Reviewer's report

Title: CXCR7 is induced by hypoxia and mediates glioma cell migration towards SDF-1alpha

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Reviewer: Rolf Mentlein

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The manuscript deals with the regulation and functional role of the chemokine receptor CXCR7 on glioma cells that is an important current research subject. However, the study in its present form is too preliminary due to lack of convincing quantitative data.

Major points:

(1) Measurement of CXCR7 expression: The main problem is the quantitative determination of CXCR7 which was done by Western blots. Since the reference beta-actin is overexposed in some blots, the relatively small changes in CXCR7 are not always convincing. An accurate determination would involve at least 3 independent cell culture experiments with corresponding blots, not overexposed for the reference, and a densitometric analysis. Since in contrast to CXCR4 there is still some controversy about CXCR7-regulation by hypoxia (e. g. Schutyser et al. Eur Cytokine Netw 2007;18:59-70), it would be mandatory to measure also the transcription of CXCR7 mRNA e.g. by quantitative RT-PCR.

(2) CXCR7 and CXCR4 expression on the glioma cells used: Since some of the effects could also be mediated by CXCR4 (that is addressed by experiments with the specific inhibitor AM3100, but not by use of specific CXCR7 inhibitors), it is important to know if CXCR4 is expressed on the cell lines used, and if it is induced by hypoxia. I miss corresponding blots and qRT-PCR determinations!

(3) Chemotaxis assays: The number of independent experiments is too low (n = 2). With some cell lines also the number of migrated cells (especially in controls) appears comparatively low.

Minor points:

(4) Also use the alternative novel nomenclature CXCL12 for SDF-1 in the introduction.

(5) Hypoxia, Figure legends: hypoxic condition in fig. legends should be specified to 1% oxygen (as described in Methods).

(6) Concentration, Figure legends: Give SDF-1-concentration in nM instead of ng/ml – the Molecular mass is known.

(7) Give molecular masses in the Western blots.
Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.