

**PPARGC1A Antibody**  
Catalog # ASC11765**Specification****PPARGC1A Antibody - Product Information**

Application	WB, IHC, IF
Primary Accession	<a href="#">O9UBK2</a>
Other Accession	<a href="#">NP_037393</a> , <a href="#">7019499</a>
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	Predicted: 88 kDa
Application Notes	Observed: 96 kDa KDa PPARGC1A antibody can be used for detection of PPARGC1A by Western blot at 1 - 2 µg/ml. Antibody can also be used for Immunohistochemistry starting at 5 µg/mL. For immunofluorescence start at 20 µg/mL.

**PPARGC1A Antibody - Additional Information**Gene ID **10891****Target/Specificity**

PPARGC1A; PPARGC1A antibody is human, mouse and rat reactive. At least three isoforms of PPARGC1A are known to exist; this antibody only detects the longest isoform.

**Reconstitution & Storage**

Antibody can be stored at 4°C up to one year. Antibodies should not be exposed to prolonged high temperatures.

**Precautions**

PPARGC1A Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

**PPARGC1A Antibody - Protein Information**

Name PPARGC1A

**Function**

Transcriptional coactivator for steroid receptors and nuclear receptors (PubMed: [10713165](http://www.uniprot.org/citations/10713165), PubMed: [20005308](http://www.uniprot.org/citations/20005308), PubMed: [21376232](http://www.uniprot.org/citations/21376232)). Greatly increases the transcriptional activity of PPARG and thyroid hormone receptor on the uncoupling protein promoter (PubMed: [10713165](http://www.uniprot.org/citations/10713165), PubMed: [20005308](http://www.uniprot.org/citations/20005308))

target="\_blank">20005308</a>, PubMed:<a href="http://www.uniprot.org/citations/21376232" target="\_blank">21376232</a>). Can regulate key mitochondrial genes that contribute to the program of adaptive thermogenesis (PubMed:<a href="http://www.uniprot.org/citations/10713165" target="\_blank">10713165</a>, PubMed:<a href="http://www.uniprot.org/citations/20005308" target="\_blank">20005308</a>, PubMed:<a href="http://www.uniprot.org/citations/21376232" target="\_blank">21376232</a>). Plays an essential role in metabolic reprogramming in response to dietary availability through coordination of the expression of a wide array of genes involved in glucose and fatty acid metabolism (PubMed:<a href="http://www.uniprot.org/citations/10713165" target="\_blank">10713165</a>, PubMed:<a href="http://www.uniprot.org/citations/20005308" target="\_blank">20005308</a>, PubMed:<a href="http://www.uniprot.org/citations/21376232" target="\_blank">21376232</a>). Acts as a key regulator of gluconeogenesis: stimulates hepatic gluconeogenesis by increasing the expression of gluconeogenic enzymes, and acting together with FOXO1 to promote the fasting gluconeogenic program (PubMed:<a href="http://www.uniprot.org/citations/16753578" target="\_blank">16753578</a>, PubMed:<a href="http://www.uniprot.org/citations/23142079" target="\_blank">23142079</a>). Induces the expression of PERM1 in the skeletal muscle in an ESRRB-dependent manner (PubMed:<a href="http://www.uniprot.org/citations/23836911" target="\_blank">23836911</a>). Also involved in the integration of the circadian rhythms and energy metabolism (By similarity). Required for oscillatory expression of clock genes, such as BMAL1 and NR1D1, through the coactivation of RORA and RORC, and metabolic genes, such as PDK4 and PEPCK (By similarity).

#### Cellular Location

[Isoform 1]: Nucleus. Nucleus, PML body {ECO:0000250|UniProtKB:O70343} [Isoform B4-8a]: Cytoplasm. Nucleus [Isoform 9]: Nucleus

#### Tissue Location

Heart, skeletal muscle, liver and kidney. Expressed at lower levels in brain and pancreas and at very low levels in the intestine and white adipose tissue. In skeletal muscle, levels were lower in obese than in lean subjects and fasting induced a 2-fold increase in levels in the skeletal muscle in obese subjects

