SANTA CRUZ BIOTECHNOLOGY, INC.

CTCF (G-8): sc-271474

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

CHROMOSOMAL LOCATION

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

SOURCE

CTCF (G-8) is a mouse monoclonal antibody raised against amino acids 1-280 mapping at the N-terminus of CTCF of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 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-271474 X, 200 µg/0.1 ml.

CTCF (G-8) is available conjugated to agarose (sc-271474 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271474 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271474 PE), fluorescein (sc-271474 FITC), Alexa Fluor® 488 (sc-271474 AF488), Alexa Fluor® 546 (sc-271474 AF546), Alexa Fluor® 594 (sc-271474 AF594) or Alexa Fluor® 647 (sc-271474 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271474 AF680) or Alexa Fluor® 790 (sc-271474 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

CTCF (G-8) 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), 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).

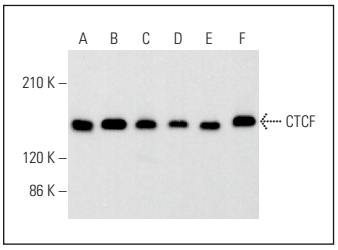
Suitable for use as control antibody for CTCF siRNA (h): sc-35124, CTCF siRNA (m): sc-35125, CTCF shRNA Plasmid (h): sc-35124-SH, CTCF shRNA Plasmid (m): sc-35125-SH, CTCF shRNA (h) Lentiviral Particles: sc-35124-V and CTCF shRNA (m) Lentiviral Particles: sc-35125-V.

CTCF (G-8) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

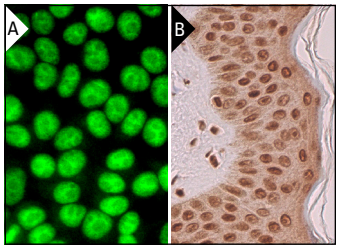
Molecular Weight of CTCF: 150 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or Jurkat whole cell lysate: sc-2204.

DATA



CTCF (G-8): sc-271474. Western blot analysis of CTCF expression in Jurkat (**A**), K-562 (**B**), CCRF-CEM (**C**), HeLa (**D**), MCF7 (**E**) and NIH/3T3 (**F**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



CTCF (G-8): sc-271474. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing nuclear staining of keratinocytes, fibroblasts, Langerhans cells and melanocytes (**B**).

SELECT PRODUCT CITATIONS

1. Rizkallah, R., et al. 2011. Global mitotic phosphorylation of C_2H_2 zinc finger protein linker peptides. Cell Cycle 10: 3327-3336.
2. Roy, A.R., et al. 2018. The transcriptional regulator CCCTC-binding factor limits oxidative stress in endothelial cells. J. Biol. Chem. 293: 8449-8461.
3. Luppino, J.M., et al. 2020. Cohesin promotes stochastic domain intermingling to ensure proper regulation of boundary-proximal genes. Nat. Genet. 52: 840-848.
4. Liu, X., et al. 2021. Time-dependent effect of 1,6-hexanediol on biomolecular condensates and 3D chromatin organization. Genome Biol. 22: 230.
5. Andreu, M.J., et al. 2022. Establishment of 3D chromatin structure after fertilization and the metabolic switch at the morula-to-blastocyst transition require CTCF. Cell Rep. 41: 111501.

RESEARCH USE

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