SANTA CRUZ BIOTECHNOLOGY, INC.

MAN2A1 siRNA (m): sc-61927

BACKGROUND

The α-mannosidases (designated MAN1A1, MAN1A2, MAN2A1 and MAN2A2) comprise a group of soluble proteins that localize to the endoplasmic reticulum, the Golgi apparatus or the cytoplasm. Depending on their cellular location, these proteins are involved in either the processing or the degradation of newly synthesized N-glycans. MAN2A1 (mannosidase α class 2A member 1) is a single-pass type II membrane protein that localizes to the cisternae of the Golgi and is involved in protein modification pathways. More specifically, MAN2A1 uses zinc as a cofactor to catalyze the first committed step in the formation of N-glycans, namely the hydrolysis of the terminal α-D-mannose residues in the oligosaccharide Man5(GlcNAc)3.

REFERENCES

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1. Moremen, K.W. and Robbins, P.W. 1991. Isolation, characterization, and expression of cDNAs encoding murine α-mannosidase II, a Golgi enzyme that controls conversion of high mannose to complex N-glycans. J. Cell Biol. 115: 1521-1534.
2. Misago, M., et al. 1995. Molecular cloning and expression of cDNAs encoding human α-mannosidase II and a previously unrecognized α-mannosidase IIx isozyme. Proc. Natl. Acad. Sci. USA 92: 11766-11770.
3. Chui, D., et al. 1997. α-mannosidase-II deficiency results in dyserythropoiesis and unveils an alternate pathway in oligosaccharide biosynthesis. Cell 90: 157-167.
4. Chui, D., et al. 2001. Genetic remodeling of protein glycosylation *in vivo* induces autoimmune disease. Proc. Natl. Acad. Sci. USA 98: 1142-1147.
5. Hart, M.L., et al. 2003. Glycosylation inhibitors and neuraminidase enhance human immunodeficiency virus type 1 binding and neutralization by mannose-binding lectin. J. Gen. Virol. 84: 353-360.
6. Liu, T., et al. 2005. Human plasma N-glycoproteome analysis by immunoaffinity subtraction, hydrazide chemistry, and mass spectrometry. J. Proteome Res. 4: 2070-2080.

CHROMOSOMAL LOCATION

Genetic locus: Man2a1 (mouse) mapping to 17 E1.1.

PRODUCT

MAN2A1 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. Suit-able for 50-100 transfections. Also see MAN2A1 shRNA Plasmid (m): sc-61927-SH and MAN2A1 shRNA (m) Lentiviral Particles: sc-61927-V as alternate gene silencing products.

For independent verification of MAN2A1 (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-61927A, sc-61927B and sc-61927C.

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

MAN1A siRNA (m) is recommended for the inhibition of MAN1A 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.

GENE EXPRESSION MONITORING

MAN2A1 (F-10): sc-376909 is recommended as a control antibody for monitoring of MAN2A1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MAN2A1 gene expression knockdown using RT-PCR Primer: MAN2A1 (m)-PR: sc-61927-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.