SANTA CRUZ BIOTECHNOLOGY, INC.

Glut1 (N-20): sc-1603

SANTA CRUZ BIOTECHNOLOGY

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. 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. Glut1 and Glut4 are 12 pass transmembrane proteins (12TM) whose carboxy-termini may dictate their cellular localization. Aberrant Glut4 expression has been suggested to contribute to such maladies as obesity and diabetes. Glut4 null mice have shown that while functional Glut4 protein is not required for maintaining normal glucose levels, it is necessary for sustained growth, normal cellular glucose, fat metabolism and prolonged longevity.

CHROMOSOMAL LOCATION

Genetic locus: SLC2A1 (human) mapping to 1p34.2; Slc2a1 (mouse) mapping to 4 D2.1.

SOURCE

Glut1 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Glut1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-1603 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Glut1 (N-20) is recommended for detection of Glut1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Glut1 (N-20) is also recommended for detection of Glut1 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for Glut1 siRNA (h): sc-35493, Glut1 siRNA (m): sc-35494, Glut1 shRNA Plasmid (h): sc-35493-SH, Glut1 shRNA Plasmid (m): sc-35494-SH, Glut1 shRNA (h) Lentiviral Particles: sc-35493-V and Glut1 shRNA (m) Lentiviral Particles: sc-35494-V.

Molecular Weight of Glut1: 55 kDa.

Positive Controls: H4 cell lysate: sc-2408.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

SELECT PRODUCT CITATIONS

1. Robey, R.B., et al. 2002. Regulation of mesangial cell hexokinase activity and expression by heparin-binding epidermal growth factor-like growth factor: epidermal growth factors and phorbol esters increase glucose metabolism via a common mechanism involving classic mitogen-activated protein kinase pathway activation and induction of hexokinase II expression. J. Biol. Chem. 277: 14370-14378.
2. Barata, J.T., et al. 2004. Activation of PI3K is indispensable for interleukin 7-mediated viability, proliferation, glucose use, and growth of T cell acute lymphoblastic leukemia cells. J. Exp. Med. 200: 659-669.
3. Maraldi, T., et al. 2006. Glucose transport activation in human hematopoietic cells M07e is modulated by cytosolic calcium and calmodulin. Cell Calcium 40: 373-381.
4. Calvert, J.W., et al. 2006. Oxygen treatment after experimental hypoxia-ischemia in neonatal rats alters the expression of HIF-1α and its downstream target genes. J. Appl. Physiol. 101: 853-865.
5. Zhou, L., et al. 2007. Berberine stimulates glucose transport through a mechanism distinct from Insulin. Metab. Clin. Exp. 56: 405-412.
6. Fonnes, V.L.S. 2008. Tenative longterm eddects of a noradrenergic antidepressant; Affecting the number of glucose transporters. Mastergrad. E-published.
7. Grijota-Martínez, C., et al. 2011. Lack of action of exogenously administered T3 on the fetal rat brain despite expression of the monocarboxylate transporter 8. Endocrinology 152: 1713-1721.
8. Caliceti C., et al. 2012. Effect of plasma membrane cholesterol depletion on glucose transport regulation in leukemia cells. PLoS ONE 7: e41246.
9. Laird, R.M., et al. 2013. $\gamma\delta$ T cells acquire effector fates in the thymus and differentiate into cytokine-producing effectors in a listeria model of infection independently of CD28 costimulation. PLoS ONE 8: e63178.
10. Patsoukis, N., et al. 2015. PD-1 alters T-cell metabolic reprogramming by inhibiting glycolysis and promoting lipolysis and fatty acid oxidation. Nat. Commun. 6: 6692.

RESEARCH USE

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

PROTOCOLS

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