SANTA CRUZ BIOTECHNOLOGY, INC.

NIT2 siRNA (h): sc-78047

BACKGROUND

NIT2 (nitrilase homolog 2) is a 276 amino acid cytoplasmic protein that belongs to the UPF0012 family and contains one CN hydrolase domain. NIT2 exists as a homodimer and has ω-amidase activity. The role of omega-amidase is to remove potentially toxic intermediates by converting α-ketoglutaramate and α-ketosuccinamate to biologically useful α-ketoglutarate and oxaloacetate, respectively. Overexpression of NIT2 decreases the colony-forming capacity of cultured cells by arresting cells in the G_2 phase of the cell cycle. While highly expressed in fetal brain, NIT2 is also expressed in heart, brain, placenta, lung, liver, skeletal muscle, kidney, pancreas, prostate, spleen, thymus, testis, ovary, small intestine and colon. The gene that encodes NIT2 consists of nearly 21,000 bases and maps to human chromosome 3q12.2.

REFERENCES

1. Chiang, T.Y. and Marzluf, G.A. 1994. DNA recognition by the NIT2 nitrogen regulatory protein: importance of the number, spacing, and orientation of GATA core elements and their flanking sequences upon NIT2 binding. Biochemistry 33: 576-582.
2. Xiao, X., et al. 1995. The negative-acting NMR regulatory protein of *Neurospora crassa* binds to and inhibits the DNA-binding activity of the positive-acting nitrogen regulatory protein NIT2. Biochemistry 34: 8861-8868.
3. Feng, B. and Marzluf, G.A. 1998. Interaction between major nitrogen regulatory protein NIT2 and pathway-specific regulatory factor NIT4 is required for their synergistic activation of gene expression in Neurospora crassa. Mol. Cell. Biol. 18: 3983-3990.
4. Pace, H.C., et al. 2000. Crystal structure of the worm NitFhit Rosetta Stone protein reveals a Nit tetramer binding two Fhit dimers. Curr. Biol. 10: 907-917.
5. Myung, J.K., et al. 2003. Deranged hypothetical proteins Rik protein, Nit protein 2 and mitochondrial inner membrane protein, Mitofilin, in fetal Down syndrome brain. Cell. Mol. Biol. 49: 739-746.
6. Lin, C.H., et al. 2007. Growth inhibitory effect of the human NIT2 gene and its allelic imbalance in cancers. FEBS J. 274: 2946-2956.

CHROMOSOMAL LOCATION

Genetic locus: NIT2 (human) mapping to 3q12.2.

PRODUCT

NIT2 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 NIT2 shRNA Plasmid (h): sc-78047-SH and NIT2 shRNA (h) Lentiviral Particles: sc-78047-V as alternate gene silencing products.

For independent verification of NIT2 (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-78047A, sc-78047B and sc-78047C.

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

NIT2 siRNA (h) is recommended for the inhibition of NIT2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NIT2 gene expression knockdown using RT-PCR Primer: NIT2 (h)-PR: sc-78047-PR (20 µl). 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.