SANTA CRUZ BIOTECHNOLOGY, INC.

GPAT2 (V-14): sc-168450

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The Power to Question

BACKGROUND

GPAT2 (glycerol-3-phosphate acyltransferase 2, mitochondrial), also known as Gm116 or xGPAT1, is an 801 amino acid mitochondrial multi-pass membrane protein belonging to the GPAT/DAPAT family. GPAT2 is highly expressed in testis with lower levels in heart, liver, kidney, spleen and adipose cells. Inhibited by N-ethylmaleimide (NEM), GPAT2 esterifies an acyl-group from acyl-ACP to the sn-1 position of glycerol-3-phosphate, an essential step in glycerolipid biosynthesis. GPAT2 contain a HXXXXD motif, which is critical for acyltransferase activity and may constitute the binding site for the phosphate moiety of the glycerol-3-phosphate. Three isoforms of GPAT2 exist due to alternative splicing events.

REFERENCES

1. Stein, T.A., Engel, R.R. and Tropp, B.E. 1992. Inhibition of glycerol-3-phosphate acyltransferase by analogs of glycerol-3-phosphate. Biochim. Biophys. Acta 1123: 249-256.
2. Yet, S.F., Lee, S., Hahm, Y.T. and Sul, H.S. 1993. Expression and identification of p90 as the murine mitochondrial glycerol-3-phosphate acyltransferase. Biochemistry 32: 9486-9491.
3. Dircks, L.K. and Sul, H.S. 1997. Mammalian mitochondrial glycerol-3-phosphate acyltransferase. Biochim. Biophys. Acta 1348: 17-26.
4. Cao, J., Li, J.L., Li, D., Tobin, J.F. and Gimeno, R.E. 2006. Molecular identification of microsomal acyl-CoA:glycerol-3-phosphate acyltransferase, a key enzyme in *de novo* triacylglycerol synthesis. Proc. Natl. Acad. Sci. USA 103: 19695-19700.
5. Harada, N., Hara, S., Yoshida, M., Zenitani, T., Mawatari, K., Nakano, M., Takahashi, A., Hosaka, T., Yoshimoto, K. and Nakaya, Y. 2007. Molecular cloning of a murine glycerol-3-phosphate acyltransferase-like protein 1 (xGPAT1). Mol. Cell. Biochem. 297: 41-51.
6. Takeuchi, K. and Reue, K. 2009. Biochemistry, physiology, and genetics of GPAT, AGPAT, and lipin enzymes in triglyceride synthesis. Am. J. Physiol. Endocrinol. Metab. 296: E1195-E1209.
7. Wydysh, E.A., Medghalchi, S.M., Vadlamudi, A. and Townsend, C.A. 2009. Design and synthesis of small molecule glycerol 3-phosphate acyltransferase inhibitors. J. Med. Chem. 52: 3317-3327.

CHROMOSOMAL LOCATION

Genetic locus: GPAT2 (human) mapping to 2q11.1; Gpat2 (mouse) mapping to 2 F1.

SOURCE

GPAT2 (V-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of GPAT2 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-168450 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GPAT2 (V-14) is recommended for detection of GPAT2 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).

GPAT2 (V-14) is also recommended for detection of GPAT2 in additional species, including equine and canine.

Suitable for use as control antibody for GPAT2 siRNA (h): sc-94904, GPAT2 siRNA (m): sc-140655, GPAT2 shRNA Plasmid (h): sc-94904-SH, GPAT2 shRNA Plasmid (m): sc-140655-SH, GPAT2 shRNA (h) Lentiviral Particles: sc-94904-V and GPAT2 shRNA (m) Lentiviral Particles: sc-140655-V.

Molecular Weight of GPAT2: 89 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.

SELECT PRODUCT CITATIONS

1. Tang, C.C., Huang, H.P., Lee, Y.J., Tang, Y.H. and Wang, C.J. 2013. Hepatoprotective effect of mulberry water extracts on ethanol-induced liver injury via anti-inflammation and inhibition of lipogenesis in C57BL/6J mice. Food Chem. Toxicol. 62: 786-796.

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.