SANTA CRUZ BIOTECHNOLOGY, INC.

Neprilysin-2 siRNA (m): sc-106295

BACKGROUND

Neprilysin-2, also known as NL1, NL2, SEP, NEP2, MMEL2, NEPII or MMEL1 (membrane metallo-endopeptidase-like 1), is a 779 amino acid single-pass type II membrane protein that belongs to the peptidase M13 family of zinc-dependent metalloproteases. Neprilysin-2 is predominantly expressed in testis and weakly expressed in brain, kidney and heart. Members of the M13 family play critical roles in pain perception, arterial pressure regulation, phosphate metabolism and homeostasis. Neprilysin-2 may be involved in modulating the processes of fertilization, early embryonic development and in the inactivation of endogenous messenger peptides, such as enkephalins and tachykinins. Diseases such as motor sensory neuropathy 2A, Schwartz-Jampel-Aberfeld syndrome, or neuroblastoma, which map to the same locus, may be associated with defects in Neprilysin-2. Three isoforms exists due to alternative splicing events.

REFERENCES

1. Turner, A.J., Isaac, R.E. and Coates, D. 2001. The neprilysin (NEP) family of zinc metalloendopeptidases: genomics and function. Bioessays 23: 261-269.
2. Bonvouloir, N., Lemieux, N., Crine, P., Boileau, G. and DesGroseillers, L. 2001. Molecular cloning, tissue distribution, and chromosomal localization of MMEL2, a gene coding for a novel human member of the neutral endopeptidase-24.11 family. DNA Cell Biol. 20: 493-498.
3. Ouimet, T. 2004. Neprilysin-2: a novel messenger peptide-inactivating metalloprotease. Protein Pept. Lett. 11: 479-489.
4. Voisin, S. and Ouimet, T. 2005. The ultimate tryptophan residue of Neprilysin-2 is not involved in protein maturation and enzymatic activity. Biochem. Biophys. Res. Commun. 335: 356-360.
5. Ogawa, T., Kiryu-Seo, S., Tanaka, M., Konishi, H., Iwata, N., Saido, T., Watanabe, Y. and Kiyama, H. 2005. Altered expression of neprilysin family members in the pituitary gland of sleep-disturbed rats, an animal model of severe fatigue. J. Neurochem. 95: 1156-1166.
6. Whyteside, A.R. and Turner, A.J. 2008. Human Neprilysin-2 (NEP2) and NEP display distinct subcellular localisations and substrate preferences. FEBS Lett. 582: 2382-2386.
7. Oh-hashi, K., Ohkubo, K., Shizu, K., Fukuda, H., Hirata, Y. and Kiuchi, K. 2008. Biosynthesis, processing, trafficking, and enzymatic activity of mouse Neprilysin-2. Mol. Cell. Biochem. 313: 103-111.
8. Raychaudhuri, S., Remmers, E.F., Lee, A.T., Hackett, R., Guiducci, C., Burtt, N.P., Gianniny, L., Korman, B.D., Padyukov, L., Kurreeman, F.A., Chang, M., Catanese, J.J., Ding, B., Wong, S., et al. 2008. Common variants at CD40 and other loci confer risk of rheumatoid arthritis. Nat. Genet. 40: 1216-1223.
9. Bland, N.D., Robinson, P., Thomas, J.E., Shirras, A.D., Turner, A.J. and Isaac, R.E. 2009. Locomotor and geotactic behavior of *Drosophila melanogaster* over-expressing Neprilysin-2. Peptides 30: 571-574.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: Mmel1 (mouse) mapping to 4 E2.

PRODUCT

Neprilysin-2 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 Neprilysin-2 shRNA Plasmid (m): sc-106295-SH and Neprilysin-2 shRNA (m) Lentiviral Particles: sc-106295-V as alternate gene silencing products.

For independent verification of Neprilysin-2 (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-106295A, sc-106295B and sc-106295C.

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

Neprilysin-2 siRNA (m) is recommended for the inhibition of Neprilysin-2 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 Neprilysin-2 gene expression knockdown using RT-PCR Primer: Neprilysin-2 (m)-PR: sc-106295-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.