SANTA CRUZ BIOTECHNOLOGY, INC.

Glut2 siRNA (h): sc-35495

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The Power to Question

BACKGROUND

Glucose is fundamental to the metabolism of mammalian cells. Its passage across cell membranes is mediated by a family of transporters termed glucose transporters or Gluts. Glut1, Glut3 and Glut4 are high-affinity transporters, whereas Glut2 is a low-affinity transporter. In adipose and muscle tissue, Insulin stimulates a rapid and dramatic increase in glucose uptake, which is largely due to the redistribution of the Insulin-inducible glucose transporter Glut4. In response to Insulin, Glut4 is quickly shuttled from an intracellular storage site to the plasma membrane, where it binds glucose. In contrast, the ubiquitously expressed glucose transporter Glut1 is constitutively targeted to the plasma membrane and shows a much less dramatic translocation in response to Insulin. Glut2 expression is seen in pancreatic β cells, hepatocytes and basolateral membranes of intestinal and epithelial cells, while the highest expression of Glut3 has been found in neuronal tissue.

REFERENCES

1. Mueckler, M. 1994. Facilitative glucose transporters. Eur. J. Biochem. 219: 713-725.
2. Livingstone, C., et al. 1995. Hypothalamic Glut4 expression: a glucose- and Insulin-sensing mechanism? Mol. Endocrinol. 107: 67-70.
3. Kandror, K.V., et al. 1995. Expression and compartmentalization of caveolin in adipose cells: coordinate regulation with and structural segregation from Glut4. J. Cell Biol. 129: 999-1006.
4. Hajduch, E., et al. 1995. Regulation of glucose transporters in cultured rat adipocytes: synergistic effect of Insulin and dexamethasone on Glut4 gene expression through promoter activation. Endocrinology 136: 4782-4789.

CHROMOSOMAL LOCATION

Genetic locus: SLC2A2 (human) mapping to 3q26.2.

PRODUCT

Glut2 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 Glut2 shRNA Plasmid (h): sc-35495-SH and Glut2 shRNA (h) Lentiviral Particles: sc-35495-V as alternate gene silencing products.

For independent verification of Glut2 (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-35495A, sc-35495B and sc-35495C.

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

Glut2 siRNA (h) is recommended for the inhibition of Glut2 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

Glut2 (C-10): sc-518022 is recommended as a control antibody for monitoring of Glut2 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 Glut2 gene expression knockdown using RT-PCR Primer: Glut2 (h)-PR: sc-35495-PR (20 µl, 595 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Mariggiò, S., et al. 2006. Molecular characterization of a glycerophosphoinositol transporter in mammalian cells. FEBS Lett. 580: 6789-6796.
2. Zou, T.B., et al. 2014. The role of sodium-dependent glucose transporter 1 and glucose transporter 2 in the absorption of cyanidin-3-O-β-glucoside in Caco-2 cells. Nutrients 6: 4165-4177.
3. Hinden, L., et al. 2018. Modulation of renal Glut2 by the cannabinoid-1 receptor: implications for the treatment of diabetic nephropathy. J. Am. Soc. Nephrol. 29: 434-448.
4. Seo, E., et al. 2019. Reactive oxygen species-induced changes in glucose and lipid metabolism contribute to the accumulation of cholesterol in the liver during aging. Aging Cell 18: e12895.

RESEARCH USE

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