abcam

ab3526

Anti-Perilipin-1 antibody

Anti-Perilipin-1 antibody (ab3526) is a rabbit polyclonal antibody detecting Perilipin-1 in **Western Blot, Flow Cytometry, IHC-P**. Suitable for **Cow, Dog, Human, Mouse, Rat, Rhesus monkey**.

- Over 130 publications
- Trusted since 2003

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS, 0.1% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Rat Plin1 aa 500 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link P43884
Purification technique	Affinity purification Immunogen
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC

Tested

Species	Mouse
Dilution info	2 µg/mL

Notes	-

Predicted

Species	Cow, Rhesus monkey, Human, Dog, Rat
Dilution info	-
Notes	-

Flow Cyt

Expected

Species	Mouse, Rat, Rhesus monkey, Human, Dog, Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000 - 1/4000
Notes	By Western blot, this antibody detects an ~62 kDa protein representing Perilipin-1 from 3T3-L1 cell extract.

Predicted

Species	Cow, Rhesus monkey, Human, Dog, Rat
Dilution info	-
Notes	-

IHC-FoFr

Expected

Species	Mouse, Rat, Rhesus monkey, Human, Dog, Cow
Dilution info	Use at an assay dependent concentration.

Notes	-

IHC-P

Expected

Species	Mouse, Rat, Rhesus monkey, Human, Dog, Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information Plin1

Function	Modulator of adipocyte lipid metabolism. Coats lipid storage droplets to protect them from breakdown by hormone-sensitive lipase (HSL). Its absence may result in leanness. Plays a role in unilocular lipid droplet formation by activating CIDEC. Their interaction promotes lipid droplet enlargement and directional net neutral lipid transfer. May modulate lipolysis and triglyceride levels (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Product Specifications
Anti-Perilipin-1 antibody (ab3526) is a rabbit polyclonal antibody and is validated for use in Flow Cyt, ICC, IHC-FoFr, IHC-P, WB in cow, dog, human, mouse, rat, rhesus monkey samples.
Anti-Perilipin-1 antibody (ab3526) specifically detects Perilipin-1 (UniProt ID: O60240; Molecular weight: 56kDa) and is

sold in 100 µL selling sizes.

Quality and Validation
Abcam's high quality validation processes ensure Anti-Perilipin-1 antibody (ab3526) has high sensitivity and specificity.
Anti-Perilipin-1 antibody (ab3526) has been cited over 135 times in peer reviewed journals and is trusted by the scientific community.
Anti-Perilipin-1 antibody (ab3526) has 15 independent reviews from customers.

Related Products
Conjugation-ready, carrier free format available for antibody clone - ab227820.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Perilipin-1 also known as PLIN1 is a protein with a mass of approximately 57 kDa. It plays an important role in lipid metabolism within adipose tissue. This protein is mainly found in adipocytes where it coats lipid droplets. By controlling the access of lipases to the lipid core Perilipin-1 regulates lipolysis. It prevents unnecessary breakdown of lipids by acting as a barrier and ensuring the protection and storage of energy reserves. This targeted regulation is important for maintaining energy homeostasis in the body.
Biological function summary	Perilipin-1 influences cellular energy balance and fat storage. It is an important member of the PAT family of proteins which includes perilipin A. Perilipin-1 does not typically form part of a larger protein complex; however it works closely with other proteins on the surface of lipid droplets. Its presence on the droplet surface is essential for controlling lipid mobilization particularly during fasting or energy-deprived states when organisms require a mechanism to access stored energy efficiently.
Pathways	The activity of Perilipin-1 is important in the lipolytic pathway. This pathway is involved in hydrolyzing stored triglycerides into free fatty acids and glycerol an essential process in energy metabolism. Perilipin-1 acts in tandem with hormone-sensitive lipase (HSL) to regulate this pathway. Upon activation by adrenaline or other stimuli perilipin-1 undergoes phosphorylation which in turn facilitates HSL translocation to the lipid droplet and enhances lipolysis. Besides its direct role Perilipin-1 also interacts with adipose triglyceride lipase (ATGL) further impacting lipid breakdown processes.
Associated diseases and disorders	The dysfunction of Perilipin-1 can lead to metabolic diseases like obesity and type 2 diabetes. Abnormal regulation or mutations in the Perilipin-1 gene have been observed in these conditions affecting normal lipid metabolism. Disordered Perilipin-1 function can lead to excessive lipid storage impaired energy mobilization and increased insulin resistance. Additionally Perilipin-1 interacts indirectly with other proteins such as perilipin-2 which can also influence the development of these metabolic disorders. Understanding these interactions helps in exploring therapeutic strategies aimed at targeting lipid metabolism and related diseases.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

