SANTA CRUZ BIOTECHNOLOGY, INC.

cathepsin W siRNA (m): sc-72808

BACKGROUND

Cathepsin W (lymphopain) and cathepsin F comprise a novel subgroup of cathepsin proteases, and are phylogenetically distinct from other human cathepsins. The cathepsin W gene maps to chromosome 11q13.1 and contains ten exons with introns ranging from 81-119 bp. The cathepsin W protein is expressed specifically in $CD8^+$ T lymphocytes. The expression of cathepsin W first occurs during the differentiation of thyrocytes to $CD8^+$ T lymphocytes, just as the thymocytes cease expression of $CD4^+$ receptors. In transfected Cos-7 and HeLa cells, cathepsin W localizes within the rough endoplasmic reticulum. Cathepsin W contains a unique 21 amino acid peptide insertion between the active site histidine and asparagine residues, in addition to a distictive 8 amino acid carboxy-terminal extension. An extended loop structure in the second or β-sheet domain and an additional disulfide bind are two of several signature features of cathepsin W. Other features of cathepsin W include an additional cysteine, an S2 pocket and an additional residue. Cathepsin W may exist as a dimer with each monomer forming a disulfide bond.

REFERENCES

1. Linnevers, C., et al. 1997. Human cathepsin W, a putative cysteine protease predominantly expressed in $CD8^+$ T-lymphocytes. FEBS Lett. 405: 253-259.
2. Wex, T., et al. 1998. Genomic structure, chromosal localization, and expression of human cathepsin W. Biochem. Biophys. Res. Commun. 248: 255-261.
3. Wex, T., et al. 1999. Human cathepsins F and W: a new subgroup of cathepsins. Biochem. Biophys. Res. Commun. 259: 401-407.
4. Bhandoola, A., et al. 2000. Programming for cytotoxic effector function occurs concomitantly with CD4 extinction during $CD8^+$ T cell differentiation in the thymus. Int. Immunol. 12: 1035-1040.
5. Brinkworth, R.I., et al. 2000. Phylogenetic relationships and theoreical model of human cathepsin W (lymphopain), a cysteine proteinase from cytotoxic T lymphoctyes. Int. J. Biochem. Cell Biol. 32: 373-384.

CHROMOSOMAL LOCATION

Genetic locus: Ctsw (mouse) mapping to 19 A.

PRODUCT

cathepsin W 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see cathepsin W shRNA Plasmid (m): sc-72808-SH and cathepsin W shRNA (m) Lentiviral Particles: sc-72808-V as alternate gene silencing products.

For independent verification of cathepsin W (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-72808A, sc-72808B and sc-72808C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

cathepsin W siRNA (m) is recommended for the inhibition of cathepsin W 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 µM in 66 µl. 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor cathepsin W gene expression knockdown using RT-PCR Primer: cathepsin W (m)-PR: sc-72808-PR (20 µl). 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.