SANTA CRUZ BIOTECHNOLOGY, INC.

PGC-1α (C-4): sc-518038

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 coactivator (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.

REFERENCES

1. Onate, S.A., et al. 1995. Sequence and characterization of a co-activator for the steroid hormone receptor superfamily. Science 270: 1354-1357.
2. Torchia, J., et al. 1997. The transcriptional co-activator p/CIP binds CBP and mediates nuclear-receptor function. Nature 387: 677-684.
3. Puigserver, P., et al. 1998. A cold-inducible co-activator of nuclear receptors linked to adaptive thermogenesis. Cell 92: 829-839.

CHROMOSOMAL LOCATION

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

SOURCE

PGC-1α (C-4) is a mouse monoclonal antibody raised against amino acids 1-300 mapping near the N-terminus of PGC-1α of human origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PGC-1α (C-4) is available conjugated to agarose (sc-518038 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-518038 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-518038 PE), fluorescein (sc-518038 FITC), Alexa Fluor® 488 (sc-518038 AF488), Alexa Fluor® 546 (sc-518038 AF546), Alexa Fluor® 594 (sc-518038 AF594) or Alexa Fluor® 647 (sc-518038 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-518038 AF680) or Alexa Fluor® 790 (sc-518038 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

PGC-1α (C-4) is recommended for detection of PGC-1α of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

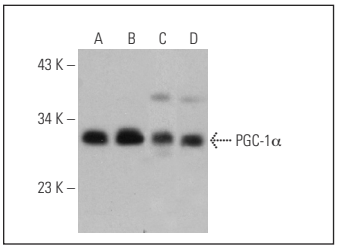
Suitable for use as control antibody for PGC-1α siRNA (h): sc-38884, PGC-1α siRNA (m): sc-38885, PGC-1α siRNA (r): sc-72151, PGC-1α shRNA Plasmid (h): sc-38884-SH, PGC-1α shRNA Plasmid (m): sc-38885-SH, PGC-1α shRNA Plasmid (r): sc-72151-SH, PGC-1α shRNA (h) Lentiviral Particles: sc-38884-V, PGC-1α shRNA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

Molecular Weight of PGC-1α1: 115 kDa.

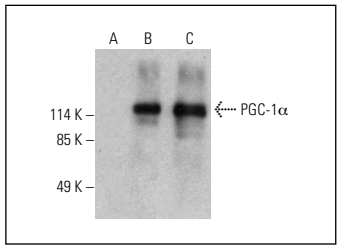
Molecular Weight of NT-PGC-1α NT(erminal)-PGC-1α: 37 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, DU 145 nuclear extract: sc-24960 or A-673 nuclear extract: sc-2128.

DATA



PGC-1α (C-4): sc-518038. Western blot analysis of PGC-1α expression in Jurkat (**A**) and Sol8 (**B**) whole cell lysates and DU 145 (**C**) and A-673 (**D**) nuclear extracts.



PGC-1α (C-4): sc-518038. Western blot analysis of PGC-1α expression in non-transfected (**A**), mouse PGC-1α transfected (**B**) and human PGC-1α transfected (**C**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zhao, Y., et al. 2020. Liver governs adipose remodelling via extracellular vesicles in response to lipid overload. Nat. Commun. 11: 719.
2. Zhang, P., et al. 2021. CoQ10 protects against acetaminophen-induced liver injury by enhancing mitophagy. Toxicol. Appl. Pharmacol. 410: 115355.
3. Sreekumar, P.G., et al. 2022. Mechanisms of RPE senescence and potential role of αB crystallin peptide as a senolytic agent in experimental AMD. Exp. Eye Res. 215: 108918.
4. Maneechote, C., et al. 2022. Modulating mitochondrial dynamics attenuates cardiac ischemia-reperfusion injury in prediabetic rats. Acta Pharmacol. Sin. 43: 26-38.
5. Nagayama, S., et al. 2023. Improvement of low-intensity long-time running performance in rats by intake of glucosyl hesperidin. Physiol. Rep. 11: e15413.

RESEARCH USE

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