SANTA CRUZ BIOTECHNOLOGY, INC.

CTCF (C-9): sc-398149

BACKGROUND

CTCF belongs to the zinc finger transcription factor family, and it recognizes unusually long and remarkably divergent DNA target sequences to influence expression of many various genes. The DNA-binding domain of CTCF is composed of 11 Zn fingers including 10 that are of C_2H_2 class, and one that is of C2HC class, and they are highly conserved between vertebrate species. CTCF functions as a repressor of the c-Myc gene and as a regulator of lysozyme gene expression. In addition, CTCF associates with the essential activator domain in the promotor region of the amyloid β-protein precursor (APP) gene to activate transcription of APP. Expression of CTCF up-regulates APP expression and thereby, enhances synapse formations between primary neurons during development. CTCF is ubiquitously expressed and localized to the nucleus. During terminal differentiation, CTCF is negatively regulated by differential phosphorylation and also by decreases in CTCF mRNA and protein expression.

REFERENCES

1. Klenova, E.M., et al. 1993. CTCF, a conserved nuclear factor required for optimal transcriptional activity of the chicken c-Myc gene, is an 11-Zn-finger protein differentially expressed in multiple forms. Mol. Cell. Biol. 13: 7612-7624.
2. Filippova, G.N., et al. 1996. An exceptionally conserved transcriptional repressor, CTCF, employs different combinations of zinc fingers to bind diverged promoter sequences of avian and mammalian c-Myc oncogenes. Mol. Cell. Biol. 16: 2802-2813.
3. Vostrov, A.A., et al. 1997. The zinc finger protein CTCF binds to the APBβ domain of the amyloid β-protein precursor promoter. Evidence for a role in transcriptional activation. J. Biol. Chem. 272: 33353-33359.
4. Bell, A.C., et al. 1999. The protein CTCF is required for the enhancer blocking activity of vertebrate insulators. Cell 98: 387-396.

CHROMOSOMAL LOCATION

Genetic locus: CTCF (human) mapping to 16q22.1; Ctcf (mouse) mapping to 8 D3.

SOURCE

CTCF (C-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2-23 at the N-terminus of CTCF of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} 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-398149 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-398149 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

CTCF (C-9) is recommended for detection of CTCF 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 CTCF siRNA (h): sc-35124, CTCF siRNA (m): sc-35125, CTCF shRNA Plasmid (h): sc-35124-SH, CTCF shRNA Plasmid (m): sc-35125-SH, CTCF shRNA (h) Lentiviral Particles: sc-35124-V and CTCF shRNA (m) Lentiviral Particles: sc-35125-V.

CTCF (C-9) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

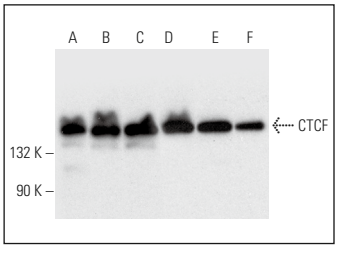
Molecular Weight of CTCF: 150 kDa.

Positive Controls: CCRF-CEM nuclear extract: sc-2146, HeLa nuclear extract: sc-2120 or HeLa whole cell lysate: sc-2200.

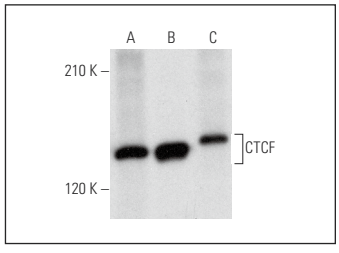
RECOMMENDED SUPPORT REAGENTS

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, 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.

DATA



CTCF (C-9): sc-398149. Western blot analysis of CTCF expression in K-562 (**A**), Jurkat (**B**), CCRF-CEM (**C**) and HeLa (**D**) nuclear extracts and MCF7 (**E**) and HeLa (**F**) whole cell lysates.



CTCF (C-9): sc-398149. Western blot analysis of CTCF expression in K-562 (**A**), Jurkat (**B**) and NIH/3T3 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Wang, J., et al. 2021. Manipulation of TAD reorganization by chemical-dependent genome linking. STAR Protoc. 2: 100799.
2. Wang, J., et al. 2021. Phase separation of OCT4 controls TAD reorganization to promote cell fate transitions. Cell Stem Cell 28: 1868-1883.e11.

RESEARCH USE

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