SANTA CRUZ BIOTECHNOLOGY, INC.

ATGL (H-144): sc-67355

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The adiponutrin family members, which have been implicated in obesity and diabetes, consist of adiponutrin (ADPN), GS1, GS2, GS2-like, PNPLA1 and adipose triglyceride lipase (ATGL), also designated desnutrin or patatin-like phospholipase domain-containing protein 2 (PLNPA2). AGTL is a 486 amino acid protein that is highly expressed in mouse and human adipose tissue. It contains a highly conserved 180 amino acid N-terminal patatin domain common to plant acyl-hydrolases with a glycine-rich region, an aspartate active site motif and an active serine hydrolase motif. Along with hormone-sensitive lipase, ATGL catabolizes stored triglycerides in mammalian adipose tissue. The lipase activity of AGTL is dependent upon the presence of an activated serine residue. ADPN and ATGL are oppositely regulated by Insulin, where upregulation of ATGl and downregulation of ADPN occurs when fasting.

REFERENCES

1. Zimmermann, R., et al. 2004. Fat mobilization in adipose tissue is promoted by adipose triglyceride lipase. Science 306: 1383-1386.
2. Langin, D., et al. 2005. Adipocyte lipases and defect of lipolysis in human obesity. Diabetes 54: 3190-3197.
3. Lake, A.C., et al. 2005. Expression, regulation, and triglyceride hydrolase activity of adiponutrin family members. J. Lipid Res. 46: 2477-2487.
4. Gronke, S., et al. 2005. Brummer lipase is an evolutionary conserved fat storage regulator in *Drosophila*. Cell Metab. 1: 323-330.
5. Raben, D.M., et al. 2005. A new lipase in regulating lipid mobilization: hormone-sensitive lipase is not alone. Trends Endocrinol. Metab. 16: 35-36.
6. Kralisch, S., et al. 2005. Isoproterenol, TNFα, and Insulin downregulate adipose triglyceride lipase in 3T3-L1 adipocytes. Mol. Cell. Endocrinol. 240: 43-49.
7. Smirnova, E., et al. 2006. ATGL has a key role in lipid droplet/adiposome degradation in mammalian cells. EMBO Rep. 7: 106-113.

CHROMOSOMAL LOCATION

Genetic locus: PNPLA2 (human) mapping to 11p15.5; Pnpla2 (mouse) mapping to 7 F5.

SOURCE

ATGL (H-144) is a rabbit polyclonal antibody raised against amino acids 361-504 mapping at the C-terminus of ATGL 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.

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.

APPLICATIONS

ATGL (H-144) is recommended for detection of ATGL of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 ATGL siRNA (h): sc-60223, ATGL siRNA (m): sc-60224, ATGL shRNA Plasmid (h): sc-60223-SH, ATGL shRNA Plasmid (m): sc-60224-SH, ATGL shRNA (h) Lentiviral Particles: sc-60223-V and ATGL shRNA (m) Lentiviral Particles: sc-60224-V.

Molecular Weight of ATGL: 55 kDa.

Positive Controls: SJRH30 cell lysate: sc-2287.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Zhao, S.M., et al. 2009. Differential expression of lipid metabolism related genes in porcine muscle tissue leading to different intramuscular fat deposition. Lipids 44: 1029-1037.
2. Meilin, E., et al. 2011. Insulin increases macrophage triglyceride accumulation under diabetic conditions through the down regulation of hormone sensitive lipase and adipose triglyceride lipase. Biofactors 37: 95-103.
3. Lettieri Barbato, D., et al. 2014. Proline oxidase-adipose triglyceride lipase pathway restrains adipose cell death and tissue inflammation. Cell Death Differ. 21: 113-123.
4. Xiao, X., et al. 2014. Wnt/β-catenin signaling pathway and lipolysis enzymes participate in methylprednisolone induced fat differential distribution between subcutaneous and visceral adipose tissue. Steroids 84: 30-35.