

Abstract

Human-induced spheroidal neural stem cells (hiNeuroSs) are a promising cell-based therapy for glioblastoma (GBM) due to their robust innate tumor-homing characteristics. HiNeuroSs are able to deliver tumor-killing therapies directly to invasive GBM tumor foci, which may reduce the likelihood of tumor recurrence. However, there is a gap in the literature regarding the exact mechanisms through which this tumor-homing capability occurs. The current study aims to examine the role of the CXCL16-CXCR6 chemokine pathway in the tumor-homing migration of hiNeuroS cells. To accomplish this, a novel agarose gel migration assay with longitudinal fluorescent imaging was developed and performed. From this assay, hiNeuroS migration over 48 hours was found to be significantly higher towards sCXCL16 (25 ng/mL) compared to the PBS control. These promising data indicate that the role of the CXCL16-CXCR6 pathway in hiNeuroS migration should be explored more extensively. Elucidation of this pathway could lead to further optimization of hiNeuroS cells, ultimately creating more efficient treatments for GBM and increasing chances of patient survival.