

G3PP/PGP (E-10): sc-390883

BACKGROUND

G3PP/PGP (phosphoglycolate phosphatase), also known as PGPase, is a 321 amino acid enzyme belonging to the HAD-like hydrolase superfamily and the CbbY/cbbZ/gph/yieH family. G3PP/PGP is detected in all tissues including red cells, lymphocytes and cultured fibroblasts, with highest activity found in skeletal and cardiac muscle. PGP is considered an important regulatory enzyme on oxygen transport by indirectly affecting the level of red cell 2,3-diphosphoglycerate. The gene encoding G3PP/PGP maps to human chromosome 16, which encodes over 900 genes and comprises nearly 3% of the human genome. The GAN gene is located on chromosome 16 and, with mutation, may lead to giant axonal neuropathy, a nervous system disorder characterized by increasing malfunction with growth. The rare disorder Rubinstein-Taybi syndrome is also associated with chromosome 16, as is Crohn's disease, which is a gastrointestinal inflammatory condition.

REFERENCES

1. Barker, R.F. and Hopkinson, D.A. 1978. Genetic polymorphism of human phosphoglycolate phosphatase (PGP). *Ann. Hum. Genet.* 42: 143-151.
2. Povey, S., et al. 1980. Assignment of the human locus determining phosphoglycolate phosphatase (PGP) to chromosome 16. *Ann. Hum. Genet.* 43: 241-248.

CHROMOSOMAL LOCATION

Genetic locus: PGP (human) mapping to 16p13.3; Pgp (mouse) mapping to 17 A3.3.

SOURCE

G3PP/PGP (E-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 57-70 within an internal region of G3PP/PGP of human origin.

PRODUCT

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

G3PP/PGP (E-10) is available conjugated to agarose (sc-390883 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390883 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390883 PE), fluorescein (sc-390883 FITC), Alexa Fluor[®] 488 (sc-390883 AF488), Alexa Fluor[®] 546 (sc-390883 AF546), Alexa Fluor[®] 594 (sc-390883 AF594) or Alexa Fluor[®] 647 (sc-390883 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-390883 AF680) or Alexa Fluor[®] 790 (sc-390883 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-390883 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

G3PP/PGP (E-10) is recommended for detection of G3PP/PGP 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).

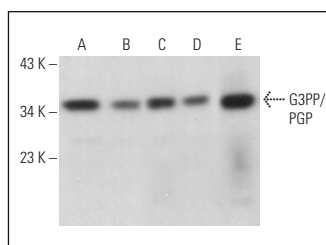
G3PP/PGP (E-10) is also recommended for detection of G3PP/PGP in additional species, including porcine.

Suitable for use as control antibody for G3PP/PGP siRNA (m): sc-108319, G3PP/PGP shRNA Plasmid (m): sc-108319-SH and G3PP/PGP shRNA (m) Lentiviral Particles: sc-108319-V.

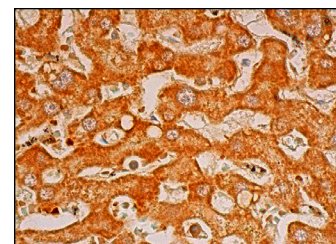
Molecular Weight of G3PP/PGP: 34 kDa.

Positive Controls: mouse brain extract: sc-2253, Hep G2 cell lysate: sc-2227 or K-562 whole cell lysate: sc-2203.

DATA



G3PP/PGP (E-10): sc-390883. Western blot analysis of G3PP/PGP expression in K-562 (A), Hep G2 (B), c4 (C) and C6 (D) whole cell lysates and mouse brain tissue extract (E).



G3PP/PGP (E-10): sc-390883. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes.

SELECT PRODUCT CITATIONS

1. Collard, F., et al. 2016. A conserved phosphatase destroys toxic glycolytic side products in mammals and yeast. *Nat. Chem. Biol.* 12: 601-607.
2. Gerin, I., et al. 2019. Phosphoglycolate has profound metabolic effects but most likely no role in a metabolic DNA response in cancer cell lines. *Biochem. J.* 476: 629-643.
3. Lounis, M.A., et al. 2021. Elevated expression of glycerol-3-phosphate phosphatase as a biomarker of poor prognosis and aggressive prostate cancer. *Cancers* 13: 1273.
4. Al-Mass, A., et al. 2022. Glycerol-3-phosphate phosphatase operates a glycerol shunt in pancreatic β-cells that controls Insulin secretion and metabolic stress. *Mol. Metab.* 60: 101471.
5. Jeanclos, E., et al. 2022. Glycolytic flux control by drugging phosphoglycolate phosphatase. *Nat. Commun.* 13: 6845.

RESEARCH USE

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