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cathepsin V siRNA (h): sc-44526

BACKGROUND

Cathepsin V (CTSU, CTSV, CATL2, cathepsin U, cathepsin L2) is a lysosomal cysteine proteinase that influences corneal physiology, and mediates degradation of invariant chain in human thymus. Cathepsin V is present in corneal epithelium, activated macrophages, and colorectal and breast carcinomas. A 1.8-kb mRNA to cathepsin V is present in normal human thymus and testis. Cathepsin V is a member of the peptidase C1 family. Cysteine proteinases are synthesized as proenzymes, which are processed to the corresponding proenzymes. The proenzymes are either targeted to the lysosome or continue along the cellular secretory route.

REFERENCES

1. Adachi, W., et al. 1998. Isolation and characterization of human cathepsin V: a major proteinase in corneal epithelium. *Invest. Ophthalmol. Vis. Sci.* 39: 1789-1796.
2. Santamaria, I., et al. 1998. Cathepsin L2, a novel human cysteine proteinase produced by breast and colorectal carcinomas. *Cancer Res.* 58: 1624-1630.
3. Itoh, R., et al. 1999. Genomic organization and chromosomal localization of the human cathepsin L2 gene. *DNA Res* 6: 137-140.
4. Bromme, D., et al. 1999. Human cathepsin V functional expression, tissue distribution, electrostatic surface potential, enzymatic characterization and chromosomal localization. *Biochemistry* 38: 2377-2385.
5. Tolosa, E., et al. 2003. Cathepsin V is involved in the degradation of invariant chain in human thymus and is overexpressed in myasthenia gravis. *J. Clin. Invest.* 112: 517-526.

CHROMOSOMAL LOCATION

Genetic locus: CTS2 (human) mapping to 9q22.33.

PRODUCT

cathepsin V 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 V shRNA Plasmid (h): sc-44526-SH and cathepsin V shRNA (h) Lentiviral Particles: sc-44526-V as alternate gene silencing products.

For independent verification of cathepsin V (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-44526A, sc-44526B and sc-44526C.

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 V siRNA (h) is recommended for the inhibition of cathepsin V 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 V (CV55-3G11): sc-32798 is recommended as a control antibody for monitoring of cathepsin V 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 V gene expression knockdown using RT-PCR Primer: cathepsin V (h)-PR: sc-44526-PR (20 μ l, 461 bp). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

SELECT PRODUCT CITATIONS

1. Yi, W.J., et al. 2018. Degraded melanocores are incompetent to protect epidermal keratinocytes against UV damage. *Cell Cycle* 17: 844-857.
2. Lu, Y., et al. 2020. Angiotensin II-induced vascular remodeling and hypertension involves cathepsin L/V- MEK/ERK mediated mechanism. *Int. J. Cardiol.* 298: 98-106.

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.