SANTA CRUZ BIOTECHNOLOGY, INC.

Notch 2 siRNA (h): sc-40135

BACKGROUND

The LIN-12/Notch family of transmembrane receptors is believed to play a central role in development by regulating cell fate decisions. To date, four Notch homologs have been identified in mammals and have been designated Notch 1, Notch 2, Notch 3 and Notch 4. The Notch genes are expressed in a variety of tissues in both the embryonic and adult organism, suggesting that the genes are involved in multiple signaling pathways. The Notch proteins have been found to be overexpressed or rearranged in human tumors. Ligands for Notch include Jagged, Jagged2 and Delta. Jagged can activate Notch and prevent myoblast differentiation by inhibiting the expression of muscle regulatory and structural genes. Jagged2 is thought to be involved in the development of various tissues whose development is dependent upon epithelial-mesenchymal interactions. Normal Delta expression is restricted to the adrenal gland and placenta. Delta expression has also been found in neuroendocrine tumors such as neuroblastomas and pheochromocytomas.

CHROMOSOMAL LOCATION

Genetic locus: NOTCH2 (human) mapping to 1p12.

PRODUCT

Notch 2 siRNA (h) is a target-specific 19-25 nt siRNA 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 Notch 2 shRNA Plasmid (h): sc-40135-SH and Notch 2 shRNA (h) Lentiviral Particles: sc-40135-V as alternate gene silencing 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 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

Notch 2 siRNA (h) is recommended for the inhibition of Notch 2 expression in human 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.

GENE EXPRESSION MONITORING

Notch 2 (F-10): sc-518169 is recommended as a control antibody for monitoring of Notch 2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Notch 2 gene expression knockdown using RT-PCR Primer: Notch 2 (h)-PR: sc-40135-PR (20 µl, 464 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Graziani, I., et al. 2008. Opposite effects of Notch 1 and Notch 2 on mesothelioma cell survival under hypoxia are exerted through the Akt pathway. Cancer Res. 68: 9678-9685.
2. Wang, Z., et al. 2009. Acquisition of epithelial-mesenchymal transition phenotype of gemcitabine-resistant pancreatic cancer cells is linked with activation of the Notch signaling pathway. Cancer Res. 69: 2400-2407.
3. Whyte, J.L., et al. 2011. Density of human bone marrow stromal cells regulates commitment to vascular lineages. Stem Cell Res. 6: 238-250.
4. Hahm, E.R., et al. 2012. Notch activation is dispensable for D, L-sulforaphane-mediated inhibition of human prostate cancer cell migration. PLoS ONE 7: e44957.
5. Chen, L., et al. 2013. MicroRNA-107 inhibits glioma cell migration and invasion by modulating Notch 2 expression. J. Neurooncol. 112: 59-66.
6. Capaccione, K.M., et al. 2014. Sox9 mediates Notch 1-induced mesenchymal features in lung adenocarcinoma. Oncotarget 5: 3636-3650.
7. Kim, S.H. and Singh, S.V. 2015. The role of polycomb group protein Bmi-1 and Notch 4 in breast cancer stem cell inhibition by benzyl isothiocyanate. Breast Cancer Res. Treat. 149: 681-692.
8. Hayashi, T., et al. 2016. Not all Notch is created equal: the oncogenic role of Notch 2 in bladder cancer and its implications for targeted therapy. Clin. Cancer Res. 22: 2981-2992.
9. Li, Y., et al. 2017. Annonaceous acetogenins mediated up-regulation of Notch 2 exerts growth inhibition in human gastric cancer cells *in vitro*. Oncotarget 8: 21140-21152.
10. Wang, X., et al. 2018. miR-181b/Notch 2 overcome chemoresistance by regulating cancer stem cell-like properties in NSCLC. Stem Cell Res. Ther. 9: 327.
11. Tomé, M., et al. 2019. Constitutive activation of Notch 2 signalling confers chemoresistance to neural stem cells via transactivation of fibroblast growth factor receptor-1. Stem Cell Res. 35: 101390.

RESEARCH USE

For research use only, not for use in diagnostic procedures.