SANTA CRUZ BIOTECHNOLOGY, INC.

caspase-1 siRNA (h): sc-29235

BACKGROUND

Caspase-1, originally designated ICE (for IL-1 converting enzyme), is a member of the group of caspases with large prodomains. Caspase-1 promotes maturation of interleukin IL-1β and interleukin 18 (IL-18) by proteolytic cleavage of precursor forms into biologically active pro-inflamatory cytokines. Active caspase-1, a (p20/p10)2 tetramer, is necessary and sufficient for cleavage of precursor IL-1 as well as for induction of apoptosis in some cell lines. The highly conserved family of caspases mediate many of the morphological and biochemical features of apoptosis, including structural dismantling of cell bodies and nuclei, fragmentation of genomic DNA, destruction of regulatory proteins and propagation of other pro-apoptotic molecules. The human caspase-1 gene maps to chromosome 11q22.3 and encodes a cytoplasmic protein expressed in liver, heart, skeletal muscle kidney and testis. Caspase-1 is implicated in inflammation, septic shock and other situations, such as wound healing and the growth of certain leukemias.

CHROMOSOMAL LOCATION

Genetic locus: CASP1 (human) mapping to 11q22.3.

PRODUCT

caspase-1 siRNA (h) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see caspase-1 shRNA Plasmid (h): sc-29235-SH and caspase-1 shRNA (h) Lentiviral Particles: sc-29235-V as alternate gene silencing products.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

caspase-1 siRNA (h) is recommended for the inhibition of caspase-1 expression in human 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 µM in 66 µl. 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

caspase-1 (D-3): sc-392736 is recommended as a control antibody for monitoring of caspase-1 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 caspase-1 gene expression knockdown using RT-PCR Primer: caspase-1 (h)-PR: sc-29235-PR (20 µl, 490 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kobori, A., et al. 2010. Interleukin-33 expression is specifically enhanced in inflamed mucosa of ulcerative colitis. J. Gastroenterol. 45: 999-1007.
2. Srivastava, S.S., et al. 2012. Cell membrane repair pathway involves sensing of dynamics of caveolae and caspase-1. Adv. Exp. Med. Biol. 749: 117-129.
3. Nagamatsu, K., et al. 2015. Dysregulation of *Escherichia coli* α-hemolysin expression alters the course of acute and persistent urinary tract infection. Proc. Natl. Acad. Sci. USA 112: E871-E880.
4. Quan, J.H., et al. 2018. P2X7 receptor mediates NLRP3-dependent IL-1β secretion and parasite proliferation in *Toxoplasma gondii*-infected human small intestinal epithelial cells. Parasit. Vectors 11: 1.
5. Li, Y., et al. 2019. The DNA repair nuclease MRE11A functions as a mitochondrial protector and prevents T cell pyroptosis and tissue inflammation. Cell Metab. 30: 477-492.
6. Cheng, C.Y., et al. 2020. Nrf2/HO-1 partially regulates cytoprotective effects of carbon monoxide against urban particulate matter-induced inflammatory responses in oral keratinocytes. Cytokine 133: 155185.
7. Pinar, A.A., et al. 2020. Relaxin can mediate its anti-fibrotic effects by targeting the myofibroblast NLRP3 inflammasome at the level of caspase-1. Front. Pharmacol. 11: 1201.

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.