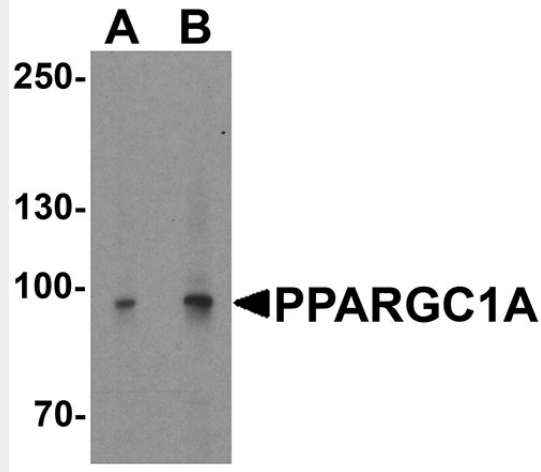
#### PPARGC1A Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

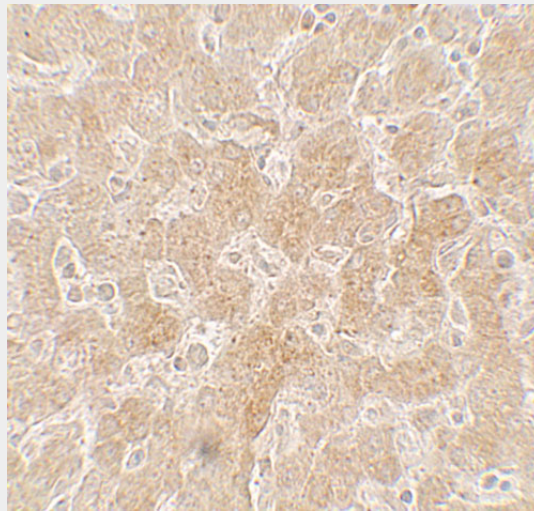
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

#### PPARGC1A Antibody - Images

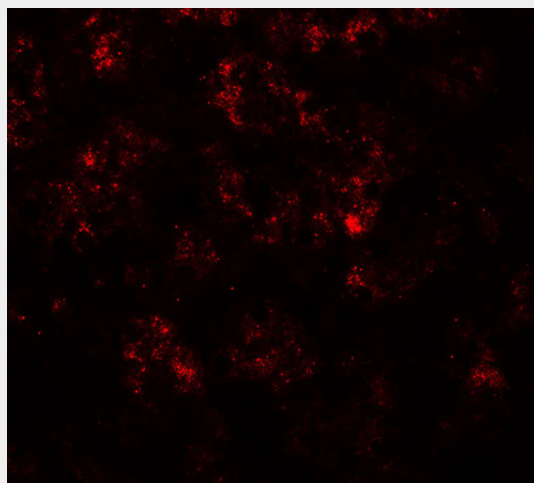




Western blot analysis of PPARGC1A in mouse liver tissue lysate with PPARGC1A antibody at (A) 1 and (B) 2  $\mu\text{g/ml}$ .



Immunohistochemistry of PPARGC1A in human liver tissue with PPARGC1A antibody at 5  $\mu\text{g/mL}$ .



Immunofluorescence of PPARGC1A in human liver tissue with PPARGC1A antibody at 20  $\mu\text{g/mL}$ .

#### **PPARGC1A Antibody - Background**

The peroxisome proliferator-activated receptor gamma coactivator 1-alpha (PPARGC1A), also

known as LEM-6, is a transcriptional coactivator that regulates the genes involved in energy metabolism (1). PPARGC1A interacts with PPARgamma, which permits the interaction of PPARGC1A with multiple transcription factors. PPARGC1A can interact with, and regulate the activities of, cAMP response element binding protein (CREB) and nuclear respiratory factors (NRFs). It provides a direct link between external physiological stimuli and the regulation of mitochondrial biogenesis, and is a major factor that regulates muscle fiber type determination (2). PPARGC1A may be also involved in the development of obesity (3).

#### **PPARGC1A Antibody - References**

Tsuemi T and La Spada AR. PGC-1a at the intersection of bioenergetics regulation and neuron function: from Huntington's disease to Parkinson's disease and beyond. *Prog. Neurobiol.* 2012; 97:142-51.

Kang C and Li Ji L. Role of PGC-1a signaling in skeletal muscle health and disease. *Ann. NY Acad. Sci.* 2012; 1271:110-7.

Liu C and Lin JD. PGC-1 coactivators in the control of energy metabolism. *Acta Biochim. Biophys. Sin.* 2011; 43:248-57.