SANTA CRUZ BIOTECHNOLOGY, INC.

cathepsin Q siRNA (m): sc-142032

BACKGROUND

The cathepsin family of proteolytic enzymes contains several diverse classes of proteases. The cysteine protease class includes cathepsins B, C, L, H, K, S, W and O. The aspartyl protease class consists of cathepsins D, E and F. Cathepsins M, P, Q, and R, are conserved in mice and rats but not found in human or rabbit placenta, suggesting that this family of proteases are most likely restricted to rodents. Most cathepsins localize to lysosome and are involved in normal cellular metabolism, participating in various events such as peptide biosynthesis and protein degradation. Cathepsin J is a murine cysteine protease of the papain family expressed exclusively in the placenta, which may indicate a role in embryo implantation and/or placental function. Cathepsin L is a lysosomal cysteine protease that is most closely related to cathepsin H. Mouse cathepsin M is closely related to cathepsins P and L and is highly expressed in placenta. Cathepsin Q, also known as Ctsq, is a novel 343 amino acid lysosomal cysteine protease highly expressed in placenta and is encoded by a gene located on mouse chromosome 13 B2.

REFERENCES

1. Ishidoh, K., Towatari, T., Imajoh, S., Kawasaki, H., Kominami, E., Katunuma, N. and Suzuki, K. 1987. Molecular cloning and sequencing of cDNA for rat cathepsin L. FEBS Lett. 223: 69-73.
2. Santamaría, I., Velasco, G., Cazorla, M., Fueyo, A., Campo E. and López-Otín, C. 1998. Cathepsin L2, a novel human cysteine proteinase produced by breast and colorectal carcinomas. Cancer Res. 58: 1624-1630.
3. Tisljar, K., Deussing, J. and Peters, C. 1999. Cathepsin J, a novel murine cysteine protease of the papain family with a placenta-restricted expression. FEBS Lett. 459: 299-304.
4. Sol-Church, K., Frenck, J. and Mason, R.W. 2000. Cathepsin Q, a novel lysosomal cysteine protease highly expressed in placenta. Biochem. Biophys. Res. Commun. 267: 791-795.
5. Sol-Church, K., Frenck, J. and Mason, R.W. 2000. Mouse cathepsin M, a placenta-specific lysosomal cysteine protease related to cathepsins L and P. Biochim. Biophys. Acta 149: 289-294.
6. Sol-Church, K., Frenck, J., Bertenshaw, G.and Mason, R.W. 2000. Characterization of mouse cathepsin R, a new member of a family of placentally expressed cysteine proteases. Biochim. Biophys. Acta 1492: 488-492.
7. Sol-Church, K., Picerno, G.N., Stabley, D.L., Frenck, J., Xing, S., Bertenshaw, G.P. and Mason, R.W. 2002. Evolution of placentally expressed cathepsins. Biochem. Biophys. Res. Commun. 293: 23-29.
8. Collette, J., Bocock, J.P., Ahn, K., Chapman, R.L., Godbold, G., Yeyeodu, S.and Erickson, A.H. 2004. Biosynthesis and alternate targeting of the lysosomal cysteine protease cathepsin L. Int. Rev. Cytol. 241: 1-51.
9. Ishida, M., Ono, K., Taguchi, S., Ohashi, S., Naito, J., Horiguchi, K. and Harigaya, T. 2004. Cathepsin gene expression in mouse placenta during the latter half of pregnancy. J. Reprod. Dev. 50: 515-523.

CHROMOSOMAL LOCATION

Genetic locus: Ctsq (mouse) mapping to 13 B2.

PRODUCT

cathepsin Q 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 Q shRNA Plasmid (m): sc-142032-SH and cathepsin Q shRNA (m) Lentiviral Particles: sc-142032-V as alternate gene silencing products.

For independent verification of cathepsin Q (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-142032A, sc-142032B and sc-142032C.

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 Q siRNA (m) is recommended for the inhibition of cathepsin Q 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 Q gene expression knockdown using RT-PCR Primer: cathepsin Q (m)-PR: sc-142032-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.

PROTOCOLS

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