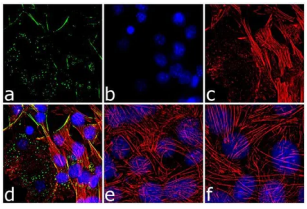
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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5 product images

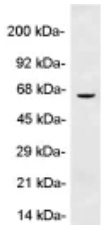


Immunocytochemistry - Anti-Perilipin-1 antibody (ab3526)

Perilipin-1 Immunocytochemistry staining using rabbit Anti-Perilipin-1 antibody

Immunocytochemistry analysis of 3T3-L1 cells (Mouse embryonic fibroblast cell line), 4% paraformaldehyde fixed (10 minutes) permeabilized with 0.1% Triton™ X-100 (10 minutes), and blocked with 1% BSA for (1 hour).
Perilipin A was labeled with ab3526 at 2 µg/ml in 0.1% BSA and incubated for 3 hours at room temperature with secondary antibody: Goat anti-Rabbit IgG (H+L) Superclonal™ Secondary Antibody, Alexa Fluor® 488 conjugate at a dilution of 1:2000 for 45 minutes at room temperature (Panel A: green).

Panel B: Nuclei were stained with DAPI (blue); Panel C: (red) F-actin stained with Alexa Fluor® 555 Rhodamine Phalloidin 1:300. Panel D: merged image showing cytosolic localization; Panel E: untreated; Panel F: control cells with no primary antibody.



Western blot - Anti-Perilipin-1 antibody (ab3526)

Perilipin-1 Western blot staining using rabbit Anti-Perilipin-1 antibody

Western blot detection of Perilipin-1 in 3T3-L1 cell extract using ab3526.
All lanes:
Western blot - Anti-Perilipin-1 antibody (ab3526)

Predicted band size: 56 kDa

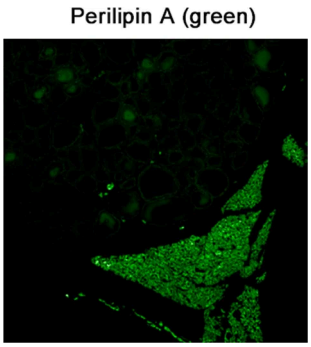


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Immunohistochemistry (Frozen sections) - Anti-Perilipin-1 antibody (ab3526)

Perilipin-1 Immunohistochemistry (Frozen sections) staining using rabbit Anti-Perilipin-1 antibody

Perilipin-1 immunohistochemistry-immunofluorescence using Anti-Perilipin-1 antibody ab3526. Publication image and figure legend from Kakuta, T., Sawada, K., et al., 2020, Sci Rep, Pubmed 32094398.

Post-transplant expression of perilipin A in transplanted parathyroid parenchymal tissues from secondary hyperparathyroidism patients. The transplants shown in Fig. 4 were examined for perilipin A expression. Bound anti-perilipin A antibody was fluorescently visualized with Alexa 488 (green) and bound anti-human cytoplasm antibody with Alexa 594 (red). These views were merged and are shown under Merged. As a negative staining control, the section was stained without the primary antibody and viewed with red fluorescence. The empty arrow indicates human transplants.

