing secreted soluble factors to diffuse. Measuring the effects of cytokines secreted by activated and non-activated microglia on CSCs, MTS cell proliferation assay were performed. Cell viability in CSCs treated with non-activated microglia was significantly reduced compared to the group that treated with activated microglia. The activated microglia/macrophages may interfere in the process of tumor angiogenesis, metastasis niches, recurrence and support tumour invasiveness.

Keywords: Microglia, Cancer Stem Cells, Cell Culture

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