SANTA CRUZ BIOTECHNOLOGY, INC.

GlcAT-S (C-12): sc-167981

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

GlcAT-S (glucuronosyltransferase-S), also known as B3GAT2 (β-1,3-glucuronyltransferase 2), is a 323 amino acid Golgi apparatus single-pass type II membrane protein that belongs to the glycosyltransferase 43 family. GlcAT-S is expressed in trachea, retina, spinal cord, hippocampus and other brain regions, and, at lower levels in testis and ovary. Existing as a homodimer, GlcAT-S is involved in the biosynthesis of CD57 (also known as HNK-1) carbohydrate epitope, a sulfated trisaccharide implicated in cellular migration and adhesion in the nervous system. GlcAT-S catalyzes the transfer of a β-1,3 linked glucuronic acid to a terminal galactose in different glycoproteins or glycolipids containing a Gal-β-1-4GlcNAc or Gal-β-1-3GlcNAc residue. It has been suggested that inflammatory cytokines, such as TNFα, stimulate GlcAT-S gene expression in brain and promote T cell adhesion via SGPG-L-selectin recognition, a preliminary step for onset of neuroinflammation.

REFERENCES

1. Imiya, K., Ishizaki, T., Seiki, T., Saito, F., Inazawa, J., Oka, S. and Kawasaki, T. 2002. cDNA cloning, genomic structure and chromosomal mapping of the mouse glucuronyltransferase-S involved in the biosynthesis of the HNK-1 carbohydrate epitope. Gene 296: 29-36.
2. Marcos, I., Galán, J.J., Borrego, S. and Antiñolo, G. 2002. Cloning, characterization, and chromosome mapping of the human GlcAT-S gene. J. Hum. Genet. 47: 677-680.
3. Kakuda, S., Oka, S. and Kawasaki, T. 2004. Purification and characterization of two recombinant human glucuronyltransferases involved in the biosynthesis of HNK-1 carbohydrate in *Escherichia coli*. Protein Expr. Purif. 35: 111-119.
4. Kizuka, Y., Matsui, T., Takematsu, H., Kozutsumi, Y., Kawasaki, T. and Oka, S. 2006. Physical and functional association of glucuronyltransferases and sulfotransferase involved in HNK-1 biosynthesis. J. Biol. Chem. 281: 13644-13651.
5. Shiba, T., Kakuda, S., Ishiguro, M., Morita, I., Oka, S., Kawasaki, T., Wakatsuki, S. and Kato, R. 2006. Crystal structure of GlcAT-S, a human glucuronyltransferase, involved in the biosynthesis of the HNK-1 carbohydrate epitope. Proteins 65: 499-508.
6. Inoue, M., Kato, K., Matsuhashi, H., Kizuka, Y., Kawasaki, T. and Oka, S. 2007. Distributions of glucuronyltransferases, GlcAT-P and GlcAT-S, and their target substrate, the HNK-1 carbohydrate epitope in the adult mouse brain with or without a targeted deletion of the GlcAT-P gene. Brain Res. 1179: 1-15.
7. Dasgupta, S., Yanagisawa, M., Krishnamurthy, K., Liour, S.S. and Yu, R.K. 2007. Tumor necrosis factor-α upregulates glucuronosyltransferase gene expression in human brain endothelial cells and promotes T cell adhesion. J. Neurosci. Res. 85: 1086-1094.
8. Kizuka, Y., Kobayashi, K., Kakuda, S., Nakajima, Y., Itoh, S., Kawasaki, N. and Oka, S. 2008. Laminin-1 is a novel carrier glycoprotein for the nonsulfated HNK-1 epitope in mouse kidney. Glycobiology 18: 331-338.

CHROMOSOMAL LOCATION

Genetic locus: B3GAT2 (human) mapping to 6q13; B3gat2 (mouse) mapping to 1 A5.

SOURCE

GlcAT-S (C-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of GlcAT-S 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-167981 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GlcAT-S (C-12) is recommended for detection of GlcAT-S 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); non cross-reactive with GlcAT-I.

GlcAT-S (C-12) is also recommended for detection of GlcAT-S in additional species, including canine, bovine, porcine and avian.

Suitable for use as control antibody for GlcAT-S siRNA (h): sc-95380, GlcAT-S siRNA (m): sc-145417, GlcAT-S shRNA Plasmid (h): sc-95380-SH, GlcAT-S shRNA Plasmid (m): sc-145417-SH, GlcAT-S shRNA (h) Lentiviral Particles: sc-95380-V and GlcAT-S shRNA (m) Lentiviral Particles: sc-145417-V.

Molecular Weight of GlcAT-S: 32 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.

PROTOCOLS

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