SANTA CRUZ BIOTECHNOLOGY, INC.

Glut6 siRNA (h): sc-60699

BACKGROUND

The oxidation of glucose functions as the dominant source of metabolic energy for mammals. The plasma membrane is impermeable to glucose, so the cellular uptake of this important nutrient is achieved by facultative hexose transproters (Gluts). Gluts are integral membrane proteins that transport glucose and related hexoses. Glucose binds to a Glut on one side of the membrane which provokes a conformational change causing it to release glucose to the other side. Members of the Glut family may enhance the metabolic activity of tumor cells. Glut6 is part of the third out of three classes of Gluts. Glut6 is mainly expressed in the brain, spleen and peripheral leukocytes. It appears to be regulated by subcellular redistribution, because it is targeted to intracellular compartments by di-leucine motifs, recycling itself in a Dynamin-dependent manner.

REFERENCES

1. Bell, G.I., et al. 1990. Molecular biology of mammalian glucose transporters. Diabetes Care 13: 198-208.
2. Kayano, T., et al. 1990. Human facilitative glucose transporters. Isolation, functional characterization, and gene localization of cDNAs encoding an isoform (Glut5) expressed in small intestine, kidney, muscle, and adipose tissue and an unusual glucose transporter pseudogene-like sequence (Glut6). J. Biol. Chem. 265: 13276-13282.
3. Lisinski, I., et al. 2001. Targeting of Glut6 (formerly Glut9) and Glut8 in rat adipose cells. Biochem. J. 358: 517-522.
4. Joost, H.G. and Thorens, B. 2002. The extended Glut-family of sugar/polyol transport facilitators: nomenclature, sequence characteristics, and potential function of its novel members. Mol. Membr. Biol. 18: 247-256.
5. Scheepers, A., et al. 2004. The glucose transporter families SGLT and Glut: molecular basis of normal and aberrant function. JPEN J. Parenter. Enteral Nutr. 28: 364-371.
6. Kono, T., et al. 2005. Characterisation of glucose transporter (Glut) gene expression in broiler chickens. Br. Poult. Sci. 46: 510-515.
7. Macheda, M.L., et al. 2005. Molecular and cellular regulation of glucose transporter (Glut) proteins in cancer. J. Cell. Physiol. 202: 654-662.

CHROMOSOMAL LOCATION

Genetic locus: SLC2A6 (human) mapping to 9q34.2.

PRODUCT

Glut6 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 Glut6 shRNA Plasmid (h): sc-60699-SH and Glut6 shRNA (h) Lentiviral Particles: sc-60699-V as alternate gene silencing products.

For independent verification of Glut6 (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-60699A, sc-60699B and sc-60699C.

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

Glut6 siRNA (h) is recommended for the inhibition of Glut6 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

Glut6 (B-3): sc-373973 is recommended as a control antibody for monitoring of Glut6 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 Glut6 gene expression knockdown using RT-PCR Primer: Glut6 (h)-PR: sc-60699-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.