3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-PGC-1α
produced in rabbit, affinity isolated antibody

Product Number **SAB4200209**

Product Description

Anti-PGC-1α is produced in rabbit using as the immunogen a synthetic peptide corresponding to a fragment of mouse PGC-1α (GeneID 19017), conjugated to KLH. The corresponding sequence is identical in rat PGC-1α and highly conserved (single amino acid substitution) in human PGC-1α. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-PGC-1α specifically recognizes human PGC-1α. The antibody can be used in several immunochemical techniques including immunoblotting (~120 kDa). Detection of the PGC-1α band by immunoblotting is specifically inhibited by the PGC-1α immunizing peptide.

PGC-1α (also known as PPARGC1A) is a master transcriptional coactivator that integrates and regulates several metabolic pathways in response to external stimuli. PGC-1α regulates adaptive thermogenesis in brown adipose tissue and insulin signaling in skeletal muscle by activation of central metabolic and energy-related genes.[1] PGC-1α has a central role in the regulation of liver gluconeogenesis, β-oxidation of fatty acids and ketogenesis, by coactivation of key enzymes in the metabolic pathway, indicating that PGC-1α plays an important role as a global regulator of liver metabolism during fasting.[2-5] PGC-1α interacts with and coactivates a variety of nuclear receptors (NRs), such as the glucocorticoid receptor (GR), HNF4α, and PPARs in various tissues.[1,2] PGC-1α is also a potent activator of mitochondrial biogenesis resulting by coactivation of ERRα, NRF-1, and NRF-2. PGC-1α has been shown to suppress the generation of ROS and neurodegeneration by protecting neuronal cells from oxidative stress-mediated death.[6] PGC-1α knockout mice show increased sensitivity to damage by oxidative stress affecting neurons in the substantia nigra and hippocampus. Reductions in the expression levels of PGC-1α in muscle has been implicated in the pathogenesis of type-2 diabetes.[7,8] PGC-1α has been proposed to control muscle plasticity, to suppress broad inflammatory response, and to mediate the beneficial aspects of exercise.[8]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody concentration: ~1.5 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify by centrifugation. Discard working dilutions if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 1-2 μg/mL is recommended using extracts of HEK-293T cells overexpressing human PGC-1α.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Puigserver, P., et al., *Cell,* **92**, 829-839 (1998).
2. Lin, J., et al., *Cell. Metab.*, **1**, 361-370 (2005).
3. Yoon, J.C., et al., *Nature,* **413**, 131-138 (2001).
4. Puigserver, P., et al., *Nature,* **423**, 550-555 (2003).
5. Li, X., et al., *Nature,* **447**, 1012-1016 (2007).
6. St-Pierre, J., et al., *Cell,* **127**, 397-408 (2006).
7. Pagel-Langenickel, I., et al., *J. Biol. Chem.,* **283**, 22464-22472 (2008).
8. Handschin, C., and Spiegelman, B., *Nature,* **454**, 463-469 (2008).

VS,ER,RC,KAA,PHC,MAM 07/19-1