

Journal Article



Expression of nine tumour antigens in a series of human glioblastoma multiforme: interest of EGFRvIII, IL-13Ra2, gp100 and TRP-2 for immunotherapy

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Abstract In this study, we investigated the mRNA and protein expression of nine tumour antigens in human glioblastoma multiforme with a view to their possible use in dendritic cell-based immunotherapy. Expression of ALK, EGFRvIII, GALT3, gp100, IL-13Ra2, MAGE-A3, NA17-A, TRP-2 and tyrosinase were studied by real-time RT-PCR on frozen tissues using a series of 47 tumour samples from patients with glioblastoma. Results were compared with non-neoplastic brain expression or glioblastoma samples with very low levels of expression near the limits of detection for EGFRvIII and MAGE-A3, as these latter two antigens were not detected in non-neoplastic brain. Tumour antigens showing a 5-fold increase in mRNA expression were considered as positive, and only antigens displaying an mRNA over-expression in a significant number of cases were analysed by immunohistochemistry on paraffin-embedded sections. Using real time RT-PCR, we found EGFRvIII, gp100, IL-13Ra2 and TRP-2 to be positive in 64, 38, 32 and 21% of cases, respectively. While we observed no over-expression for ALK, GALT3 and tyrosinase, 3 samples out of 47 were positive for MAGE-3 and 1 sample for NA17-A. More than 25% of tumour cells showed strong protein expression in 13, 34, 85 and 96% of GBM samples for gp100, TRP-2, EGFRvIII and IL-13Ra2, respectively. Interestingly, protein expression of at least 3 antigens was observed in 38% of cases. These results point out the importance of EGFRvIII, IL-13Ra2 and, to a less extent gp100 and TRP-2,

for developing an immunotherapy strategy against glioblastoma.

Keywords Glioblastoma - EGFRvIII - gp100 - IL-13R α 2 - TRP-2 - Dendritic cell-based immunotherapy



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