SANTA CRUZ BIOTECHNOLOGY, INC.

GGTase-Iβ (N-20): sc-18994

BACKGROUND

Eukaryotic cells contain three distinct prenyltransferases that catalyze the attachment of a thioether-linked 15-carbon farnesyl group or 20-carbon geranylgeranyl group to C-terminal cysteine residues. Geranylgeranyltransferase type I (GGTase-I, PGGTase-I) catalyzes the nucleophilic substitution reaction between geranylgeranyl diphosphate (GGPP) and a protein-derived thiol to form the thioether linkage. The candidate protein must contain a C-terminal CAAX motif in which "A" is an aliphatic amino acid and "X" is leucine. Geranylgeranylation is necessary for the TGFβ1 signaling pathway, which involves phosphatidylcholine-specific phospholipase and a protein kinase C. Human GGTase-I contains an α subunit and a β subunit. Geranylgeranyltransferase type II (GGTase-II) is a heterodimer that catalyzes the transfer of two 20-carbon geranylgeranyl groups from geranylgeranyl pyrophosphate onto C-terminal cysteine residues of Rab GTPases, which is required for the activity of Rab proteins. GGTase-II also contains an α subunit and a β subunit

REFERENCES

1. Schafer, W.R., et al. 1992. Protein prenylation: genes, enzymes, targets and functions. Annu. Rev. Genet. 26: 209-237.
2. van Bokhoven, H., et al. 1996. cDNA cloning and chromosomal localization of the genes encoding the α and β subunits of human Rab geranylgeranyl transferase: the 3' end of the α subunit gene overlaps with the transglutaminase 1 gene promoter. Genomics 38: 133-140.
3. Online Mendelian Inheritance in Man, OMIM™. 1997. Johns Hopkins University, Baltimore, MD. MIM Number: 602031. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Desnoyers, L., et al. 1998. Single prenyl-binding site on protein prenyl transferases. Proc. Natl. Acad. Sci. USA 95: 12266-12270.
5. Song, H.J., et al. 1998. Requirement for geranylgeranyl transferase I and acyl transferase in the TGFβ-stimulated pathway leading to elastin mRNA stabilization. Biochem. Biophys. Res. Commun. 252: 111-116.
6. Clausen, V.A., et al. 2001. Stereochemical analysis of the reaction catalyzed by human protein geranylgeranyl transferase. Biochemistry 40: 3920-3930.
7. Kalinin, A., et al. 2001. Expression of mammalian and its application for *in vitro* prenylation of Rab proteins. Protein expression and purification. Protein Expr. Purif. 22: 84-91.
8. Thomä, N.H., et al. 2001. Phosphoisoprenoids modulate association of Rab geranylgeranyltransferase with REP-1. J. Biol. Chem. 276: 48637-48643.
9. Lane, K.T. and Beese, LS. 2006. Thematic review series: lipid posttranslational modifications. Structural biology of protein farnesyltransferase and geranylgeranyltransferase type I. J. Lipid Res. 47: 681-699.

CHROMOSOMAL LOCATION

Genetic locus: PGGT1B (human) mapping to 5q22.3; Pggt1b (mouse) mapping to 18 C.

RESEARCH USE

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

SOURCE

GGTase-Iβ (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of GGTase-Iβ 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-18994 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GGTase-Iβ (N-20) is recommended for detection of GGTase-Iβ 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).

GGTase-Iβ (N-20) is also recommended for detection of GGTase-Iβ in additional species, including equine, canine and bovine.

Suitable for use as control antibody for GGTase-Iβ siRNA (h): sc-40882, GGTase-Iβ siRNA (m): sc-40883, GGTase-Iβ siRNA (r): sc-77357GGTase-Iβ shRNA Plasmid (h): sc-40882-SH, GGTase-Iβ shRNA Plasmid (m): sc-40883-SH, GGTase-Iβ shRNA Plasmid (r): sc-77357-SH, GGTase-Iβ shRNA (h) Lentiviral Particles: sc-40882-V, GGTase-Iβ shRNA (m) Lentiviral Particles: sc-40883-V, and GGTase-Iβ shRNA (r) Lentiviral Particles: sc-77357-V.

Molecular Weight of GGTase-Iβ: 42 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

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.