

CREB-1 (D-4): sc-374227

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 contains highly divergent N-terminal domains, but shares 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.

REFERENCES

1. Montminy, M.R., et al. 1986. Identification of a cyclic-AMP-responsive element within the rat somatostatin gene. *Proc. Natl. Acad. Sci. USA* 83: 6682-6686.
2. Yamamoto, K.K., et al. 1988. Phosphorylation-induced binding and transcriptional efficacy of nuclear factor CREB. *Nature* 334: 494-498.
3. Lin, Y.S., et al. 1988. Interaction of a common cellular transcription factor, ATF, with regulatory elements in both *Ela*- and cyclic AMP-inducible promoters. *Proc. Natl. Acad. Sci. USA* 85: 3396-3400.

SOURCE

CREB-1 (D-4) is a mouse monoclonal antibody raised against amino acids 1-341 of CREB-1 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. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-374227 X, 200 µg/0.1 ml.

APPLICATIONS

CREB-1 (D-4) is recommended for detection of CREB-1A, CREB-1B, CREM and ATF-1 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).

CREB-1 (D-4) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of CREB-1: 43 kDa.

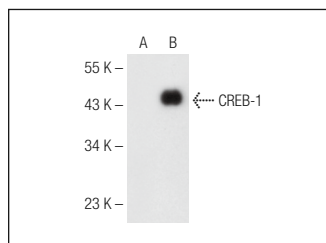
Positive Controls: CREB-1 (m): 293T Lysate: sc-119446, Jurkat nuclear extract: sc-2132 or A-431 whole cell lysate: sc-2201.

RECOMMENDED SUPPORT REAGENTS

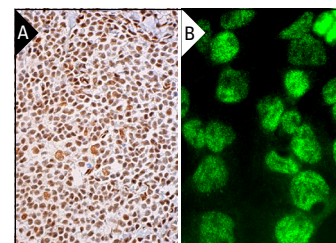
To ensure optimal results, the following support reagents are recommended:

- 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, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.
- 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.
- 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



CREB-1 (D-4): sc-374227. Western blot analysis of CREB-1 expression in non-transfected: sc-117752 (A) and mouse CREB-1 transfected: sc-119446 (B) 293T whole cell lysates.



CREB-1 (D-4): sc-374227. Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing nuclear staining of cells in germinal center and cells in non-germinal center (A). Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization (B).

SELECT PRODUCT CITATIONS

1. Hervouet, E., et al. 2015. The autophagy GABARAP1 gene is epigenetically regulated in breast cancer models. *BMC Cancer* 15: 729.
2. Zhou, X., et al. 2019. Pirarubicin reduces USP22 expression by inhibiting CREB-1 phosphorylation in HeLa cells. *Exp. Ther. Med.* 17: 4230-4236.
3. Ardizzone, A., et al. 2023. bFGF-like activity supported tissue regeneration, modulated neuroinflammation, and rebalanced Ca²⁺ homeostasis following spinal cord injury. *Int. J. Mol. Sci.* 24: 14654.

STORAGE

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

RESEARCH USE

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



See **CREB-1 (D-12): sc-377154** for CREB-1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.