Matrix metalloproteinase 2

72 kDa type IV collagenase also known as matrix metalloproteinase-2 (MMP-2) and gelatinase A is an enzyme that in humans is encoded by the MMP2 gene.

The MMP2 gene is located on chromosome 16 at position 12.2.

MMP-2 could be molecular targets in the treatment of malignant glioma [1].

The complex balance between TIMP2 and MMP-2 is a critical determinant of glioblastoma invasion, and indicate that increasing TIMP-2 in glioblastoma patients may potentially cause adverse effects, particularly in tumors containing high levels of MT1-MMP and MMP-2 [2].

Brell et al. aimed to investigate for the presence of inter- and intratumoral heterogeneity in MMP-2 messenger RNA (mRNA) expression by means of quantitative analysis and to evaluate its prognostic impact in glioma patients. Representative sections from the center and periphery of tumors resected en bloc were taken fresh for study, stained with hematoxylin/eosin for histological evaluation, and immunohistochemically analyzed for Ki67. MMP-2 mRNA expression was evaluated by real-time reverse transcription polymerase chain reaction (RT-PCR). There was MMP-2 expression in all analyzed tumors. By topographical dissection of surgical specimens, they found no differences in cell proliferation or density but significant differences with regard to MMP-2 mRNA expression between central and peripheral regions, being highest at the center of malignant gliomas. MMP-2 mRNA expression showed no prognostic influence on overall or disease-free survival. The results demonstrate that MMP-2 is differentially expressed in central and peripheral regions of gliomas. Further studies are necessary to clarify the significance of these findings and their possible relevance in clinical practice [3].

Cannabinoid administration selectively down-regulates MMP-2 expression in mice bearing gliomas as well as in two patients with recurrent glioblastoma multiforme. Cannabinoid-induced inhibition of MMP-2 expression was also evident in cultured glioma cells, indicating that the changes observed in gliomas in vivo reflect—at least in part—the direct effect of cannabinoids on tumor cells [4].

1)
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2)
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3)
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4)
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