SANTA CRUZ BIOTECHNOLOGY, INC.

NUDT5 siRNA (h): sc-75973

BACKGROUND

NUDT5 (nudix (nucleoside diphosphate linked moiety X)-type motif 5), whose alternative names include YSA1, YSA1H, hYSAH1, nudix motif 5, ADP-sugar pyrophosphatase or HSPC115, is a 219 amino acid protein belonging to the nudix hydrolase family. NUDT5 hydrolyzes ADP-ribose and ADP-mannose in the presence of magnesium, and also hydrolyzes other nucleotide sugars with low activity such as ADP-glucose and diadenosine diphosphate. As a nudix hydrolase, NUDT5 contains a central nudix motif and functions to eliminate toxic nucleotide metabolites from the cell while maintaining the levels of signaling nucleotides. NUDT5 is widely expressed but is most abundant in liver as a homodimer.

REFERENCES

1. Gasmi, L., et al. 1999. Cloning, expression and characterization of YSA1H, a human adenosine 5'-diphosphosugar pyro-phosphatase possessing a MutT motif. Biochem. J. 344: 331-337.
2. McLennan, A.G. 1999. The MutT motif family of nucleotide phosphohydrolases in man and human pathogens (review). Int. J. Mol. Med. 4: 79-89.
3. Yang, H., et al. 2000. Cloning and characterization of a new member of the nudix hydrolases from human and mouse. J. Biol. Chem. 275: 8844-8853.
4. Ishibashi, T., et al. 2003. A novel mechanism for preventing mutations caused by oxidation of guanine nucleotides. EMBO Rep. 4: 479-483.
5. Online Mendelian Inheritance in Man, OMIM™. 2005. Johns Hopkins University, Baltimore, MD. MIM Number: 609230. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Zha, M., et al. 2006. Crystal structures of human NUDT5 reveal insights into the structural basis of the substrate specificity. J. Mol. Biol. 364: 1021-1033.
7. Yu, H.N., et al. 2007. Activation of NUDT5, an ADP-ribose pyrophosphatase, by nitric oxide-mediated ADP-ribosylation. Biochem. Biophys. Res. Commun. 354: 764-768.

CHROMOSOMAL LOCATION

Genetic locus: NUDT5 (human) mapping to 10p13.

PRODUCT

NUDT5 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 NUDT5 shRNA Plasmid (h): sc-75973-SH and NUDT5 shRNA (h) Lentiviral Particles: sc-75973-V as alternate gene silencing products.

For independent verification of NUDT5 (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-75973A, sc-75973B and sc-75973C.

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 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

NUDT5 siRNA (h) is recommended for the inhibition of NUDT5 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

NUDT5 (E-4): sc-398644 is recommended as a control antibody for monitoring of NUDT5 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NUDT5 gene expression knockdown using RT-PCR Primer: NUDT5 (h)-PR: sc-75973-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.