SANTA CRUZ BIOTECHNOLOGY, INC.

Delta-4 siRNA (m): sc-39668

BACKGROUND

The LIN-12/Notch family of transmembrane receptors is believed to play a central role in development by regulating cell fate decisions. Notch proteins have been found to be overexpressed or rearranged in human tumors. Ligands for Notch include Jagged, Jagged-2 and Delta. While blocking the differentiation of progenitor cells into the B-cell lineage, Delta promotes the emergence of a population of cells with T cell/NK-cell characteristics. The protein is a membrane protein expressed in heart, pancreas, brain and muscle during gastrulation and early organogenesis and in adult heart and lung. Delta-4 is a membrane protein that activates Notch-1 and Notch-4. It is expressed in a wide range of adult and fetal tissues, especially in vascular endothelium.

REFERENCES

1. Karanu, F.N., et al. 2001. Human homologues of Delta-1 and Delta-4 function as mitogenic regulators of primitive human hematopoietic cells. Blood 97: 1960-1967.
2. Yoneya, T., et al. 2001. Molecular cloning of Delta-4, a new mouse and human Notch ligand. J. Biochem. 129: 27-34.
3. Taylor, K.L., et al. 2002. Notch activation during endothelial cell network formation *in vitro* targets the basic HLH transcription factor HESR-1 and downregulates VEGFR-2/KDR expression. Microvasc. Res. 64: 372-383.
4. Nijjar, S.S., et al. 2002. Altered Notch ligand expression in human liver disease: further evidence for a role of the Notch signaling pathway in hepatic neovascularization and biliary ductular defects. Am. J. Pathol. 160: 1695-1703.
5. Nakatsu, M.N., et al. 2003. Angiogenic sprouting and capillary lumen formation modeled by human umbilical vein endothelial cells (HUVEC) in fibrin gels: the role of fibroblasts and angiopoietin-1. Microvasc. Res. 66: 102-112.
6. Tohda, S., et al. 2003. Notch ligands, Delta-1 and Delta-4 suppress the self-renewal capacity and long-term growth of two myeloblastic leukemia cell lines. Int. J. Oncol. 22: 1073-1079.
7. Lauret, E., et al. 2004. Membrane-bound Delta-4 Notch ligand reduces the proliferative activity of primitive human hematopoietic $CD34^{+}$ $CD38^{low}$ cells while maintaining their LTC-IC potential. Leukemia 18: 788-797.

CHROMOSOMAL LOCATION

Genetic locus: Dll4 (mouse) mapping to 2 E5.

PRODUCT

Delta-4 siRNA (m) is a pool of 2 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 Delta-4 shRNA Plasmid (m): sc-39668-SH and Delta-4 shRNA (m) Lentiviral Particles: sc-39668-V as alternate gene silencing products.

For independent verification of Delta-4 (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-39668A and sc-39668B.

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

Delta-4 siRNA (m) is recommended for the inhibition of Delta-4 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 Delta-4 gene expression knockdown using RT-PCR Primer: Delta-4 (m)-PR: sc-39668-PR (20 µl, 587 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Verma, M., et al. 2018. Muscle satellite cell cross-talk with a vascular niche maintains quiescence via VEGF and Notch signaling. Cell Stem Cell 23: 530-543.

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.