

NUDT15 siRNA (m): sc-150105

BACKGROUND

NUDT15 (nudix (nucleoside diphosphate linked moiety X)-type motif 15), also known as MTH2, is a 164 amino acid protein that belongs to the nudix hydrolase family and uses magnesium as a cofactor to catalyze the conversion of 8-oxo-dGTP to 8-oxo-dGMP and diphosphate. Via its catalytic activity, NUDT15 mediates the hydrolysis of select nucleoside diphosphate derivatives and may play a role in the prevention of DNA transversions. The gene encoding NUDT15 maps to human chromosome 13, which houses over 400 genes, such as BRCA2 and RB1, and comprises nearly 4% of the human genome. As with most chromosomes, polysomy of part or all of chromosome 13 is deleterious to development and decreases the odds of survival. Trisomy 13, also known as Patau syndrome, is deadly and the few who survive past one year suffer from permanent neurologic defects, difficulty eating and vulnerability to serious respiratory infections.

REFERENCES

1. Cai, J.P., Ishibashi, T., Takagi, Y., Hayakawa, H. and Sekiguchi, M. 2003. Mouse MTH2 protein which prevents mutations caused by 8-oxoguanine nucleotides. *Biochem. Biophys. Res. Commun.* 305: 1073-1077.
2. Dunham, A., Matthews, L.H., Burton, J., Ashurst, J.L., Howe, K.L., Ashcroft, K.J., Beare, D.M., Burford, D.C., Hunt, S.E., Griffiths-Jones, S., Jones, M.C., Keenan, S.J., Oliver, K., et al. 2004. The DNA sequence and analysis of human chromosome 13. *Nature* 428: 522-528.
3. O'Reilly, M.K., Zhang, G. and Imperiali, B. 2006. *In vitro* evidence for the dual function of Alg2 and Alg11: essential mannosyltransferases in N-linked glycoprotein biosynthesis. *Biochemistry* 45: 9593-9603.
4. Bugge, M., Collins, A., Hertz, J.M., Eiberg, H., Lundsteen, C., Brandt, C.A., Bak, M., Hansen, C., Delozier, C.D., Lespinasse, J., Tranebjaerg, L., Hahnemann, J.M., Rasmussen, K., Bruun-Petersen, G., et al. 2007. Non-disjunction of chromosome 13. *Hum. Mol. Genet.* 16: 2004-2010.
5. Hall, H.E., Chan, E.R., Collins, A., Judis, L., Shirley, S., Surti, U., Hoffner, L., Cockwell, A.E., Jacobs, P.A. and Hassold, T.J. 2007. The origin of trisomy 13. *Am. J. Med. Genet. A* 143: 2242-2248.
6. Hassler, M., Singh, S., Yue, W.W., Luczynski, M., Lakbir, R., Sanchez-Sanchez, F., Bader, T., Pearl, L.H. and Mitnacht, S. 2007. Crystal structure of the retinoblastoma protein N domain provides insight into tumor suppression, ligand interaction and holoprotein architecture. *Mol. Cell* 28: 371-385.
7. Kang, M., Cho, J.W., Kim, J.K., Kim, E., Kim, J.Y., Cho, K.H., Song, C.W. and Yoon, S.K. 2008. Fine localization of a new cataract locus, Kec, on mouse chromosome 14 and exclusion of candidate genes as the gene that causes cataract in the Kec mouse. *BMB Rep.* 41: 651-656.

CHROMOSOMAL LOCATION

Genetic locus: Nudt15 (mouse) mapping to 14 D3.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

NUDT15 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NUDT15 shRNA Plasmid (m): sc-150105-SH and NUDT15 shRNA (m) Lentiviral Particles: sc-150105-V as alternate gene silencing products.

For independent verification of NUDT15 (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-150105A and sc-150105B.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

NUDT15 siRNA (m) is recommended for the inhibition of NUDT15 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 μ M in 66 μ l. 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 NUDT15 gene expression knockdown using RT-PCR Primer: NUDT15 (m)-PR: sc-150105-PR (20 μ l). 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.