

IL-18 siRNA (m): sc-39658

BACKGROUND

Four structurally related IL-1 receptor ligands have been described. These include three agonists designated IL-1 α , IL-1 β and IL-1 γ /IL-18 and a specific receptor antagonist, IL-1R α . IL-1 α and IL-1 β play critical roles in the regulation of the immune response and inflammation, serving as activators of T and B lymphocytes and NK (natural killer) cells. IL-18 (also referred to as IL-1 γ) has been shown to augment the secretion of IFN- γ from T lymphocytes and increase NK cell activity in spleen cells. IL-18 exhibits 19% and 12% identity with IL-1 α and IL-1 β respectively over the twelve β -strands of the β -trefoil fold domain, which is a signature feature of the IL-1 family. The unusual leader sequence of IL-18 may be analogous to the IL-1 β pro-domain which must be cleaved by the serine protease ICE for optimal secretion and biological activity. Originally described as IGIF (IFN- γ -inducing factor), IL-18 is induced by mouse liver subsequent to challenge with lipopolysaccharide (LPS).

REFERENCES

1. March, C.J., et al. 1985. Cloning, sequence and expression of two distinct human interleukin-1 complementary DNAs. *Nature* 315: 641-647.
2. Nakamura, K., et al. 1993. Purification of a factor which provides a costimulatory signal for γ interferon production. *Infect. Immun.* 61: 64-70.
3. Arend, W.P., et al. 1994. Binding of IL-1 α , IL-1 β , and IL-1 receptor antagonist by soluble IL-1 receptors and levels of soluble IL-1 receptors in synovial fluids. *J. Immunol.* 153: 4766-4774.
4. Dinarello, C.A. 1994. The interleukin-1 family: 10 years of discovery. *FASEB J.* 8: 1314-1325.

CHROMOSOMAL LOCATION

Genetic locus: IL18 (mouse) mapping to 9 A5.3.

PRODUCT

IL-18 siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see IL-18 shRNA Plasmid (m): sc-39658-SH and IL-18 shRNA (m) Lentiviral Particles: sc-39658-V as alternate gene silencing products.

For independent verification of IL-18 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-39658A, sc-39658B and sc-39658C.

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

APPLICATIONS

IL-18 siRNA (m) is recommended for the inhibition of IL-18 expression in mouse 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 μ M in 66 μ 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

IL-18 (E-8): sc-133127 is recommended as a control antibody for monitoring of IL-18 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 κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 IL-18 gene expression knockdown using RT-PCR Primer: IL-18 (m)-PR: sc-39658-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, X., et al. 2020. PCSK9 regulates pyroptosis via mtDNA damage in chronic myocardial ischemia. *Basic Res. Cardiol.* 115: 66.
2. Sakai, T., et al. 2021. Effects of the cytoplasm and mitochondrial specific hydroxyl radical scavengers TA293 and mitoTA293 in bleomycin-induced pulmonary fibrosis model mice. *Antioxidants* 10: 1398.

RESEARCH USE

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

PROTOCOLS

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