In Vitro CD133 Expression in Human Glioblastoma Multiforme Culture Gl-15

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Introduction and Objectives: Gliomas are the most frequent brain tumor representing more than 50% of all central nervous system tumors in adults. They are histologically characterized by nuclear atypia, anaplasia, intense bizarre mitosis and vascular proliferation (WHO). Usually, these tumors are diffuse and aggressive, acquiring radiotherapy resistance very rapidly. Mechanisms involved with these behaviors remain unknown. It's been suggested that tumor radio resistance and repopulation are associated to a group of cancer stem cells (CSC) within the tumor, which act on regulatory process and more effective DNA repair. Recent studies show that CSC expressing CD133 (prominin-1, neural and cancer stem cell marker) is enhanced after radiation in gliomas. Based on previous data, we performed a CD133 marking in human glioblastoma multiform GL-15 cell line.
GL-15 cell line was derived from human glioblastoma multiform cultured to confluence in 35mm polystyrene plate with DMEM medium and fetal bovine serum (FBS) free, in 5% CO_2 incubator at 37°C. $1x10^6$ cells were labeled with anti-CD133 monoclonal (1:100) and conjugated with anti-mouse-IgG-FITC (1:100). CD133 expressing cells were analyzed by flow cytometry (FACScan BD Biosciences Clontech).
Results: 12% of cell population was positive to CD133 marker; and non adherent neurosphere like cells were formed after 7 days of culture.
Conclusions: Our results show a high percentage of $CD133^+$ cells in GL-15 cell line. We believe that investigation of CD133 positive cells are relevant for understanding tumor maintenance, but further studies of glioma behavior are still needed. Identification of mechanisms involving tumor resistance and repopulation may guide future treatments and contribute to new therapeutic targets production.

Key-words: Glioblastoma, CD133, Stem cells.