SANTA CRUZ BIOTECHNOLOGY, INC.

cathepsin A siRNA (m): sc-41470

BACKGROUND

The cathepsin family of proteolytic enzymes include several diverse classes of proteases. Cathepsins B, L, H, K, S and O comprise the cysteine protease class. Cathepsins D and E comprise the aspartyle protease class. The serine protease class includes cathepsin G. Cathepsins function in cellular metabolism and participate in peptide biosynthesis and protein degradation. Cathepsin A, a serine carboxypeptidase, exists in a high molecular weight lysosomal complex with β-galactosidase (β-gal) and α-neuraminidase (Neu1). Cathepsin A functions to protect β-gal and Neu1 from intralysosomal proteolysis. Deficiencies in cathepsin A lead to deficiencies in β-gal and Neu1. The gene encoding human cathepsin A maps to chromosome 20q13.12. Mutations in this gene cause glactosialidosis, a lysosomal storage disorder resulting from the β-gal and Neu1 deficiencies.

REFERENCES

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2. Heusel, J.W., Scarpati, E.M., Jenkins, N.A., Gilbert, D.J., Copeland, N.G., Shapiro, S.D. and Ley, T.J. 1993. Molecular cloning, chromosomal location, and tissue-specific expression of the murine cathepsin G gene. Blood 81: 1614-1623.
3. Shi, G.P., Chapman, H.A., Bhairi, S.M., DeLeeuw, C., Reddy, V.Y. and Weiss, S.J. 1995. Molecular cloning of human cathepsin O, a novel endoproteinase and homologue of rabbit OC2. FEBS Lett. 357: 129-134.
4. Tsukuba, T., Okamoto, K., Yasuda, Y., Morikawa, W., Nakanishi, H. and Yamamoto, K. 2000. New functional aspects of cathepsin D and cathepsin E. Mol. Cells 10: 601-611.
5. Ostrowska, H., Krukowska, K., Kalinowska, J., Orlowska, M. and Lengiewicz, I. 2003. Lysosomal high molecular weight multienzyme complex. Cell. Mol. Biol. Lett. 8: 19-24.

CHROMOSOMAL LOCATION

Genetic locus: Ctsa (mouse) mapping to 2 H3.

PRODUCT

cathepsin A 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 A shRNA Plasmid (m): sc-41470-SH and cathepsin A shRNA (m) Lentiviral Particles: sc-41470-V as alternate gene silencing products.

For independent verification of cathepsin A (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-41470A, sc-41470B and sc-41470C.

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 A siRNA (m) is recommended for the inhibition of cathepsin A 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 A gene expression knockdown using RT-PCR Primer: cathepsin A (m)-PR: sc-41470-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.