SANTA CRUZ BIOTECHNOLOGY, INC.

GGPS1 (E-1): sc-271680

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

GGPS1 (geranylgeranyl diphosphate synthase 1), also known as GGPPS, GGPPSase (geranylgeranyl pyrophosphate synthetase) or GGPPS1, is a member of the FPP/GGPP synthetase family of *trans*-prenyltransferases. Predominantly expressed in testis, heart and skeletal muscle, GGPS1 localizes to the cytoplasm and catalyzes the formation of geranylgeranyl pyrophosphate (GGPP), a precursor of geranylgeranylated proteins and carotenoids. GGPP is a major isoprenoid responsible for the C20-prenylation of proteins and the regulation of the nuclear hormone receptor LXRα. More specifically, GGPS1 functions as an oligomeric molecule and mediates the condensation of farnesyl diphosphate (FPP) with isopentenyl diphosphate to yield GGPP. GGPS1 contains five amino acid motifs that are conserved in *trans*-prenyltransferases and three potential N-glycosylation sites.

CHROMOSOMAL LOCATION

Genetic locus: GGPS1 (human) mapping to 1q42.3; Ggps1 (mouse) mapping to 13 A1.

SOURCE

GGPS1 (E-1) is a mouse monoclonal antibody raised against amino acids 1-300 representing full length GGPS1 of human origin.

PRODUCT

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

GGPS1 (E-1) is available conjugated to agarose (sc-271680 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271680 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271680 PE), fluorescein (sc-271680 FITC), Alexa Fluor® 488 (sc-271680 AF488), Alexa Fluor® 546 (sc-271680 AF546), Alexa Fluor® 594 (sc-271680 AF594) or Alexa Fluor® 647 (sc-271680 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271680 AF680) or Alexa Fluor® 790 (sc-271680 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

GGPS1 (E-1) is recommended for detection of GGPS1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for GGPS1 siRNA (h): sc-88605, GGPS1 siRNA (m): sc-145390, GGPS1 shRNA Plasmid (h): sc-88605-SH, GGPS1 shRNA Plasmid (m): sc-145390-SH, GGPS1 shRNA (h) Lentiviral Particles: sc-88605-V and GGPS1 shRNA (m) Lentiviral Particles: sc-145390-V.

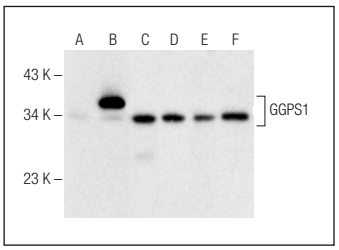
Molecular Weight of GGPS1 monomer: 34 kDa.

Positive Controls: GGPS1(h): 293T Lysate: sc-371311, HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

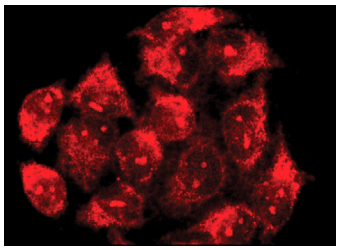
STORAGE

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

DATA



GGPS1 (E-1): sc-271680. Western blot analysis of GGPS1 expression in non-transfected 293T: sc-117752 (**A**), human GGPS1 transfected 293T: sc-371311 (**B**), HeLa (**C**) and Jurkat (**D**) whole cell lysates and mouse kidney (**E**) and mouse testis (**F**) tissue extracts.



GGPS1 (E-1): sc-271680. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Wang, X., et al. 2018. Overexpression of geranylgeranyl diphosphate synthase contributes to tumour metastasis and correlates with poor prognosis of lung adenocarcinoma. J. Cell. Mol. Med. 22: 2177-2189.
2. Roca-Ayats, N., et al. 2018. Functional characterization of a GGPPS variant identified in atypical femoral fracture patients and delineation of the role of GGPPS in bone-relevant cell types. J. Bone Miner. Res. 33: 2091-2098.
3. Zhao, Y., et al. 2020. Liver governs adipose remodelling via extracellular vesicles in response to lipid overload. Nat. Commun. 11: 719.
4. Jin, J., et al. 2021. Geranylgeranyl diphosphate synthase deficiency hyperactivates macrophages and aggravates lipopolysaccharide-induced acute lung injury. Am. J. Physiol. Lung Cell. Mol. Physiol. 320: L1011-L1024.
5. Cheng, Q., et al. 2023. Disruption of protein geranylgeranylation in the cerebellum causes cerebellar hypoplasia and ataxia via blocking granule cell progenitor proliferation. Mol. Brain 16: 24.
6. Shao, X., et al. 2024. Deficiency of geranylgeranyl biphosphate synthase in kidney tubules causes cystic kidney disease. FASEB J. 38: e23875.

RESEARCH USE

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

PROTOCOLS

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