

# PGC-1 $\alpha$ (D-5): sc-518025

## 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. PPAR $\gamma$  co-activator-1 (PGC-1) is a transcriptional cofactor of nuclear respiratory factor-1 (NRF-1), PPAR $\beta$ , PPAR $\alpha$  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 PPAR $\gamma$  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-1 $\alpha$  (D-5) is a mouse monoclonal antibody raised against amino acids 1-300 mapping near the N-terminus of PGC-1 $\alpha$  of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PGC-1 $\alpha$  (D-5) is available conjugated to agarose (sc-518025 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-518025 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-518025 PE), fluorescein (sc-518025 FITC), Alexa Fluor<sup>®</sup> 488 (sc-518025 AF488), Alexa Fluor<sup>®</sup> 546 (sc-518025 AF546), Alexa Fluor<sup>®</sup> 594 (sc-518025 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-518025 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-518025 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-518025 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor<sup>®</sup> is a trademark of Molecular Probes, Inc., Oregon, USA

## STORAGE

Store at 4 $^{\circ}$  C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

PGC-1 $\alpha$  (D-5) is recommended for detection of PGC-1 $\alpha$  of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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).

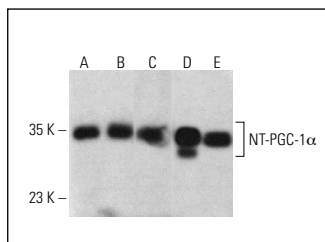
Suitable for use as control antibody for PGC-1 $\alpha$  siRNA (h): sc-38884, PGC-1 $\alpha$  siRNA (m): sc-38885, PGC-1 $\alpha$  shRNA Plasmid (h): sc-38884-SH, PGC-1 $\alpha$  shRNA Plasmid (m): sc-38885-SH, PGC-1 $\alpha$  shRNA (h) Lentiviral Particles: sc-38884-V and PGC-1 $\alpha$  shRNA (m) Lentiviral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

Molecular Weight of PGC-1 $\alpha$ 1: 115 kDa.

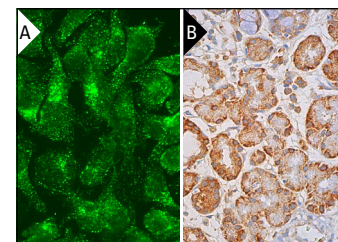
Molecular Weight of NT-PGC-1 $\alpha$  (NT(terminal)-PGC-1 $\alpha$ ): 37 kDa.

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

## DATA



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



PGC-1 $\alpha$  (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 PGC1 $\alpha$  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-1 $\alpha$  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.