

# CXCR-4 siRNA (r): sc-270577

## BACKGROUND

The C-X-C or a chemokine family is characterized by a pair of cysteine residues separated by a single amino acid and primarily functions as chemoattractants for neutrophils. The C-X-C family includes IL-8, NAP-2, MSGA and stromal cell derived factor-1 (SDF-1). SDF-1 was originally described as a pre-B cell stimulatory factor, but has now been shown to function as a potent chemoattractant for T cells and monocytes but not neutrophils. Receptors for the C-X-C family are G protein-coupled, seven pass transmembrane domain proteins which include IL-8RA, IL-8RB and CXCR-4 (also known as LESTR or fusin). CXCR-4 is highly homologous to the IL-8 receptors, sharing 37% sequence identity at the amino acid level. The IL-8 receptors bind to IL-8, NAP-2 and MSGA, while fusin binds to its cognate ligand, SDF-1. CXCR-4 has been identified as the major co-receptor for T-tropic HIV-1 and SDF-1 has been shown to inhibit HIV-1 infection.

## REFERENCES

1. Laterveer, L., et al. 1996. Rapid mobilization of hematopoietic progenitor cells in rhesus monkeys by a single intravenous injection of interleukin-8. *Blood* 87: 781-788.
2. Deng, H., et al. 1996. Identification of a major co-receptor for primary isolates of HIV-1. *Nature* 381: 661-666.

## CHROMOSOMAL LOCATION

Genetic locus: *Cxcr4* (rat) mapping to 13q13.

## PRODUCT

CXCR-4 siRNA (r) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CXCR-4 shRNA Plasmid (r): sc-270577-SH and CXCR-4 shRNA (r) Lentiviral Particles: sc-270577-V as alternate gene silencing products.

For independent verification of CXCR-4 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270577A, sc-270577B and sc-270577C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

CXCR-4 siRNA (r) is recommended for the inhibition of CXCR-4 expression in rat cells.

## SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10  $\mu$ M in 66  $\mu$ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

## GENE EXPRESSION MONITORING

CXCR-4 (4G10): sc-53534 is recommended as a control antibody for monitoring of CXCR-4 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CXCR-4 gene expression knockdown using RT-PCR Primer: CXCR-4 (r)-PR: sc-270577-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Panneerselvam, J., et al. 2015. IL-24 inhibits lung cancer cell migration and invasion by disrupting the SDF-1/CXCR4 signaling axis. *PLoS ONE* 10: e0122439.
2. Yang, F., et al. 2017. SDF1-CXCR4 signaling contributes to the transition from acute to chronic pain state. *Mol. Neurobiol.* 54: 2763-2775.
3. Dalal, S., et al. 2020. Exogenous ubiquitin attenuates hypoxia/reoxygenation-induced cardiac myocyte apoptosis via the involvement of CXCR4 and modulation of mitochondrial homeostasis. *Biochem. Cell Biol.* 98: 492-501.
4. Zhou, N., et al. 2021. Conditioned medium-preconditioned EPCs enhanced the ability in oligovascular repair in cerebral ischemia neonatal rats. *Stem Cell Res. Ther.* 12: 118.
5. Yang, F., et al. 2021. Intervertebral foramen injection of plerixafor attenuates neuropathic pain after chronic compression of the dorsal root ganglion: Possible involvement of the down-regulation of Nav1.8 and Nav1.9. *Eur. J. Pharmacol.* 908: 174322.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.