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MCT9 siRNA (m): sc-149328

BACKGROUND

Monocarboxylates, such as lactate and pyruvate, play an integral role in cellular metabolism. Lactic acid is produced in large quantities as a result of glycolysis, which provides the majority of ATP to cells under normal physiological conditions. However, accumulation of lactic acid leads to a decrease in intracellular pH and, thus, to a cessation of glycolysis. In order for glycolysis to continue at a high rate, lactic acid must be transported out of the cell. This transport process is carried out by a family of monocarboxylate transporters (MCTs), which function as proton symports and are stereoselective for L-lactate. MCT9 (monocarboxylate transporter 9), also known as SLC16A9 (solute carrier family 16, member 9 (monocarboxylic acid transporter 9)) or C10orf36, is a 509 amino acid multi-pass membrane protein that belongs to the major facilitator superfamily. Like other MCT proteins, MCT9 functions as a monocarboxylate transporter that catalyzes the rapid proton-linked transport of monocarboxylates across the plasma membrane.

REFERENCES

1. Halestrap, A.P. and Price, N.T. 1999. The proton-linked monocarboxylate transporter (MCT) family: structure, function and regulation. *Biochem. J.* 343: 281-299.
2. Juel, C. and Halestrap, A.P. 1999. Lactate transport in skeletal muscle-role and regulation of the monocarboxylate transporter. *J. Physiol.* 517: 633-642.
3. Halestrap, A.P. and Meredith, D. 2004. The SLC16 gene family-from monocarboxylate transporters (MCTs) to aromatic amino acid transporters and beyond. *Pflugers Arch.* 447: 619-628.
4. Koho, N.M., Hyypää, S. and Pösö, A.R. 2006. Monocarboxylate transporters (MCT) as lactate carriers in equine muscle and red blood cells. *Equine Vet. J. Suppl.* 354-358.

CHROMOSOMAL LOCATION

Genetic locus: Slc16a9 (mouse) mapping to 10 B5.3.

PRODUCT

MCT9 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MCT9 shRNA Plasmid (m): sc-149328-SH and MCT9 shRNA (m) Lentiviral Particles: sc-149328-V as alternate gene silencing products.

For independent verification of MCT9 (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-149328A, sc-149328B and sc-149328C.

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.

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

MCT9 siRNA (m) is recommended for the inhibition of MCT9 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 MCT9 gene expression knockdown using RT-PCR Primer: MCT9 (m)-PR: sc-149328-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.