SANTA CRUZ BIOTECHNOLOGY, INC.

NDRG2 siRNA (h): sc-40757

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The N-Myc downstream regulated gene (NDRG) family is comprised of four members, namely NDRG1, NDRG2, NDRG3 and NDRG4, all of which share 57-65% homology. NDRG2 (NDRG family member 2), also known as SYLD, is a 371 amino acid protein that localizes to both the cytoplasm and the perinuclear region in neurons. Expressed at high levels in heart, brain, dendritic cells, salivary gland and skeletal muscle and at lower levels in liver and kidney, NDRG2 is thought to be involved in dendritic and neuronal cell differentiation and outgrowth. Additionally, NDRG2 expression is downregulated in a variety of carcinomas, including liver cancer, pancreatic cancer and meningioma, suggesting a possible role for NDRG2 in tumor suppression. NDRG2 is found in brain lesions of Alzheimer disease (AD)-affected patients and is thought to be associated with the progression of AD. Five isoforms of NDRG2 exist due to alternative splicing events.

REFERENCES

1. Qu, X., et al. 2002. Characterization and expression of three novel differentiation-related genes belong to the human NDRG gene family. Mol. Cell. Biochem. 229: 35-44.
2. Choi, S.C., et al. 2003. Expression and regulation of NDRG2 (N-Myc downstream regulated gene 2) during the differentiation of dendritic cells. FEBS Lett. 553: 413-418.
3. Deng, Y., et al. 2003. N-Myc downstream-regulated gene 2 (NDRG2) inhibits glioblastoma cell proliferation. Int. J. Cancer 106: 342-347.
4. Mitchelmore, C., et al. 2004. NDRG2: a novel Alzheimer's disease associated protein. Neurobiol. Dis. 16: 48-58.

CHROMOSOMAL LOCATION

Genetic locus: NDRG2 (human) mapping to 14q11.2.

PRODUCT

NDRG2 siRNA (h) 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 NDRG2 shRNA Plasmid (h): sc-40757-SH and NDRG2 shRNA (h) Lentiviral Particles: sc-40757-V as alternate gene silencing products.

For independent verification of NDRG2 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-40757A, sc-40757B and sc-40757C.

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

NDRG2 siRNA (h) is recommended for the inhibition of NDRG2 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

NDRG2 (B-10): sc-376202 is recommended as a control antibody for monitoring of NDRG2 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 NDRG2 gene expression knockdown using RT-PCR Primer: NDRG2 (h)-PR: sc-40757-PR (20 µl, 557 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, E.B., et al. 2010. NDRG2-mediated modulation of SOCS3 and Stat3 activity inhibits IL-10 production. Immune Netw. 10: 219-229.
2. Kim, M.J., et al. 2014. N-Myc downstream-regulated gene 2 (NDRG2) suppresses the epithelial-mesenchymal transition (EMT) in breast cancer cells via STAT3/Snail signaling. Cancer Lett. 354: 33-42.
3. Kim, M.J., et al. 2014. NDRG2 controls COX-2/PGE_2-mediated breast cancer cell migration and invasion. Mol. Cells 37: 759-765.
4. Kang, K., et al. 2015. Inhibition of osteoclast differentiation by overexpression of NDRG2 in monocytes. Biochem. Biophys. Res. Commun. 468: 611-616.
5. Fu, Q., et al. 2018. Suppression of microRNA-454 impedes the proliferation and invasion of prostate cancer cells by promoting N-Myc downstream-regulated gene 2 and inhibiting WNT/β-catenin signaling. Biomed. Pharmacother. 97: 120-127.
6. Das, A., et al. 2020. Ganoderic acid A/DM-induced NDRG2 over-expression suppresses high-grade meningioma growth. Clin. Transl. Oncol. 22: 1138-1145.

RESEARCH USE

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