SANTA CRUZ BIOTECHNOLOGY, INC.

Galactose Mutarotase siRNA (h): sc-72266

BACKGROUND

Galactose Mutarotase is a member of the aldose epimerase family and is involved in hexose metabolism. Through its catalytic activity, Galactose Mutarotase converts β-aldose to α-aldose on several sugars, including D-glucose, L-arabinose and D-xylose. Found in the cytoplasm of most cells, Galactose Mutarotase plays a key role in galactose metabolism by catalyzing the conversion of β-D-galactose to α-D-galactose. The enzyme contains two residues, Glu 304 and His 170, that are critical for catalysis, as well as His 96 and Asp 243, which are important for proper substrate recognition by the active site. No known diseases have been associated with mutations in the Galactose Mutarotase gene, although inhibition of Galactose Mutarotase activity could potentially be associated with a build-up of unmetabolized sugars during metabolism.

REFERENCES

1. Beebe, J.A. and Frey, P.A. 1998. Galactose Mutarotase: purification, characterization, and investigations of two important histidine residues. Biochemistry 37: 14989-14997.
2. Beebe, J.A., et al. 2003. Galactose Mutarotase: pH dependence of enzymatic mutarotation. Biochemistry 42: 4414-4420.
3. Thoden, J.B., et al. 2003. The catalytic mechanism of Galactose Mutarotase. Protein Sci. 12: 1051-1059.
4. Thoden, J.B., et al. 2004. Molecular structure of human Galactose Mutarotase. J. Biol. Chem. 279: 23431-23437.
5. Kim, I., et al. 2004. Ribose utilization with an excess of mutarotase causes cell death due to accumulation of methylglyoxal. J. Bacteriol. 186: 7229-7235.
6. Thoden, J.B. and Holden, H.M. 2005. The molecular architecture of Galactose Mutarotase/UDP-galactose 4-epimerase from *Saccharomyces cerevisiae*. J. Biol. Chem. 280: 21900-21907.

CHROMOSOMAL LOCATION

Genetic locus: GALM (human) mapping to 2p22.1.

PRODUCT

Galactose Mutarotase siRNA (h) 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 Galactose Mutarotase shRNA Plasmid (h): sc-72266-SH and Galactose Mutarotase shRNA (h) Lentiviral Particles: sc-72266-V as alternate gene silencing products.

For independent verification of Galactose Mutarotase (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-72266A, sc-72266B and sc-72266C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

Galactose Mutarotase siRNA (h) is recommended for the inhibition of Galactose Mutarotase expression in human 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

Galactose Mutarotase (H-7): sc-166304 is recommended as a control antibody for monitoring of Galactose Mutarotase 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Galactose Mutarotase gene expression knockdown using RT-PCR Primer: Galactose Mutarotase (h)-PR: sc-72266-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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