SANTA CRUZ BIOTECHNOLOGY, INC.

p-CREB-1 (10E9): sc-81486

BACKGROUND

Eukaryotic gene transcription is regulated by sequence-specific transcription factors that bind modular *cis* acting promoter and enhancer elements. The ATF/CREB transcription factor family binds the palindromic cAMP response element (CRE) octanucleotide TGACGTCA. The ATF/CREB family includes CREB-1, CREB-2 (also designated ATF-4), ATF-1, ATF-2 and ATF-3. This family of proteins contain highly divergent N-terminal domains, but share a C-terminal leucine zipper for dimerization and DNA binding. Although CREB can bind to DNA in an unphosphorylated state, it cannot activate transcription. Phosphorylation of CREB on Ser 133 by protein kinase A facilitates its interaction with the CREB-binding protein (CBP) and activates the basal transcription complex. CREB functions in neoglucogenesis through interactions with the nuclear coactivator PGC-1. CREB may play a role in the pathogenesis of type II diabetes and dilated cardiomyopathy. The gene encoding CREB-1 maps to human chromosome 2q33.3.

CHROMOSOMAL LOCATION

Genetic locus: CREB1 (human) mapping to 2q33.3; Creb1 (mouse) mapping to 1 C2.

SOURCE

p-CREB-1 (10E9) is a mouse monoclonal antibody raised against synthetic phosphopeptide corresponding to amino acid residues surrounding serine 133 of CREB-1 of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

APPLICATIONS

p-CREB-1 (10E9) is recommended for detection of Ser 133 phosphorylated CREB-1 and Ser 63 phosphorylated ATF-1 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Molecular Weight of p-CREB-1: 43 kDa.

Positive Controls: CREB-1 (h): 293 Lysate: sc-111160, CREB-1 (m): 293T Lysate: sc-119446 or HeLa whole cell lysate: sc-2200.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

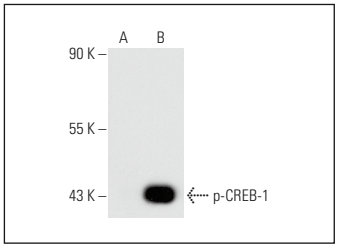
RESEARCH USE

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

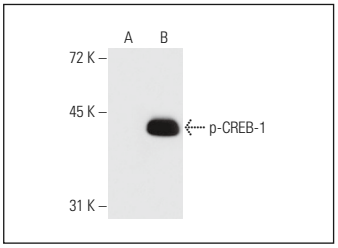
STORAGE

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

DATA



p-CREB-1 (10E9): sc-81486. Western blot analysis of CREB-1 phosphorylation in non-transfected: sc-110760 (**A**) and human CREB-1 transfected: sc-111160 (**B**) 293 whole cell lysates.



p-CREB-1 (10E9): sc-81486. Western blot analysis of CREB-1 phosphorylation in non-transfected: sc-117752 (**A**) and mouse CREB-1 transfected: sc-119446 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Mead, J.R., et al. 2003. Interferon-γ stimulates the expression of the inducible cAMP early repressor in macrophages through the activation of casein kinase 2. A potentially novel pathway for interferon-γ-mediated inhibition of gene transcription. J. Biol. Chem. 278: 17741-17751.
2. Wu, H., et al. 2012. Herpes simplex virus type 1 infection activates the Epstein-Barr virus replicative cycle via a CREB-dependent mechanism. Cell. Microbiol. 14: 546-559.
3. Yao, W., et al. 2014. Endoplasmic reticulum stress links hepatitis C virus RNA replication to wild-type PGC-1α/liver-specific PGC-1α upregulation. J. Virol. 88: 8361-8374.
4. Haidar, M., et al. 2015. Transforming growth factor β2 promotes transcription of COX2 and EP4, leading to a prostaglandin E_2-driven autostimulatory loop that enhances virulence of *Theileria annulata*-transformed macrophages. Infect. Immun. 83: 1869-1880.
5. Bi, J., et al. 2016. Nobiletin ameliorates isoflurane-induced cognitive impairment via antioxidant, anti-inflammatory and anti-apoptotic effects in aging rats. Mol. Med. Rep. 14: 5408-5414.
6. Liu, J., et al. 2017. Roscovitine, a CDK5 inhibitor, alleviates sevoflurane-induced cognitive dysfunction via regulation Tau/GSK3β and ERK/PPARγ/CREB signaling. Cell. Physiol. Biochem. 44: 423-435.
7. Li, X., et al. 2018. Cisplatin enhances hepatitis B virus replication and PGC-1α expression through endoplasmic reticulum stress. Sci. Rep. 8: 3496.
8. Tian, R., et al. 2019. Fibroblast growth factor-5 promotes spermatogonial stem cell proliferation via ERK and Akt activation. Stem Cell Res. Ther. 10: 40.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.