SANTA CRUZ BIOTECHNOLOGY, INC.

Glycogenin-1 (E-11): sc-271109

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Glycogen synthesis is initiated by the autoglucosylation of Glycogenin-1. Specifically, Glycogenin-1 glucosylates itself to begin the synthesis of glycogen in mammalian skeletal muscle. It acts as the primer to which further glucose monomers may be added. All of the Glycogenin-1 molecules contain at least one glucosyl residue before autoglucosylation begins. The first step of the glycogen synthesis occurs when a glucose molecule from UDP-glucose binds to the hydroxyl group of Tyr 194 on the Glycogenin-1 molecule. Using its glucosyltransferase activity, Glycogenin-1 adds more glucoses, each one coming from UDP-glucose. The glycosylation process reaches a plateau when five new glucose residues have been added, at which point glycogen synthase (GS) takes over and further elongates the chain. Glycogenin-1 remains covalently attached to the reducing end of the glycogen molecule.

CHROMOSOMAL LOCATION

Genetic locus: GYG1 (human) mapping to 3q24; Gyg (mouse) mapping to 3 A2.

SOURCE

Glycogenin-1 (E-11) is a mouse monoclonal antibody raised against amino acids 311-350 mapping at the C-terminus of Glycogenin-1 of human origin.

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.

Glycogenin-1 (E-11) is available conjugated to agarose (sc-271109 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271109 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271109 PE), fluorescein (sc-271109 FITC), Alexa Fluor® 488 (sc-271109 AF488), Alexa Fluor® 546 (sc-271109 AF546), Alexa Fluor® 594 (sc-271109 AF594) or Alexa Fluor® 647 (sc-271109 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271109 AF680) or Alexa Fluor® 790 (sc-271109 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Glycogenin-1 (E-11) is recommended for detection of Glycogenin-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Glycogenin-1 siRNA (h): sc-60701, Glycogenin-1 siRNA (m): sc-60702, Glycogenin-1 shRNA Plasmid (h): sc-60701-SH, Glycogenin-1 shRNA Plasmid (m): sc-60702-SH, Glycogenin-1 shRNA (h) Lentiviral Particles: sc-60701-V and Glycogenin-1 shRNA (m) Lentiviral Particles: sc-60702-V.

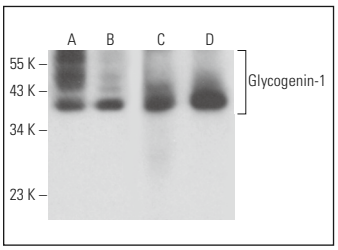
Molecular Weight of Glycogenin-1: 37 kDa.

Positive Controls: 3T3-L1 cell lysate: sc-2243, mouse kidney extract: sc-2255 or mouse ovary extract: sc-2404.

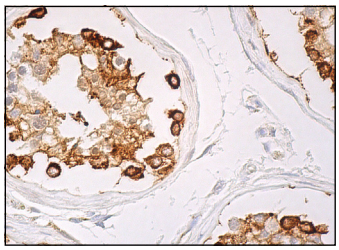
STORAGE

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

DATA



Glycogenin-1 (E-11): sc-271109. Western blot analysis of Glycogenin-1 expression in L6 (**A**) and 3T3-L1 (**B**) whole cell lysates and mouse kidney (**C**) and mouse ovary (**D**) tissue extracts.



Glycogenin-1 (E-11): sc-271109. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic staining of cells in seminiferous ducts.

SELECT PRODUCT CITATIONS

1. Hedberg-Oldfors, C., et al. 2018. Polyglucosan myopathy and functional characterization of a novel GYG1 mutation. Acta Neurol. Scand. 137: 308-315.
2. Liu, X., et al. 2020. Metformin and Berberine suppress glycogenolysis by inhibiting glycogen phosphorylase and stabilizing the molecular structure of glycogen in db/db mice. Carbohydr. Polym. 243: 116435.
3. Lytridou, A.A., et al. 2020. Stbd1 promotes glycogen clustering during endoplasmic reticulum stress and supports survival of mouse myoblasts. J. Cell Sci. 133: jcs244855.
4. Wang, X.J., et al. 2021. Loss of autophagy causes increased apoptosis of tibial plateau chondrocytes in guinea pigs with spontaneous osteoarthritis. Cartilage 13: 796S-807S.
5. Broadwin, M., et al. 2023. Impaired cardiac glycolysis and glycogen depletion are linked to poor myocardial outcomes in juvenile male swine with metabolic syndrome and ischemia. Physiol. Rep. 11: e15742.
6. Visuttijai, K., et al. 2024. Proteomic profiling of polyglucosan bodies associated with glycogenin-1 deficiency in skeletal muscle. Neuropathol. Appl. Neurobiol. 50: e12995.
7. Yu, X., et al. 2024. Acetyl-CoA metabolism maintains histone acetylation for syncytialization of human placental trophoblast stem cells. Cell Stem Cell 31: 1280-1297.e7.
8. Manolis, D., et al. 2024. Quantitative proteomics reveals CLR interactome in primary human cells. J. Biol. Chem. 300: 107399.

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.