SANTA CRUZ BIOTECHNOLOGY, INC.

Glut4 (IF8): sc-53566

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: SLC2A4 (human) mapping to 17p13.1; Slc2a4 (mouse) mapping to 11 B3.

SOURCE

Glut4 (IF8) is a mouse monoclonal antibody raised against partially purified vesicles containing Glut4 derived from rat adipocytes.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Glut4 (IF8) is available conjugated to agarose (sc-53566 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53566 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53566 PE), fluorescein (sc-53566 FITC), Alexa Fluor® 488 (sc-53566 AF488), Alexa Fluor® 546 (sc-53566 AF546), Alexa Fluor® 594 (sc-53566 AF594) or Alexa Fluor® 647 (sc-53566 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53566 AF680) or Alexa Fluor® 790 (sc-53566 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Glut4 (IF8) is recommended for detection of Glut4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

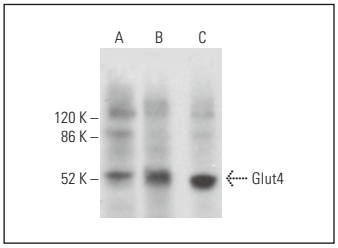
Suitable for use as control antibody for Glut4 siRNA (h): sc-41220, Glut4 siRNA (m): sc-41221, Glut4 siRNA (r): sc-270138, Glut4 shRNA Plasmid (h): sc-41220-SH, Glut4 shRNA Plasmid (m): sc-41221-SH, Glut4 shRNA Plasmid (r): sc-270138-SH, Glut4 shRNA (h) Lentiviral Particles: sc-41220-V, Glut4 shRNA (m) Lentiviral Particles: sc-41221-V and Glut4 shRNA (r) Lentiviral Particles: sc-270138-V.

Molecular Weight of Glut4: 50-63 kDa.

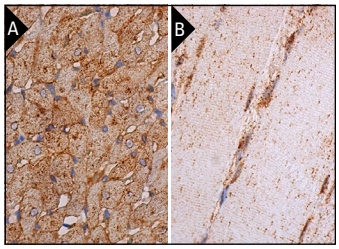
STORAGE

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

DATA



Glut4 (IF8): sc-53566. Western blot analysis of Glut4 expression in mouse skeletal muscle (**A**), mouse heart (**B**) and mouse tongue (**C**) tissue extracts.



Glut4 (IF8): sc-53566. Immunoperoxidase staining of formalin fixed, paraffin-embedded rat heart muscle tissue showing membrane and cytoplasmic staining of myocytes (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded rat skeletal muscle tissue showing perinuclear and cytoplasmic staining of myocytes (**B**).

SELECT PRODUCT CITATIONS

1. Guilherme, A., et al. 2004. EHD2 and the novel EH domain binding protein EHBP1 couple endocytosis to the Actin cytoskeleton. J. Biol. Chem. 279: 10593-10605.
2. Pereira, B.C., et al. 2016. Excessive training impairs the insulin signal transduction in mice skeletal muscles. J. Endocrinol. 230: 93-104.
3. Khalil, S.R., et al. 2017. Imidacloprid insecticide exposure induces stress and disrupts glucose homeostasis in male rats. Environ. Toxicol. Pharmacol. 55: 165-174.
4. Lund, J., et al. 2018. Utilization of lactic acid in human myotubes and interplay with glucose and fatty acid metabolism. Sci. Rep. 8: 9814.
5. Maric, T., et al. 2019. Bioluminescent-based imaging and quantification of glucose uptake *in vivo*. Nat. Methods 16: 526-532.
6. Loza-Rodríguez, H., et al. 2020. Oleanolic acid induces a dual agonist action on PPARγ/α and GLUT4 translocation: a pentacyclic triterpene for dyslipidemia and type 2 diabetes. Eur. J. Pharmacol. 883: 173252.
7. Jung, S.R., et al. 2021. Lithium enhances exercise-induced glycogen breakdown and Insulin-induced Akt activation to facilitate glucose uptake in rodent skeletal muscle. Pflugers Arch. 473: 673-682.
8. Langer, H.T., et al. 2022. Dominant-negative p53-overexpression in skeletal muscle induces cell death and fiber atrophy in rats. Cell Death Dis. 13: 716.
9. Rogacka, D., et al. 2023. Inhibition of phosphodiesterase 5A by tadalafil improves SIRT1 expression and activity in Insulin-resistant podocytes. Cell. Signal. 105: 110622.

RESEARCH USE

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