

## Monoclonal Antibody to Adipophilin / ADFP (5-27) - Purified

<b>Alternate names:</b>	ADRP, Adipose differentiation-related protein
<b>Catalog No.:</b>	BM5051
<b>Quantity:</b>	50 µg
<b>Background:</b>	Adipophilin / ADRP is a ubiquitous component of lipid droplets. It has been found in milk fat globule membranes and on the surface of lipid droplets in various cultured cell lines (see e.g. Heid et al.; for review see e.g. Targett-Adams et al.); inducible by etomoxir. Enhanced expression of Adipophilin / ADRP is a useful marker for pathologies characterized by increased lipid droplet accumulation. Such diseases include atheroma, steatosis, obesity and certain cases of liposarcoma. It also seems to be a potent marker for atherosclerosis. ADRP can also be used to study the virus entry of e.g. HCV via lipid droplets (see e.g. Hope et al.).
<b>Uniprot ID:</b>	<a href="#">Q99541</a>
<b>NCBI:</b>	<a href="#">NP_001113.2</a>
<b>GeneID:</b>	<a href="#">123</a>
<b>Host / Isotype:</b>	Mouse / IgG1
<b>Recommended Isotype Controls:</b>	SM10P (for use in human samples), SM20P (for use in rat samples), AM03095PU-N
<b>Clone:</b>	AP125
<b>Immunogen:</b>	Synthetic peptide corresponding to aa 5-27 from N-terminus of Human Adipophilin.
<b>Format:</b>	<b>State:</b> Lyophilized purified IgG fraction <b>Purification:</b> Affinity Chromatography <b>Buffer System:</b> Final solution contains 0.09% Sodium Azide and 0.5% BSA in PBS buffer, pH 7.4 <b>Reconstitution:</b> Restore with 1.0 ml distilled water
<b>Applications:</b>	<b>Immunohistochemistry on Frozen Tissue:</b> 1/10 in PBS, pH 7.4 (See <i>Ohsaki et al.</i> for staining protocols). <b>Immunohistochemistry on Paraffin-Embedded Tissue</b> (After microwave treatment). Incubate 1 h at RT or over night at 2-8°C. (See <i>Straub et al.</i> 2008 for staining protocols). <b>Cytological Material.</b> <b>Immunoblotting (Western blot):</b> 0.2 µg/ml using ECL has been reported for previous batch numbers. Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

**For research and in vitro use only. Not for diagnostic or therapeutic work.**

Material Safety Datasheets are available at [www.acris-antibodies.com](http://www.acris-antibodies.com) or on request.

Antibody Hotline - Technical Questions - Antibody Location Service  
Free Call: 0800-2274746 (Germany only) - [www.acris-antibodies.com](http://www.acris-antibodies.com)



