

cathepsin C siRNA (h): sc-41471

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

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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 (human) mapping to 11q14.2.

PRODUCT

cathepsin C siRNA (h) 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 (h): sc-41471-SH and cathepsin C shRNA (h) Lentiviral Particles: sc-41471-V as alternate gene silencing products.

For independent verification of cathepsin C (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-41471A, sc-41471B and sc-41471C.

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 (h) is recommended for the inhibition of cathepsin C 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

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 (h)-PR: sc-41471-PR (20 μ l, 371 bp). 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.