SANTA CRUZ BIOTECHNOLOGY, INC.

Glycogenin-1 (m): 293T Lysate: sc-120524

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.

REFERENCES

1. Pitcher, J., Smythe, C. and Cohen, P. 1988. Glycogenin is the priming glucosyltransferase required for the initiation of glycogen biogenesis in rabbit skeletal muscle. Eur. J. Biochem. 176: 391-395.
2. van Maanen, M., Fournier, P.A., Palmer, T.N. and Abraham, L.J. 1999. Characterization of mouse Glycogenin-1 cDNA and promoter region. Biochim. Biophys. Acta 1447: 284-290.
3. Skurat, A.V., Dietrich, A.D., Zhai, L. and Roach, P.J. 2002. GNIP, a novel protein that binds and activates glycogenin, the self-glucosylating initiator of glycogen biosynthesis. J. Biol. Chem. 277: 19331-19338.
4. Ugalde, J.E., Parodi, A.J. and Ugalde, R.A. 2003. *De novo* synthesis of bacterial glycogen: *Agrobacterium tumefaciens* glycogen synthase is involved in glucan initiation and elongation. Proc. Natl. Acad. Sci. USA 100: 10659-10663.
5. van Loon, L.J., Murphy, R., Oosterlaar, A.M., Cameron-Smith, D., Hargreaves, M., Wagenmakers, A.J. and Snow, R. 2004. Creatine supplementation increases glycogen storage but not Glut4 expression in human skeletal muscle. Clin. Sci. 106: 99-106.
6. Lomako, J., Lomako, W.M. and Whelan, W.J. 2004. Glycogenin-1: the primer for mammalian and yeast glycogen synthesis. Biochim. Biophys. Acta 1673: 45-55.
7. Schilling, S., Hoffmann, T., Manhart, S., Hoffmann, M. and Demuth, H.U. 2004. Glutaminyl cyclases unfold glutamyl cyclase activity under mild acid conditions. FEBS Lett. 563: 191-196.

CHROMOSOMAL LOCATION

Genetic locus: Gyg (mouse) mapping to 3 A2.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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

PRODUCT

Glycogenin-1 (m): 293T Lysate represents a lysate of mouse Glycogenin-1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

Glycogenin-1 (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive Glycogenin-1 antibodies. Recommended use: 10-20 µl per lane.

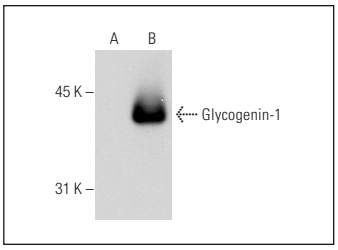
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

Glycogenin-1 (4H8): sc-100537 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse Glycogenin-1 expression in Glycogenin-1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

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.

DATA



Glycogenin-1 (4H8): sc-100537. Western blot analysis of Glycogenin-1 expression in non-transfected: sc-117752 (**A**) and mouse Glycogenin-1 transfected: sc-120524 (**B**) 293T whole cell lysates.

RESEARCH USE

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