

SDF-1 α (hBA-68): sc-4654

BACKGROUND

The C-X-C or α -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 or 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 fusin (variously referred to as LESTR or CXCR-4). Fusin 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. Fusin has been identified as the major coreceptor for T-tropic HIV-1 and SDF-1 has been shown to inhibit HIV-1 infection.

REFERENCES

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2. Deng, H., Liu, R., Ellmeier, W., Choe, S., Unutmaz, D., Burkhart, M., Di Marzio, P., Marmon, S., Sutton, R.E. and Hill, C.M. 1996. Identification of a major co-receptor for primary isolates of HIV-1. *Nature* 381: 661-666.
3. Nagasawa, T., Hirota, S., Tachibana, K., Takakura, N., Nishikawa, S., Kitamura, Y., Yoshida, N., Kikutani, H. and Kishimoto, T. 1996. Defects of B-cell lymphopoiesis and bone-marrow myelopoiesis in mice lacking the C-X-C chemokine PBSF/SDF-1. *Nature* 382: 635-638.
4. Bleul, C.C., Farzan, M., Choe, H., Parolin, C., Clark-Lewis, I., Sodroski, J. and Springer, T.A. 1996. The lymphocyte chemoattractant SDF-1 is a ligand for LESTR/fusin and blocks HIV-1 entry. *Nature* 382: 829-833.
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6. Liu, R., Paxton, W.A., Choe, S., Ceradini, D., Martin, S.R., Horuk, R., et al. 1996. Homozygous defect in HIV-1 coreceptor accounts for resistance of some multiply-exposed individuals to HIV-1 infection. *Cell* 86: 367-377.
7. Feng, Y., Broder, C.C., Kennedy, P.E. and Berger, E.A. 1996. HIV-1 entry cofactor: functional cDNA cloning of a seven-transmembrane, G protein-coupled receptor. *Science* 272: 872-877.

SOURCE

SDF-1 α (hBA-68) is produced in *E. coli* as 35 kDa biologically active, GST-tagged fusion protein corresponding to 68 amino acids of SDF-1 α of human origin.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

SDF-1 α (hBA-68) is purified from bacterial lysates (>98%); supplied as 50 μ g purified protein.

BIOLOGICAL ACTIVITY

SDF-1 α (hBA-68) is biologically active as determined by its ability to chemoattract human peripheral T cells activated with PHA and IL-2 using a concentration range of 20–80 ng/ml.

RECONSTITUTION

In order to avoid freeze/thaw damaging of the active protein, dilute protein when first used to desired working concentration. Either a sterile filtered standard buffer (such as 50mM TRIS or 1X PBS) or water can be used for the dilution. Store any thawed aliquot in refrigeration at 2° C to 8° C for up to four weeks, and any frozen aliquot at -20° C to -80° C for up to one year. It is recommended that frozen aliquots be given an amount of standard cryopreservative (such as Ethylene Glycol or Glycerol 5-20% v/v), and refrigerated samples be given an amount of carrier protein (such as heat inactivated FBS or BSA to 0.1% v/v) or non-ionic detergent (such as Triton X-100 or Tween 20 to 0.005% v/v), to aid stability during storage.

SELECT PRODUCT CITATIONS

1. Liu, H., Li, M., Du, L., Yang, P. and Ge, S. 2015. Local administration of stromal cell-derived factor-1 promotes stem cell recruitment and bone regeneration in a rat periodontal bone defect model. *Mater. Sci. Eng. C Mater. Biol. Appl.* 53: 83-94.
2. Zhou, W., Tahir, F., Wang, J.C., Woodson, M., Sherman, M.B., Karim, S., Neelakanta, G. and Sultana, H. 2020. Discovery of exosomes from tick saliva and salivary glands reveals therapeutic roles for CXCL12 and IL-8 in wound healing at the tick-human skin interface. *Front. Cell Dev. Biol.* 8: 554.

STORAGE

Store desiccated at -20° C; stable for one year from the date of shipment.

RESEARCH USE

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