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The effect of human mesenchymal stem cells on glioblastoma cultures *in vitro*

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Glioblastoma, a tumor with high vascularity, contains a mixture of cells including malignant cancer cells, cancer stem cells, brain endothelial cells, microglia cells astrocytes and different stromal cell types. The interaction between the tumor and the microenvironment was suggested to be an important factor in the response to therapy. Mesenchymal stem cells (MSCs), an important part of the glioblastoma microenvironment, were explored by many researchers as a new approach for treating cancer diseases. However, the results are controversial; some studies have indicated that MSCs may play a role in cancer therapy by killing malignant cells, while others found that MSCs promote cancer and metastasis. Here, we analyzed the effect of human MSC-conditioned medium on glioblastoma (GB) cells survival *in vitro*. In this study we evaluated the *in vitro* effect of human MSC-conditioned medium on glioblastoma (GB) cells viability. For this purpose, we used bone marrow derived MSC (hBM-MSC) purchased from Life Technologies and MSC derived from umbilical cord tissue (HUC-1 and HUC-2) established from human umbilical cord tissue, obtained after term natural births at the Emergency County Hospital of Craiova, Romania. GB cell cultures were established from fresh samples tissue obtained from GB patients undergoing surgery at the Bagdasar-Arseni Hospital, Bucharest. All biological samples were obtained from informed consent subjects. We found that HUC-1 and HUC-2 conditioned medium inhibited proliferation of the GB cell lines as compared to control cells. The treatment with HUC-1- or HUC-2- conditioned medium for 96 h induced about 20% cell death in all GB cell lines used in this study. Regarding hBM-MSC, we found that hBM-MSC-conditioned medium treatment enhanced GB cell growth 24 h after the treatment, while prolonged treatment for 96 h showed minor inhibition of GB cell growth.

Biography

Daniela Elise Tache received her PhD degree in 2010. She received License in Medicine in the year 2001 from University of Medicine and Pharmacy of Craiova. She is working as a Lecturer, teaching and research activity at Biochemistry Department, University of Medicine and Pharmacy of Craiova, Romania since 2014. She has published more than 10 papers in ISI journals, 1 book in national publishing and 3 chapters in international publishing. She also served as a research Team Member in numerous Projects and has been a member of numerous National and International Scientific Societies.

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