- Specificity:** **Polypeptide Reacting:** Adipophilin / ADRP, MW 48,100 (calculated from aa sequence data); apparent Mr 52,000 (after SDS-PAGE); pI 6.72.  
**Tissue Immunolocalization:** Adipophilin is positively detected in the glandular cells of lactating mammary gland (ductal cells are negative), zona fasciculata of the adrenal gland, Sertoli cells of the testis, and in fat-accumulating hepatocytes of alcoholic cirrhotic fatty liver; adipocytes are negative. Also positively stained are lipid-storing CD 68-positive macrophages.  
**Tested Reactivity on Cultured Cell lines:** Caco, PLC, HaCat, SV80, RD 125, Huvec (Human umbilical cord endothelia), RV, PC-12 (rat adrenal gland), MDCK. Negative with glioma.  
**Negative Species:** Bovine and Mouse.
- Species Reactivity:** **Tested:** Human, Rat and Dog.
- Storage:** Store the reconstituted antibody undiluted at 2-8°C.  
Shelf life: one year from despatch.
- Product Citations:** **Originator or purchased from resellers:**  
1. Straub BK, Stoeffel P, Heid H, Zimbelmann R, Schirmacher P. Differential pattern of lipid droplet-associated proteins and de novo perilipin expression in hepatocyte steatogenesis. *Hepatology*. 2008 Jun;47(6):1936-46. doi: 10.1002/hep.22268. PubMed PMID: 18393390. (use on paraffin sections)  
2. Ohsaki Y, Maeda T, Fujimoto T. Fixation and permeabilization protocol is critical for the immunolabeling of lipid droplet proteins. *Histochem Cell Biol*. 2005 Nov;124(5):445-52. Epub 2005 Nov 3. PubMed PMID: 16151827. (use on frozen section)
- General Readings:**  
1. Heid HW, Moll R, Schwetlick I, Rackwitz HR, Keenan TW. Adipophilin is a specific marker of lipid accumulation in diverse cell types and diseases. *Cell Tissue Res*. 1998 Nov;294(2):309-21. PubMed PMID: 9799447.  
2. Heid HW, Schnölzer M, Keenan TW. Adipocyte differentiation-related protein is secreted into milk as a constituent of milk lipid globule membrane. *Biochem J*. 1996 Dec 15;320 ( Pt 3):1025-30. PubMed PMID: 9003395.  
3. Mrozinski J, Schwetlick I, Heid HW, Winter-Simanowski S, Holzbach A, Hinze R, Franke WW and Moll R. Adipophilin and perilipin, two lipid droplet-associated proteins, in the pathohistological differential diagnosis of human soft tissue sarcomas. Abstract from AEK meeting 1999, German Cancer Research Center. *J Cancer Res & Clin Oncol* 125 suppl (1999)  
4. Than NG, Sumegi B, Than GN, Kispal G, Bohn H. Cloning and sequencing of human oncodevelopmental soluble placental tissue protein 17 (PP17): homology with adipophilin and the mouse adipose differentiation-related protein. *Tumour Biol*. 1999 Jul-Aug;20(4):184-92. PubMed PMID: 10393528.  
5. Hope RG, McLauchlan J. Sequence motifs required for lipid droplet association and protein stability are unique to the hepatitis C virus core protein. *J Gen Virol*. 2000 Aug;81(Pt 8):1913-25. PubMed PMID: 10900028.  
6. Ostermeyer AG, Paci JM, Zeng Y, Lublin DM, Munro S, Brown DA. Accumulation of caveolin in the endoplasmic reticulum redirects the protein to lipid storage droplets. *J Cell Biol*. 2001 Mar 5;152(5):1071-8. PubMed PMID: 11238461.  
7. Fujimoto T, Kogo H, Ishiguro K, Tauchi K, Nomura R. Caveolin-2 is targeted to lipid droplets, a new "membrane domain" in the cell. *J Cell Biol*. 2001 Mar 5;152(5):1079-85. PubMed PMID: 11238462.  
8. Buechler C, Ritter M, Duong CQ, Orso E, Kapinsky M, Schmitz G. Adipophilin is a sensitive marker for lipid loading in human blood monocytes. *Biochim Biophys Acta*. 2001 May 31;1532(1-2):97-104. PubMed PMID: 11420178.  
9. Hope RG, Murphy DJ, McLauchlan J. The domains required to direct core proteins of hepatitis C virus and GB virus-B to lipid droplets share common features with plant oleosin proteins. *J Biol Chem*. 2002 Feb 8;277(6):4261-70. Epub 2001 Nov 12. PubMed PMID: 11706032.

**For research and in vitro use only. Not for diagnostic or therapeutic work.**

Material Safety Datasheets are available at [www.acris-antibodies.com](http://www.acris-antibodies.com) or on request.

