SANTA CRUZ BIOTECHNOLOGY, INC.

PGC-1α (K-15): sc-5816

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Transcription factors exert their effects by associating with co-activator or corepressor proteins. The co-activator complexes are thought to be constitutively active, requiring only proper positioning in the genome to initiate transcription. Co-activators include the steroid receptor co-activator (SRC) and CREB binding protein (CBP) families that contain histone acetyltransferase (HAT) activity, which modifies chromatin structure. PPARγ co-activator-1 (PGC-1) is a transcriptional cofactor of nuclear respiratory factor-1 (NRF-1), PPARβ, PPARα and other nuclear receptors that is induced by exposure to cold temperatures and is involved in regulating thermogenic gene expression, protein uncoupling and mitochondrial biogenesis. PGC-1 has a low inherent transcriptional activity when it is not bound to a transcription factor. Docking of PGC-1 to PPARγ stimulates an apparent conformational change that then enables PGC-1 to bind to and assemble into complexes, which include the additional cofactors SRC-1 and CBP/p300, and results in a large increase in transcriptional activity.

CHROMOSOMAL LOCATION

Genetic locus: PPARGC1A (human) mapping to 4p15.2; Ppargc1a (mouse) mapping to 5 C1.

SOURCE

PGC-1α (K-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of PGC-1α of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-5816 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PGC-1α (K-15) is recommended for detection of PGC-1α of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PGC-1α siRNA (h): sc-38884, PGC-1α siRNA (m): sc-38885, PGC-1α siRNA (r): sc-72151, PGC-1α shRNA Plasmid (h): sc-38884-SH, PGC-1α shRNA Plasmid (m): sc-38885-SH, PGC-1α shRNA Plasmid (r): sc-72151-SH, PGC-1α shRNA (h) Lentiviral Particles: sc-38884-V, PGC-1α shRNA (m) Lentiviral Particles: sc-38885-V and PGC-1α shRNA (r) Lentiviral Particles: sc-72151-V.

Molecular Weight of PGC-1α: 91 kDa.

Positive Controls: K-562 nuclear extract: sc-2130, HL-60 whole cell lysate: sc-2209 or DU 145 nuclear extract: sc-24960.

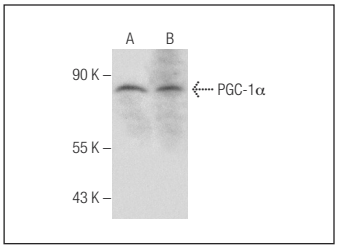
RESEARCH USE

For research use only, not for use in diagnostic procedures.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



PGC-1α (K-15): sc-5816. Western blot analysis of PGC-1α expression in DU 145 (**A**) and K-562 (**B**) nuclear extracts.

SELECT PRODUCT CITATIONS

1. De Souza, C.T., et al. 2003. Peroxisome proliferator-activated receptor γ coactivator-1-dependent uncoupling protein-2 expression in pancreatic islets of rats: a novel pathway for neural control of Insulin secretion. Diabetologia 46: 1522-1531.
2. Aquilano, K., et al. 2010. Peroxisome proliferator-activated receptor γ co-activator 1α (PGC-1α) and sirtuin 1 (SIRT1) reside in mitochondria: possible direct function in mitochondrial biogenesis. J. Biol. Chem. 285: 21590-21599.
3. Pesce, V., et al. 2010. Acetyl-L-carnitine supplementation to old rats partially reverts the age-related mitochondrial decay of soleus muscle by activating peroxisome proliferator-activated receptor γ coactivator-1α-dependent mitochondrial biogenesis. Rejuvenation Res. 13: 148-151.
4. Martin, E., et al. 2011. Mitogen- and stress-activated protein kinase 1-induced neuroprotection in Huntington's disease: role on chromatin remodeling at the PGC-1-α promoter. Hum. Mol. Genet. 20: 2422-2434.
5. Felder, T.K., et al. 2011. Characterization of novel peroxisome proliferator-activated receptor γ coactivator-1α (PGC-1α) isoform in human liver. J. Biol. Chem. 286: 42923-36.
6. Choi, J., et al. 2013. A novel PGC-1α isoform in brain localizes to mitochondria and associates with PINK1 and VDAC. Biochem. Biophys. Res. Commun. 435: 671-677.
7. Schloesser, A., et al. 2015. Dietary tocotrienol/γ-cyclodextrin complex increases mitochondrial membrane potential and ATP concentrations in the brains of aged mice. Oxid. Med. Cell. Longev. 2015: 789710.