

GGTase-I β (h): 293T Lysate: sc-128707

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 TGF β 1 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, OMIMTM. 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 TGF β -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. Phospho-isoprenoids modulate association of Rab geranylgeranyltransferase with REP-1. *J. Biol. Chem.* 276: 48637-48643.
9. Lane, K.T. and Beese, L.S. 2006. Thematic review series: lipid posttranslational modifications. Structural biology of protein farnesyltransferase and geranylgeranyltransferase type I. *J. Lipid Res.* 47: 681-99.

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.

CHROMOSOMAL LOCATION

Genetic locus: PGGT1B (human) mapping to 5q22.3.

PRODUCT

GGTase-I β (h): 293T Lysate represents a lysate of human GGTase-I β transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

GGTase-I β (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive GGTase-I β antibodies. Recommended use: 10-20 μ l per lane.

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

RESEARCH USE

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