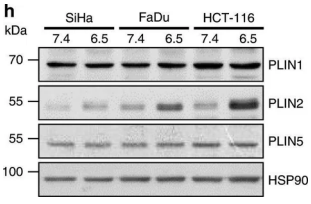


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Western blot - Anti-Perilipin-1 antibody (ab3526)

Perilipin-1 Western blot staining using rabbit Anti-Perilipin-1 antibody

Western Blotting using Anti-Perilipin-1 antibody, ab3526. Publication image from Corbet, C. et al., 2020, Nat Commun, 31974393. Legend direct from paper.

Acidosis-adapted cancer cells exhibit accumulation of lipid droplets.a Representative electron microscopy pictures depicting lipid droplet (LD) accumulation in acidosis-adapted SiHa and HCT-116 cancer cells. Scale bar: 2 µm. b, c Representative pictures of BODIPY 493/503- (b) and ORO-stained (c) LD in the same native and acidosis-adapted cancer cells. Scale bar: 20 µm. d Quantification of ORO-stained LD area in native and acidosis-adapted SiHa cells. e–g Abundance of the total pool of neutral lipids (e), SFA and MUFA in the neutral lipid fraction (f), and cholesteryl esters (g) in native and acidosis-adapted SiHa cells. h Representative immunoblotting for perilipins 1, 2, and 5 in native and acidosis-adapted cancer cells. i LD content in native and acidosis-adapted SiHa following transfection of PLIN2-targeting (or control) siRNA for 72 h. j Scheme depicting the pathways leading to neutral lipid accumulation and lipid droplet biogenesis; specific inhibitors are indicated in red. k–m LD content in native and acidosis-adapted SiHa cells following treatment with 15 µM A922500 (DGAT1i) or 10 µM PF-06424439 (DGAT2i) for 24 h (k), incubation in a medium supplemented with lipid-containing serum (FBS) or with charcoal-delipidated serum (DFBS) in presence or absence of an exogenous lipid concentrate (LC) for 24 h (l) or treatment with two distinct CD36 blocking antibodies for 24 h (m). Data are represented as mean ± SEM of three independent experiments (with ≥6 technical replicates). Significance was determined by Student’ s t-test (d, e, g), by one-way ANOVA (k–m) or two-way ANOVA (i) with Bonferroni multiple-comparison analysis. ***$p < 0.001$; ns, not significant. Source data are provided as a Source Data file.

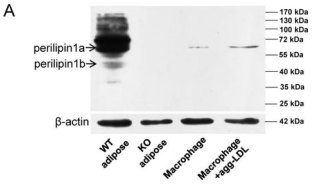


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Western blot - Anti-Perilipin-1 antibody (ab3526)

Perilipin-1 Western blot staining using rabbit Anti-Perilipin-1 antibody

Perilipin-1 western blotting using Anti-Perilipin-1 antibody ab3526. Publication image and figure legend from Zhao, X., Gao, M., et al., 2015, PLoS One, Pubmed 25855981.

Plin1 expresses in atherosclerotic lesions.(A) Immunoblotting analysis of Plin1 expression in perivascular adipose tissue and in peritoneal macrophages isolated from Plin1-/- and wild-type mice. Incubation with modified LDL increases Plin1 expression in the macrophages. Anti-Plin1 antiserum from (Abcam, #ab3526) recognizes the C-terminal amino-acid residues of Plin1. (B) Unstained frozen section of arotic root of ApoE-/- mice. (C) The frozen section of arotic root in ApoE-/- mice was immunostained (Green) with the primary antibody against CD68, a macrophagemarker. (D) Immunostaining of Plin1 (Red). (E and F) Merged image shows colocalization of Plin1 and CD68 in atheroma. Boxed area in panel E (a-c) were magnified to show colocalization of Plin1 and CD68 (F, a-c) in macrophages in atherosclerotic lesion in ApoE-/- mice.

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