

## Brain tumor initiating cell

Brain [tumor initiating cells](#) (BTICs) were isolated from three different types of [brain tumors](#). The migration capacities of [human adipose tissue derived mesenchymal stem cells](#) (MSCs) (hAT-MSCs) toward BTICs were examined using an in vitro [migration assay](#) and in vivo [bioluminescence](#) imaging analysis. To investigate the [crosstalk](#) between hAT-MSCs and BTICs, Choi et al. analyzed the [mRNA](#) expression patterns of cyto-chemokine receptors by RT-qPCR and the protein level of their ligands in co-cultured medium. The candidate cyto-chemokine receptors were selectively inhibited using siRNAs. Both in vitro and in vivo experiments showed that hAT-MSCs possess migratory abilities to target BTICs isolated from medulloblastoma, atypical teratoid/rhabdoid tumors (AT/RT) and glioblastoma. Different types of cyto-chemokines are involved in the crosstalk between hAT-MSCs and BTICs (medulloblastoma and AT/RT: CXCR4/SDF-1, CCR5/RANTES, IL6R/IL-6 and IL8R/IL8; glioblastoma: CXCR4/SDF-1, IL6R/IL-6, IL8R/IL-8 and IGF1R/IGF-1).

The findings demonstrated the migratory ability of hAT-MSCs for BTICs, implying the potential use of MSCs as a delivery vehicle for [gene therapy](#). This study also confirmed the expression of hAT-MSCs cytokine receptors and the BTIC ligands that play roles in their crosstalk <sup>1)</sup>.

<sup>1)</sup>

Choi SA, Lee JY, Kwon SE, Wang KC, Phi JH, Choi JW, Jin X, Lim JY, Kim H, Kim SK. Human Adipose Tissue-Derived Mesenchymal Stem Cells Target Brain Tumor-Initiating Cells. PLoS One. 2015 Jun 15;10(6):e0129292. doi: 10.1371/journal.pone.0129292. eCollection 2015. PubMed PMID: 26076490.

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