SANTA CRUZ BIOTECHNOLOGY, INC.

PGC-1α (D-5): sc-518025

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 (D-5) 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_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PGC-1α (D-5) is available conjugated to agarose (sc-518025 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-518025 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-518025 PE), fluorescein (sc-518025 FITC), Alexa Fluor® 488 (sc-518025 AF488), Alexa Fluor® 546 (sc-518025 AF546), Alexa Fluor® 594 (sc-518025 AF594) or Alexa Fluor® 647 (sc-518025 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-518025 AF680) or Alexa Fluor® 790 (sc-518025 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 (D-5) 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

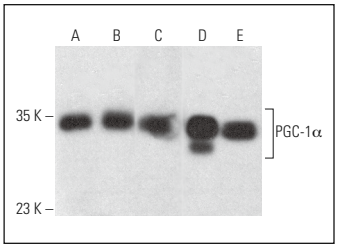
Suitable for use as control antibody for PGC-1α siRNA (h): sc-38884, PGC-1α siRNA (m): sc-38885, PGC-1α shRNA Plasmid (h): sc-38884-SH, PGC-1α shRNA Plasmid (m): sc-38885-SH, PGC-1α shRNA (h) Lentiviral Particles: sc-38884-V and PGC-1α shRNA (m) Lentiviral Particles: sc-38885-V.

Molecular Weight of PGC-1α1: 115 kDa.

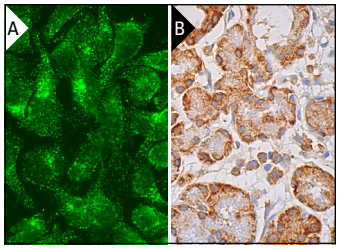
Molecular Weight of NT-PGC-1α (NT(erminal)-PGC-1α: 37 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, Sol8 cell lysate: sc-2249 or SH-SY5Y cell lysate: sc-3812 .

DATA



PGC-1α (D-5) HRP: sc-518025 HRP. Direct western blot analysis of PGC-1α expression in Jurkat (**A**), Sol8 (**B**) and SH-SY5Y (**C**) whole cell lysates and DU 145 (**D**) and A-673 (**E**) nuclear extracts.



PGC-1α (D-5): sc-518025. Immunofluorescence staining of formalin-fixed HeLa cells showing cytoplasmic vesicles localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human salivary gland tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Thankam, F.G., et al. 2018. Association of inflammatory responses and ECM disorganization with HMGB1 upregulation and NLRP3 inflammasome activation in the injured rotator cuff tendon. Sci. Rep. 8: 8918.
2. Luo, C., et al. 2020. H3K27me3-mediated PGC1α gene silencing promotes melanoma invasion through WNT5A and YAP. J. Clin. Invest. 130: 853-862.
3. Chen, J., et al. 2021. DHA protects hepatocytes from oxidative injury through GPR120/ERK-mediated mitophagy. Int. J. Mol. Sci. 22: 5675.
4. Jia, R., et al. 2022. NNMT is induced dynamically during beige adipogenesis in adipose tissues depot-specific manner. J. Physiol. Biochem. 78: 169-183.
5. Rambout, X., et al. 2023. PGC-1α senses the CBC of pre-mRNA to dictate the fate of promoter-proximally paused RNAPII. Mol. Cell 83: 186-202.e11.

RESEARCH USE

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