

cathepsin C siRNA (m): sc-41472

BACKGROUND

Cathepsin C, known also as dipeptidyl aminopeptidase I (DPPI), is a tetrameric lysosomal cysteine peptidase belonging to the papain family. Cathepsin C is involved in intracellular protein degradation and the processing of protein precursors, where it participates in cell growth, neuraminidase activation, and platelet factor XIII activation. Cathepsin C is largely related to other lysosomal cysteine proteinases, including cathepsin B, H and L. Enzymatically, Cathepsin C is capable of sequentially removing dipeptides from the amino terminus, and it requires halide ions, namely chloride ions, and thiols for complete enzymatic activity. Protein levels of Cathepsin C are detected in a variety of tissues, and it is most highly expressed in spleen, kidney, cytotoxic lymphocytes and myeloid cells, where it localizes to the secretory granule compartment. Cathepsin C is initially synthesized as a proenzyme that is rapidly processed to generate two distinct chains that function together as the mature form of the enzyme.

REFERENCES

1. Ishidoh, K., et al. 1991. Molecular cloning of cDNA for rat cathepsin C. Cathepsin C, a cysteine proteinase with an extremely long propeptide. *J. Biol. Chem.* 266: 16312-16317.
2. Karrer, K.M., et al. 1993. Two distinct gene subfamilies within the family of cysteine protease genes. *Proc. Natl. Acad. Sci. USA* 90: 3063-3067.
3. Nauland, U., et al. 1994. Activation of thrombin-inactivated single-chain urokinase-type plasminogen activator by dipeptidyl peptidase I (cathepsin C). *Eur. J. Biochem.* 223: 497-501.
4. Paris, A., et al. 1995. Molecular cloning and sequence analysis of human preprocathepsin C. *FEBS Lett.* 369: 326-330.
5. Rao, N.V., et al. 1997. Human dipeptidyl-peptidase I. Gene characterization, localization, and expression. *J. Biol. Chem.* 272: 10260-10265.
6. Pham, C.T.N., et al. 1997. Molecular cloning, chromosomal localization, and expression of Murine dipeptidyl peptidase I. *J. Biol. Chem.* 272: 10695-10703.
7. Maciewicz, R.A., et al. 1999. A comparison of four cathepsins (B, L, N and S) with collagenolytic activity from rabbit spleen. *Biochem. J.* 256: 433-440.

CHROMOSOMAL LOCATION

Genetic locus: Ctsc (mouse) mapping to 7 E1.

PRODUCT

cathepsin C 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 cathepsin C shRNA Plasmid (m): sc-41472-SH and cathepsin C shRNA (m) Lentiviral Particles: sc-41472-V as alternate gene silencing products.

For independent verification of cathepsin C (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-41472A, sc-41472B and sc-41472C.

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

cathepsin C siRNA (m) is recommended for the inhibition of cathepsin C 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

cathepsin C (D-6): sc-74590 is recommended as a control antibody for monitoring of cathepsin C 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 cathepsin C gene expression knockdown using RT-PCR Primer: cathepsin C (m)-PR: sc-41472-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.