

Lipin 1 Antibody

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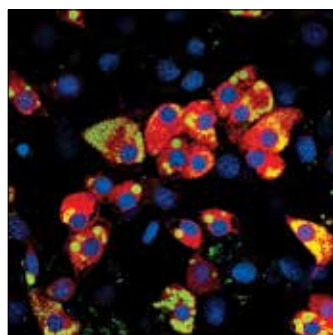
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| Applications | Species Cross-Reactivity* | Molecular Wt. | Source |
|----------------------------|---------------------------|---------------|----------|
| W, IP, IF-IC Endogenous | H, M | 130 kDa | Rabbit** |

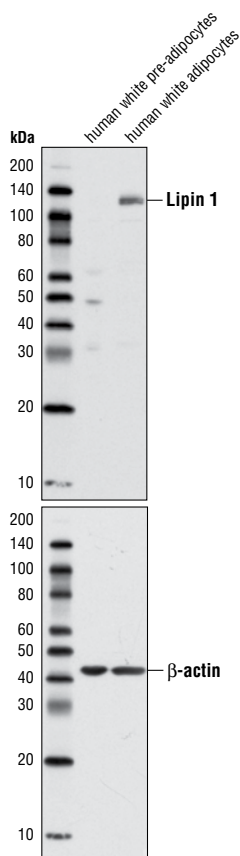
Background: Lipin 1 was identified as a nuclear protein required for adipose tissue development (1). The expression of Lipin 1 is induced during adipocyte differentiation (1). The abnormal development of adipose tissues caused by mutations in the lipin 1 gene results in lipodystrophy, a condition associated with low body fat, fatty liver, hypertriglyceridemia, and insulin resistance (1). Lipin 1 plays a role in lipid metabolism in various tissues and cell types including liver, muscle, adipose tissues, and neuronal cell lines (2-4). It has dual functions at the molecular level: Lipin 1 serves as a transcriptional coactivator in liver, and a phosphatidate phosphatase in triglyceride and phospholipid biosynthesis pathways (5). Lipin1 is regulated by mTOR, illustrating a connection between adipocyte development and nutrient-sensing pathways (6). It also mediates hepatic insulin signaling by TORC2/CRTC2 (7).

Specificity/Sensitivity: Lipin 1 Antibody detects endogenous levels of total Lipin 1 protein.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Gln883 of human Lipin 1 protein. Antibodies are purified by protein A and peptide affinity chromatography.



Confocal immunofluorescent analysis of 3T3-L1 adipocytes using Lipin 1 Antibody (red). Lipid droplets were labeled with BODIPY® 493/503 (green). Blue pseudocolor = DRAQ5® #4084 (fluorescent DNA dye).



Western blot analysis of extracts from human white pre-adipocytes and human white adipocytes using Lipin 1 Antibody (upper) and β -Actin Antibody #4967 (lower).

Entrez-Gene ID #23175
Swiss-Prot Acc. #Q14693

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 μ g/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

| | |
|----------------------------|--------|
| Western blotting | 1:1000 |
| Immunoprecipitation | 1:50 |
| Immunofluorescence (IF-IC) | 1:50 |

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

Background References:

- (1) Péterfy, M. et al. (2001) *Nat Genet* 27, 121-4.
- (2) Finck, B.N. et al. (2006) *Cell Metab* 4, 199-210.
- (3) Phan, J. and Reue, K. (2005) *Cell Metab* 1, 73-83.
- (4) Verheijen, M.H. et al. (2003) *Genes Dev* 17, 2450-64.
- (5) Reue, K. and Zhang, P. (2008) *FEBS Lett* 582, 90-6.
- (6) Huffman, T.A. et al. (2002) *Proc Natl Acad Sci USA* 99, 1047-52.
- (7) Ryu, D. et al. (2009) *Cell Metab* 9, 240-51.

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

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Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide
Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine
 Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.