SANTA CRUZ BIOTECHNOLOGY, INC.

O-GlcNAc transferase (C-10): sc-376253

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The Power to Question

BACKGROUND

O-linked N-acetylglucosamine (O-GlcNAc) transferase (also designated OGT) catalyzes the addition of a single N-acetylglucosamine in O-glycosidic linkage to serine or threonine residues. Since both phosphorylation and glycosylation compete for similar serine or threonine residues, the two processes may compete for sites, or they may alter the substrate specificity of nearby sites by steric or electrostatic effects. O-GlcNAc transferase has been purified from rat liver. It exists as a heterotrimeric complex with two subunits of the same molecular mass and one shorter subunit. Both polypeptides are related; the short subunit band is either a proteolytic product of the polypeptide or the product of an alternative translation start site. O-GlcNAc transferase is expressed as multiple transcripts that are present in different amounts in various human tissues, with the highest levels of expression in pancreas. Immunofluorescence of human cells expressing rat O-GlcNAc transferase indicated that it is present in both the nucleus and cytosol. HeLa cells expressing O-GlcNAc transferase do not survive well during prolonged incubations, suggesting that this protein may be toxic to the cells.

REFERENCES

1. Haltiwanger, R.S., et al. 1992. Glycosylation of nuclear and cytoplasmic proteins. Purification and characterization of a uridine diphospho-N-acetylglucosamine:polypeptide β-N-acetylglucosaminyltransferase. J. Biol. Chem. 267: 9005-9013.
2. Kreppel, L.K., et al. 1997. Dynamic glycosylation of nuclear and cytosolic proteins. Cloning and characterization of a unique O-GlcNAc transferase with multiple tetratricopeptide repeats. J. Biol. Chem. 272: 9308-9315.
3. Lubas, W.A., et al. 1997. O-linked GlcNAc transferase is a conserved nucleocytoplasmic protein containing tetratricopeptide repeats. J. Biol. Chem. 272: 9316-9324.
4. Shafi, R., et al. 2000. The O-GlcNAc transferase gene resides on the X chromosome and is essential for embryonic stem cell viability and mouse ontogeny. Proc. Natl. Acad. Sci. USA 97: 5735-5739.
5. Akimoto, Y., et al. 2003. Localization of the O-GlcNAc transferase and O-GlcNAc-modified proteins in rat cerebellar cortex. Brain Res. 966: 194-205.

CHROMOSOMAL LOCATION

Genetic locus: OGT (human) mapping to Xq13.1; Ogt (mouse) mapping to X D.

SOURCE

O-GlcNAc transferase (C-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 927-961 within an internal region of O-GlcNAc transferase of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-376253 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

O-GlcNAc transferase (C-10) is recommended for detection of O-GlcNAc transferase 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).

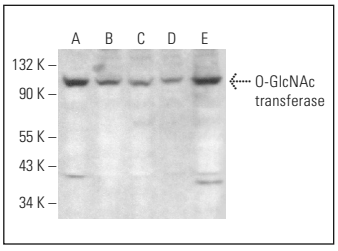
O-GlcNAc transferase (C-10) is also recommended for detection of O-GlcNAc transferase in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for O-GlcNAc transferase siRNA (h): sc-40780, O-GlcNAc transferase siRNA (m): sc-40781, O-GlcNAc transferase siRNA (r): sc-156078, O-GlcNAc transferase shRNA Plasmid (h): sc-40780-SH, O-GlcNAc transferase shRNA Plasmid (m): sc-40781-SH, O-GlcNAc transferase shRNA Plasmid (r): sc-156078-SH, O-GlcNAc transferase shRNA (h) Lentiviral Particles: sc-40780-V, O-GlcNAc transferase shRNA (m) Lentiviral Particles: sc-40781-V and O-GlcNAc transferase shRNA (r) Lentiviral Particles: sc-156078-V.

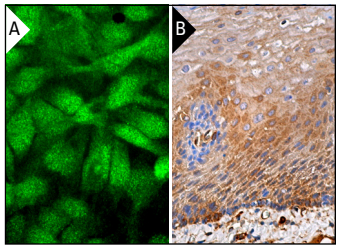
Molecular Weight of O-GlcNAc transferase: 110 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409, HL-60 whole cell lysate: sc-2209 or c4 whole cell lysate: sc-364186.

DATA



O-GlcNAc transferase (C-10): sc-376253. Western blot analysis of O-GlcNAc transferase expression in IMR-32 (**A**), HL-60 (**B**), c4 (**C**), EOC 20 (**D**) and C6 (**E**) whole cell lysates.



O-GlcNAc transferase (C-10): sc-376253. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear and cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic staining of squamous epithelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Na, H.J., et al. 2020. Nutrient-driven O-GlcNAcylation controls DNA damage repair signaling and stem/progenitor cell homeostasis. Cell Rep. 31: 107632.

STORAGE

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

RESEARCH USE

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