CXCR7

The chemokine CXCL12 (also termed SDF-1, stromal cell-derived factor-1) and its receptors CXCR4 and CXCR7 are known to play a pivotal role in tumor progression including glioblastomas (GBM).

The chemokine receptor CXCR7 is found on glioma cells and glioma-associated vessels and dependent upon its localisation on tumour or endothelial cells the CXCR7 receptor can mediate glioma cell invasion and tumour angiogenesis. Its expression predicts survival in several types of cancers.

Expression of either mutant isocitrate dehydrogenase (IDH) 1 or podoplanin (PDPN), two proteins present in basically non-overlapping glioma populations, predicts the prognostic significance of CXCR7. Specifically, expression of CXCR7 on endothelial cells in IDH1 mutant cases predicted poor outcome. Surprisingly, in PDPN expressing gliomas, one of the marker genes for the recently identified mesenchymal subgroup, expression of CXCR7 predicts diminished prognosis on tumour cells and better prognosis on endothelial cells.

Since CXCR7 is expressed on migrating cells our data suggest that, although ubiquitously present, angiogenesis and invasion are outcome-relevant events in specific glioma subgroups, providing a potentially important tool for targeted therapy assignment [1].

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Birner P, Tchorbanov A, Natchev S, Tuettenberg J, Guentchev M. The chemokine receptor CXCR7 influences prognosis in human glioma in an IDH1-dependent manner. J Clin Pathol. 2015 Jun 24. pii: jclinpath-2015-202886. doi: 10.1136/jclinpath-2015-202886. [Epub ahead of print] PubMed PMID: 26109200.