

Product Information

Anti-CX₃CR1 (175-189)

produced in rabbit, affinity isolated antibody

Catalog Number **C8479**

Product Description

Anti-CX₃CR1 (175-189) is produced in rabbit using as immunogen a peptide corresponding to the extracellular loop and amino acids 175 to 189 of human CX₃CR1.^{1, 2} The DNA sequence of human, mouse, and rat CX₃CR1 was originally cloned and designated as V28 and CMKBRL1, CX₃CR1, and RBS11, respectively.^{1, 2, 3, 4} Subsequently, this seven transmembrane protein was identified as the receptor for a transmembrane molecule, fractalkine, and renamed as CX₃CR1.⁵ The human CX₃CR1 sequence is identical to that of rat CX₃CR1 and differs from mouse CX₃CR1 by one amino acid.^{3, 4}

Anti-CX₃CR1 (175-189) recognizes human CX₃CR1 (CXXXC chemokine receptor) by immunoblotting using human THP-1 cell lysate.

Chemokines have been sub-divided into families on the basis of the relative position of their cysteine residues. The α - and β - families, with four cysteine residues, are the largest and best characterized. In the α -family, one amino acid separates the first two cysteine residues (CXC); in the β -family the two cysteine residues (CC) are adjacent to each other. The α -chemokines that contain the N-terminal Glu-Leu-Arg amino acid sequence (ELR-motif) are chemotactic for neutrophils (such as IL-8), while those that do not, act on lymphocytes (such as IP-10 and MIG). Examples of chemokines under the β -family category are MCP1-5 and RANTES. The chemokine lymphotactin belongs to the γ -family, with only two cysteines (C), and the recently described fractalkine or neurotactin is a member of the δ -family and has the first two cysteine residues separated by three amino acids (CXXXC).

Chemokines bind to specific G protein-coupled cell surface receptors on target cells. Five CXC receptors (CXCR1-5), nine CC receptors (CCR1-9) and one CXXXC receptor (CX₃CR1) have been cloned to date. Expression of chemokine receptors can be restricted to some cell types (CXCR1 is expressed in neutrophils) while others (such as CCR2) are expressed in a wide variety of cells.⁶ Receptor expression has also been

found to be constitutive (including down regulation), inducible or restricted to a cell state of activation. In addition, some chemokine receptors are also expressed in non-hematopoietic cells, such as nerve, endothelial and epithelial cells. This suggests that chemokines have other roles besides leukocyte chemotaxis. CX₃CR1, for example, is highly expressed in adult brain.

Receptor activation leads to a cascade of cellular events including the generation of inositol triphosphate, the release of calcium, and the activation of protein kinase C. Chemokine receptors activate small GTP-binding proteins of the Ras and Rho families, the latter being involved in cell motility events. In addition, chemokines bind to non-signaling molecules such as the Duffy antigen receptor for chemokines (DARC) which may act to remove chemokines from the circulation, and heparan sulfates proteoglycans that may serve to establish an extracellular matrix concentration gradient.

CX₃CR1 is expressed in a variety of human tissues and cell lines, including T cells and macrophages.² It functions as a co-receptor for HIV-1 and HIV-2 envelope fusion and virus infection which can be inhibited by fractalkine.⁷ CX₃CR1 also mediates leukocyte migration and adhesion.⁵

Reagents

Supplied at ~0.5 mg/ml in phosphate buffered saline, containing 0.02% sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Antibody can be stored at 2-8 °C for three months and at -20 °C for one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.

Product Profile

Immunoblotting: the recommended working dilution is 1:500 using human THP-1 cell lysate. A band of ~50 kDa is detected.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

1. Raport, C.J., et al., The orphan G-protein-coupled receptor-encoding gene V28 is closely related to genes for chemokine receptors and is expressed in lymphoid and neural tissues. *Gene*, **163**, 295-299 (1995).
2. Combadiere, C., et al., Cloning, chromosomal localization, and RNA expression of a human beta chemokine receptor-like gene. *DNA Cell Biol.*, **14**, 673-680 (1995).
3. Combadiere, C., et al., Gene cloning, RNA distribution, and functional expression of mCX3CR1, a mouse chemotactic receptor for the CX3C chemokine fractalkine. *Biochem. Biophys. Res. Commun.*, **253**, 728-732 (1998).
4. Harrison, J.K., et al., cDNA cloning of a G-protein-coupled receptor expressed in rat spinal cord and brain related to chemokine receptors. *Neurosci. Lett.*, **169**, 85-89 (1994).
5. Imai, T., et al., Identification and molecular characterization of fractalkine receptor CX3CR1, which mediates both leukocyte migration and adhesion. *Cell*, **91**, 521-530 (1997).
6. Wells, N.C., et al., Definition, function and pathophysiological significance of chemokine receptors. *Trends Pharm. Sci.*, **19**, 376-380 (1998).
7. Combadiere, C., et al., Identification of CX3CR1. A chemotactic receptor for the human CX3C chemokine fractalkine and a fusion co-receptor for HIV-1. *J. Biol. Chem.*, **273**, 23799-23804 (1998).

RC,AK-N,PHC 08/12-1