Extended Abstract Journal of Cell and Development Biology 2020
Vol.4 No.1

Cell science 2019: Expression profile of cancer Stem Cell markers in Glioblastoma derived CD133 + and CD133- cells_ Asuman Sunguroğlu_ Ankara University, Turkey

Asuman Sunguroglu

AnkaraUniversity,Turkey

Background/Aim: Glioblastoma, known as Glioblastoma Multiforme (GBM), is the most common and aggressive type of brain tumour in adults and contains self-renewed tumorigenic cancer (CCS) stem cells that may explain tumor initiation and resistance to given anti-GBM therapies. The CD133 neural stem cell marker, known as prominin-1, has been widely used as a CCS marker in GBM. Although there is some controversy about the tumor-initiating properties of CD133 and CD133-GBM cells, a growing number of studies have shown that GBM initiates the capacity of CD133TM stem cells. Elucidation of the molecular characterization of GBM CCS is essential to the development of new targeted therapies for GBM. As a result, we sought to determine the expression levels of other potential CSC markers in CD133TM GBM CCS. Materials and methods: The primary GBM cells were isolated from freshly obtained GBM tissue samples from ten individual patients. These cells were grown with DMEM with high glucose including 1% Penicillin-Streptomycin and 10% fetal bovine serum. Then, the CD133 and CD133-cell cells were separated by the MACS (Miltenyi) method from these primary GBM cells. The populations of selectED cells by CD133MD and CD133 were collected in different tubes. After RNA isolation of CD133 AND CD133-cells, DNA synthesis was performed. Expression levels of 88 genes were detected by Real Time Cancer Stem Cell PCR Array (Bio-Rad). The student T test was used to identify statistically significant differences between the groups. The differences were accepted as statistically significant at 0.05. Confocal microscopy was performed to examine the location of CD38 and CD24 proteins in CD133TM GBM CCS. Results: Based on the results of PCR Array, we found that the mRA levels of ABCG2, ALCAM, CD24, CD38, CD4, DDR1, EGF, ENG, ETFA, FGFR2, FLOT2, FZD7, GSK3B, ID1, IKBKB, ITGA2, ITGA4, ITGA6, ITGB1, JAG1, MAML1, MUC1, MYCN, NFKB1, NOTCH2, PLAT, PLAUR, POU5F1 and BMP7 were statistically different in CD133 CSC GBM compared to the expression of these CD133 cells. In addition, we studied CD38 and CD24 protein levels in CD133 and CD133-cells and observed that protein expression of CD38 and CD24 was higher in CCS CD133TM GBM than in CD133 cells. Conclusion: Our results suggest that in addition to the presence of CD133 expressions, GBM initiating cells also have the expression of different genes involved in distinct pathways of survival, indicating that tracing these possible candidates could be useful for the characterization of CD133MD GBM stem cells. This research has been supported by The Scientific and Technological Research Council of Turkey (No: 114S189). The expression of CD133, Olig2 and CD44 was studied using patient derived glioma stem cells (CFCs) in vitro and in vivo. Different CEOS have shown a characteristic balance of distinct CD133 and CD44TM subpopulations and the influence of environmental factors on intratumoral balance of CD133 AND CD44TM cells in CDC CHC was also studied, CD44-inducing hypoxia for CD133TM passing and chemo-radiotherapy inducing a CD133TM at a quarter of CD44TM. These data suggest that monitoring and modulating intra-tumor heterogeneity using molecular markers at initial surgery and surgery for recurrent GBM may be important for more effective gbM management..