Antibody Hotline - Technical Questions - Antibody Location Service  
Free Call: 0800-2274746 (Germany only) - [www.acris-antibodies.com](http://www.acris-antibodies.com)

10. Fukumoto S, Fujimoto T. Deformation of lipid droplets in fixed samples. *Histochem Cell Biol.* 2002 Nov;118(5):423-8. Epub 2002 Oct 2. PubMed PMID: 12432454.
11. Targett-Adams P, Chambers D, Gledhill S, Hope RG, Coy JF, Girod A, et al. Live cell analysis and targeting of the lipid droplet-binding adipocyte differentiation-related protein. *J Biol Chem.* 2003 May 2;278(18):15998-6007. Epub 2003 Feb 18. PubMed PMID: 12591929.
12. Bulankina AV: TIP47 is recruited to lipid droplets and important for the organelle biogenesis and function. PhD Thesis University of Goettingen (2003)
13. Opretzka, ME: Topographie und Dynamik von Perilipin und Adipophilin in Lipidtropfen. PhD Thesis, University of Muenster/Germany (2005)
14. Eisenberg, M: Die Regulation der Adipophilin-Expression. . PhD Thesis, University of Muenster/Germany (2005)
15. Robenek H, Lorkowski S, Schnoor M, Troyer D. Spatial integration of TIP47 and adipophilin in macrophage lipid bodies. *J Biol Chem.* 2005 Feb 18;280(7):5789-94. Epub 2004 Nov 15. PubMed PMID: 15545278.
16. Robenek H, Robenek MJ, Buers I, Lorkowski S, Hofnagel O, Troyer D, et al. Lipid droplets gain PAT family proteins by interaction with specialized plasma membrane domains. *J Biol Chem.* 2005 Jul 15;280(28):26330-8. Epub 2005 May 16. PubMed PMID: 15897193.
17. Ohsaki Y, Maeda T, Fujimoto T. Fixation and permeabilization protocol is critical for the immunolabeling of lipid droplet proteins. *Histochem Cell Biol.* 2005 Nov;124(5):445-52. Epub 2005 Nov 3. PubMed PMID: 16151827.
18. Robenek H, Hofnagel O, Buers I, Robenek MJ, Troyer D, Severs NJ. Adipophilin-enriched domains in the ER membrane are sites of lipid droplet biogenesis. *J Cell Sci.* 2006 Oct 15;119(Pt 20):4215-24. Epub 2006 Sep 19. PubMed PMID: 16984971.
19. Muthusamy K, Halbert G, Roberts F. Immunohistochemical staining for adipophilin, perilipin and TIP47. *J Clin Pathol.* 2006 Nov;59(11):1166-70. Epub 2006 Mar 23. PubMed PMID: 16556662.
20. Straub BK, Stoeffel P, Heid H, Zimbelmann R, Schirmacher P. Differential pattern of lipid droplet-associated proteins and de novo perilipin expression in hepatocyte steatogenesis. *Hepatology.* 2008 Jun;47(6):1936-46. doi: 10.1002/hep.22268. PubMed PMID: 18393390.
21. Samsa MM, Mondotte JA, Iglesias NG, Assunção-Miranda I, Barbosa-Lima G, Da Poian AT, et al. Dengue virus capsid protein usurps lipid droplets for viral particle formation. *PLoS Pathog.* 2009 Oct;5(10):e1000632. doi: 10.1371/journal.ppat.1000632. Epub 2009 Oct 23. PubMed PMID: 19851456.
22. Ostler DA, Prieto VG, Reed JA, Deavers MT, Lazar AJ, Ivan D. Adipophilin expression in sebaceous tumors and other cutaneous lesions with clear cell histology: an immunohistochemical study of 117 cases. *Mod Pathol.* 2010 Apr;23(4):567-73. doi: 10.1038/modpathol.2010.1. Epub 2010 Jan 29. PubMed PMID: 20118912.
23. Straub BK, Herpel E, Singer S, Zimbelmann R, Breuhahn K, Macher-Goeppinger S, et al. Lipid droplet-associated PAT-proteins show frequent and differential expression in neoplastic steatogenesis. *Mod Pathol.* 2010 Mar;23(3):480-92. doi: 10.1038/modpathol.2009.191. Epub 2010 Jan 15. PubMed PMID: 20081801.

**For research and in vitro use only. Not for diagnostic or therapeutic work.**

Material Safety Datasheets are available at [www.acris-antibodies.com](http://www.acris-antibodies.com) or on request.

Antibody Hotline - Technical Questions - Antibody Location Service  
Free Call: 0800-2274746 (Germany only) - [www.acris-antibodies.com](http://www.acris-antibodies.com)