



# caspase-1 siRNA (r): sc-61878

## 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-1 $\beta$  and interleukin 18 (IL-18) by proteolytic cleavage of precursor forms into biologically active pro-inflammatory cytokines. Active caspase-1,  $\alpha$  (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.

## REFERENCES

1. Alnemri, E.S., et al. 1995. Cloning and expression of four novel isoforms of human interleukin-1 $\beta$  converting enzyme with different apoptotic activities. *J. Biol. Chem.* 270: 4312-4317.
2. Gu, Y., et al. 1995. Interleukin-1 $\beta$  converting enzyme requires oligomerization for activity of processed forms *in vivo*. *EMBO J.* 14: 1923-1931.
3. Tatsuta, T., et al. 2000. The prodomain of caspase-1 enhances FAS-mediated apoptosis through facilitation of caspase-8 activation. *J. Biol. Chem.* 275: 14248-14254.

## CHROMOSOMAL LOCATION

Genetic locus: Casp1 (rat) mapping to 8q11.

## PRODUCT

caspase-1 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 caspase-1 shRNA Plasmid (r): sc-61878-SH and caspase-1 shRNA (r) Lentiviral Particles: sc-61878-V as alternate gene silencing products.

For independent verification of caspase-1 (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-61878A, sc-61878B and sc-61878C.

## 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

caspase-1 siRNA (r) is recommended for the inhibition of caspase-1 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

caspase-1 p20 (D-4): sc-398715 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-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 caspase-1 gene expression knockdown using RT-PCR Primer: caspase-1 (r)-PR: sc-61878-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. Meng, X.F., et al. 2014. Inhibition of the NLRP3 inflammasome provides neuroprotection in rats following amygdala kindling-induced status epilepticus. *J. Neuroinflammation* 11: 212.
2. Tan, C.C., et al. 2015. NLRP1 inflammasome is activated in patients with medial temporal lobe epilepsy and contributes to neuronal pyroptosis in amygdala kindling-induced rat model. *J. Neuroinflammation* 12: 18.
3. Hung, T.W., et al. 2024. Renoprotective effect of rosmarinic acid by inhibition of indoxyl sulfate-induced renal interstitial fibrosis via the NLRP3 inflammasome signaling. *Int. Immunopharmacol.* 135: 112314.

## RESEARCH USE

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