



caspase-12 siRNA (h): sc-72797

BACKGROUND

A unique family of cysteine proteases has been described that differs in sequence, structure and substrate specificity from any previously described protease family. This family, Ced-3/caspase-1, is composed of caspase-1, caspase-2, caspase-3, caspase-4, caspase-6 and caspase-7 (also designated Mch3, ICE-LAP3 or CMH-1), caspase-9, caspase-10, caspase-14, and caspase-5/caspase-12. Ced-3/caspase-1 family members function as key components of the apoptotic machinery and act to destroy specific target proteins which are critical to cellular longevity. Caspase-5 (also designated TY or ICE_{rel}III) can cleave its own precursor, an activity that requires the cysteine 245 residue. The mouse homolog of caspase-5 is designated caspase-12. Frameshift mutations in caspase-5 have been identified in MMP tumors of the endometrium, colon and stomach, indicating that caspase-5 may be a new target gene in the microsatellite mutator pathway for cancer.

REFERENCES

1. Munday, N.A., et al. 1995. Molecular cloning and pro-apoptotic activity of ICE_{rel}II and ICE_{rel}III, members of the ICE/Ced-3 family of cysteine proteases. *J. Biol. Chem.* 270: 15870-15876.
2. Duan, H., et al. 1996. ICE-LAP3, a novel mammalian homologue of the *Caenorhabditis elegans* cell death protein Ced-3 is activated during Fas- and tumor necrosis factor-induced apoptosis. *J. Biol. Chem.* 271: 1621-1625.
3. Fernandes-Alnemri, T.F., et al. 1996. *In vitro* activation of CPP32 and Mch3 by Mch4, a novel human apoptotic cysteine protease containing two FADD-like domains. *Proc. Natl. Acad. Sci. USA* 93: 7464-7469.

CHROMOSOMAL LOCATION

Genetic locus: CASP12 (human) mapping to 11q22.3.

PRODUCT

caspase-12 siRNA (h) is a pool of 2 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 caspase-12 shRNA Plasmid (h): sc-72797-SH and caspase-12 shRNA (h) Lentiviral Particles: sc-72797-V as alternate gene silencing products.

For independent verification of caspase-12 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-72797A and sc-72797B.

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

caspase-12 siRNA (h) is recommended for the inhibition of caspase-12 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 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

caspase-12 (1611): sc-21747 is recommended as a control antibody for monitoring of caspase-12 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor caspase-12 gene expression knockdown using RT-PCR Primer: caspase-12 (h)-PR: sc-72797-PR (20 μ l, 465 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Brezniceanu, M.L., et al. 2010. Reactive oxygen species promote caspase-12 expression and tubular apoptosis in diabetic nephropathy. *J. Am. Soc. Nephrol.* 21: 943-954.
2. Chow, S.E., et al. 2014. Resveratrol induced ER expansion and ER caspase-mediated apoptosis in human nasopharyngeal carcinoma cells. *Apoptosis* 19: 527-541.
3. Chu, W.K., et al. 2017. Caspase-12 degrades I κ B α protein and enhances MMP-9 expression in human nasopharyngeal carcinoma cell invasion. *Oncotarget* 8: 33515-33526.

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.