SANTA CRUZ BIOTECHNOLOGY, INC.

ALG1 siRNA (m): sc-141009

BACKGROUND

ALG1 (asparagine-linked glycosylation 1), also known as HMT1 or HMAT1, is a 464 amino acid single-pass type II membrane protein that localizes to the endoplasmic reticulum (ER) and belongs to the glucosyltransferase superfamily. Involved in protein modification, ALG1 catalyzes the formation of the lipid-linked precursor oligosaccharide for N-glycosylation and is involved in assembling the precursor on the cytoplasmic side of the ER. Defects in the gene encoding ALG1 are the cause of congenital disorder of glycosylation type 1K (CDG1K), a severe inherited disease that results in a defect in N-glycosylation and is characterized by nervous system disorders, hypotonia, coagulation disorders and psychomotor retardation.

REFERENCES

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2. Takahashi, T., et al. 2000. Cloning of the human cDNA which can complement the defect of the yeast mannosyltransferase I-deficient mutant ALG1. Glycobiology 10: 321-327.
3. Online Mendelian Inheritance in Man, OMIM™ 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 605907. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Schwarz, M., et al. 2004. Deficiency of GDP-Man:GlcNAc2-PP-dolichol mannosyltransferase causes congenital disorder of glycosylation type Ik. Am. J. Hum. Genet. 74: 472-481.
5. Kranz, C., et al. 2004. Congenital disorder of glycosylation type Ik (CDG-Ik): a defect of mannosyltransferase I. Am. J. Hum. Genet. 74: 545-551.
6. Gao, X.D., et al. 2004. Physical interactions between the ALG1, ALG2, and ALG11 mannosyltransferases of the endoplasmic reticulum. Glycobiology 14: 559-570.
7. Grubenmann, C.E., et al. 2004. Deficiency of the first mannosylation step in the N-glycosylation pathway causes congenital disorder of glycosylation type Ik. Hum. Mol. Genet. 13: 535-542.

CHROMOSOMAL LOCATION

Genetic locus: Alg1 (mouse) mapping to 16 A1.

PRODUCT

ALG1 siRNA (m) 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 ALG1 shRNA Plasmid (m): sc-141009-SH and ALG1 shRNA (m) Lentiviral Particles: sc-141009-V as alternate gene silencing products.

For independent verification of ALG1 (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-141009A, sc-141009B and sc-141009C.

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

ALG1 siRNA (m) is recommended for the inhibition of ALG1 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 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 ALG1 gene expression knockdown using RT-PCR Primer: ALG1 (m)-PR: sc-141009-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.