



Delta-3 siRNA (m): sc-62207

BACKGROUND

The LIN-12/Notch family of transmembrane receptors is believed to play a central role in development by regulating cell fate decisions. Notch can be activated by several ligands including Jagged1, Jagged2 and the Delta family of proteins. Delta-3, also known as DLL3 (*Drosophila* Delta homolog 3) or SCDO1, is a single-pass type I membrane protein that can bind to and activate Notch receptors. Required to divert neurons along their specified differentiation pathways, Delta-3 can inhibit primary neurogenesis and assist in forming somite boundaries during paraxial mesoderm segmentation. Delta-3 contains six EGF-like domains, one transmembrane domain and one DSL domain which is required for proper binding to the Notch receptor. Ubiquitination by Skeleto-phosphin (also known as MIB2, mindbomb homolog 2) leads to endocytosis and subsequent degradation of Delta-3. Defects in the gene encoding Delta-3 are the cause of autosomal recessive spondylocostal dysostosis type 1 (SCDO1), a condition characterized by rib fusions and multiple hemivertebrae.

REFERENCES

1. Bulman, M.P., et al. 2000. Mutations in the human Delta homologue, DLL3, cause axial skeletal defects in spondylocostal dysostosis. *Nat. Genet.* 24: 438-441.
2. Turnpenny, P.D., et al. 2003. Novel mutations in DLL3, a somitogenesis gene encoding a ligand for the Notch signalling pathway, cause a consistent pattern of abnormal vertebral segmentation in spondylocostal dysostosis. *J. Med. Genet.* 40: 333-339.
3. Maisenbacher, M.K., et al. 2005. Molecular analysis of congenital scoliosis: a candidate gene approach. *Hum. Genet.* 116: 416-419.
4. Ladi, E., et al. 2005. The divergent DSL ligand Dll3 does not activate Notch signaling but cell autonomously attenuates signaling induced by other DSL ligands. *J. Cell Biol.* 170: 983-992.
5. Chen, J., et al. 2006. Expression of Notch signaling pathway genes in mouse embryos lacking β 4-galactosyltransferase-1. *Gene Expr. Patterns* 6: 376-382.

CHROMOSOMAL LOCATION

Genetic locus: Dll3 (mouse) mapping to 7 A3.

PRODUCT

Delta-3 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Delta-3 shRNA Plasmid (m): sc-62207-SH and Delta-3 shRNA (m) Lentiviral Particles: sc-62207-V as alternate gene silencing products.

For independent verification of Delta-3 (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-62207A, sc-62207B and sc-62207C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Delta-3 siRNA (m) is recommended for the inhibition of Delta-3 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 μ M in 66 μ l. 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 Delta-3 gene expression knockdown using RT-PCR Primer: Delta-3 (m)-PR: sc-62207-PR (20 μ l, 486 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.