

CXCR4

CXCR-4 is an alpha-[chemokine](#) receptor specific for stromal-derived-factor-1 (SDF-1 also called [CXCL12](#)), a molecule endowed with potent chemotactic activity for lymphocytes.

In a study, data from [The Cancer Genome Atlas](#) database illustrated a relationship between C-X-C motif chemokine receptor 4 (CXCR4) expression and the survival of glioma patients. Mechanistically, we further indicated that CXCR4 mediated the upregulation of Kruppel-like factor 5 ([KLF5](#)), a zinc-finger-containing transcription factor, to facilitate the proliferation of GICs. What's more, CXCR4 also enhanced the chemoresistance through KLF5/Bcl2-like 12 (BCL2L12) in glioma. The elevated expression of KLF5 and BCL2L12 induced by CXCR4 was dependent on phosphoinositide 3-kinases (PI3K)/serine/threonine kinase (AKT) signaling. Importantly, the combined application of temozolomide and a CXCR4 inhibitor efficiently reversed CXCR4 mediated drug resistance and improved anticancer effects in vivo. Collectively, our findings confirmed that CXCR4 promoted GICs proliferation via the KLF5/BCL2L12 dependent pathway, which may enrich the understanding of GICs and help drive the design of efficacious therapeutic strategies ¹⁾.

CXCR4 is one of several chemokine receptors that HIV can use to infect CD4+ T cells. HIV isolates that use CXCR4 are traditionally known as T-cell tropic isolates. Typically, these viruses are found late in infection. It is unclear as to whether the emergence of CXCR4-using HIV is a consequence or a cause of immunodeficiency.

see [CXCL12](#).

¹⁾

Wu Y, Hu Y, Tang L, Yin S, Lv L, Zhou P. Targeting CXCR4 to suppress glioma-initiating cells and chemoresistance in glioma. Cell Biol Int. 2022 Jun 22. doi: 10.1002/cbin.11836. Epub ahead of print. PMID: 35731168.

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