

MagT1 siRNA (m): sc-149231

BACKGROUND

Magnesium, a cofactor for ATP, plays a vital role in metabolic and biochemical processes. The transport of magnesium across membranes is essential for maintaining magnesium homeostasis and is fundamental to vertebrate metabolism. MagT1 (magnesium transporter 1), also known as IAP, MRX95 or OST3B, is a 335 amino acid multi-pass membrane protein that localizes to the endoplasmic reticulum. Expressed in placenta, liver, muscle and pancreas, MagT1 participates in N-glycosylation through its association with N-oligosaccharyl transferase and may be involved in Mg²⁺ transport in epithelial cells. Belonging to the OST3/OST6 family, MagT1 is critical for cellular magnesium uptake and vertebrate embryonic development. Defects in the gene encoding MagT1 are associated with mental retardation X-linked type 95, which is characterized by physical, neurological and/or psychiatric manifestations and intellectual deficiency.

REFERENCES

- Goytain, A., et al. 2005. Identification and characterization of a novel mammalian Mg²⁺ transporter with channel-like properties. *BMC Genomics* 6: 48.
- Schmitz, C., et al. 2007. Molecular components of vertebrate Mg²⁺-homeostasis regulation. *Magnes. Res.* 20: 6-18.
- Sontia, B., et al. 2007. Magnesium transport in hypertension. *Pathophysiology* 14: 205-211.
- Molinari, F., et al. 2008. Oligosaccharyltransferase-subunit mutations in nonsyndromic mental retardation. *Am. J. Hum. Genet.* 82: 1150-1157.
- Schweigel, M., et al. 2008. Expression and functional activity of the Na/Mg exchanger, TRPM7 and MagT1 are changed to regulate Mg homeostasis and transport in rumen epithelial cells. *Magnes. Res.* 21: 118-123.
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CHROMOSOMAL LOCATION

Genetic locus: Magt1 (mouse) mapping to X D.

PRODUCT

MagT1 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 MagT1 shRNA Plasmid (m): sc-149231-SH and MagT1 shRNA (m) Lentiviral Particles: sc-149231-V as alternate gene silencing products.

For independent verification of MagT1 (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-149231A, sc-149231B and sc-149231C.

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

MagT1 siRNA (m) is recommended for the inhibition of MagT1 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 MagT1 gene expression knockdown using RT-PCR Primer: MagT1 (m)-PR: sc-149231-PR (20 μl, 427 bp). 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.