SANTA CRUZ BIOTECHNOLOGY, INC.

CHRDL1 siRNA (m): sc-142336

BACKGROUND

The patterning of the central nervous system (CNS) relies on the interaction of multiple signaling molecules, including Shh (sonic hedgehog homolog), Wnt proteins and BMPs (bone morphogenetic proteins), with their antagonists, namely chordin and Noggin. Chordin is a key developmental protein that dorsalizes early vertebrate embryonic tissues by binding to ventralizing TGF-β-like BMPs and sequestering them in latent complexes. CHRDL1 (Chordin-like protein 1), also known as CHL, VOPT (Ventroptin) or NRLN1 (Neuralin-1), is a 450 amino acid secreted protein that contains three VWFC domains. Functioning in a similar manner to chordin, CHRDL1 binds to BMP-4 and prevents the interaction of BMP-4 with its target receptors, thereby antagonizing BMP-4 activity. Additionally, CHRDL1 is thought to play a role in dorsoventral axis formation, embryonic bone formation and angiogenesis, as well as in the differentiation of neural stem cells.

REFERENCES

1. Coffinier, C., et al. 2001. Neuralin-1 is a novel Chordin-related molecule expressed in the mouse neural plate. Mech. Dev. 100: 119-122.
2. Sakuta, H., et al. 2001. Ventroptin: a BMP-4 antagonist expressed in a double-gradient pattern in the retina. Science 293: 111-115.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 300350. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Chimal-Monroy, J., et al. 2003. Analysis of the molecular cascade responsible for mesodermal limb chondrogenesis: Sox genes and BMP signaling. Dev. Biol. 257: 292-301.
5. Chen, D., et al. 2004. Bone morphogenetic proteins. Growth Factors 22: 233-241.
6. Gazzerro, E., et al. 2006. Bone morphogenetic proteins and their antagonists. Rev. Endocr. Metab. Disord. 7: 51-65.
7. Kosinski, C., et al. 2007. Gene expression patterns of human colon tops and basal crypts and BMP antagonists as intestinal stem cell niche factors. Proc. Natl. Acad. Sci. USA 104: 15418-15423.

CHROMOSOMAL LOCATION

Genetic locus: Chrdl1 (mouse) mapping to X F2.

PRODUCT

CHRDL1 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 CHRDL1 shRNA Plasmid (m): sc-142336-SH and CHRDL1 shRNA (m) Lentiviral Particles: sc-142336-V as alternate gene silencing products.

For independent verification of CHRDL1 (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-142336A, sc-142336B and sc-142336C.

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

CHRDL1 siRNA (m) is recommended for the inhibition of CHRDL1 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 CHRDL1 gene expression knockdown using RT-PCR Primer: CHRDL1 (m)-PR: sc-142336-PR (20 µl, 514 bp). 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.