SANTA CRUZ BIOTECHNOLOGY, INC.

Ac-Histone H4 (B-10): sc-515319

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

In eukaryotes, DNA is wrapped around histone octamers to form the basic unit of chromatin structure. The octamer is composed of Histones H2A, H2B, H3 and H4, and it associates with approximately 200 base pairs of DNA to form the nucleosome. The association of DNA with histones results in dense packing of chromatin, which restricts proteins involved in gene transcription from binding to DNA. p300 preferentially acetylates Histone H3 at lysines 14 and 18 and Histone H4 at lysines 5 and 8. PCAF in its native form, primarily acetylates Histone H3 at lysine 14 to a monoacetylated form, and less efficiently acetylates Histone H4 at lysine 8. Histone H4 may also be acetylated at lysines 12 and 16, and the involvement of acetylated H4 with Histones H2A, H2B and H3 suggests that acetylated histones may be involved in dynamic chromatin remodeling.

REFERENCES

1. Doenecke, D., et al. 1988. The H1 and core Histone subtypes: differential gene expression and varied primary structures. Adv. Enzyme Regul. 27: 107-120.
2. Lewin, B. 1990. GENES IV. Oxford: Oxford University Press, 411-412.

SOURCE

Ac-Histone H4 (B-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 9-21 acetylated Lysine 12 of Histone H4 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.

Blocking peptide available for competition studies, sc-515319 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Ac-Histone H4 (B-10) is recommended for detection of Lysine 12 acetylated Histone H4 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).

Molecular Weight of acetylated and non-acetylated Ac-Histone H4: 11 kDa.

Molecular Weight of hyper-acetylated Ac-Histone H4: 35 kDa.

Positive Controls: HeLa + sodium butyrate cell lysate: sc-24696 or Trichostatin A + NIH/3T3 whole cell lysate.

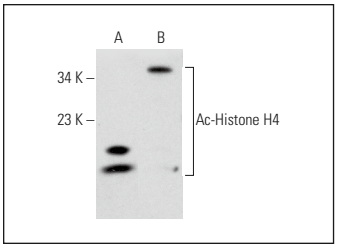
STORAGE

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

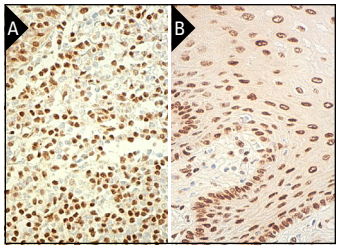
RESEARCH USE

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

DATA



Ac-Histone H4 (B-10): sc-515319. Western blot analysis of Ac-Histone H4 expression in sodium butyrate treated HeLa (**A**) and Trichostatin A treated NIH/3T3 (**B**) whole cell lysates.



Ac-Histone H4 (B-10): sc-515319. Immunoperoxidase staining of formalin fixed, paraffin-embedded human tonsil tissue showing nuclear staining of cells in germinal center, cells in non-germinal center and squamous epithelial cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human oral mucosa tissue showing nuclear staining of squamous epithelial cells (**B**). Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detected with m-IgG Fc BP-B: sc-533652 and ImmunoCruz® ABC Kit: sc-516216.

SELECT PRODUCT CITATIONS

1. Lu, D., et al. 2017. A vitamin D receptor agonist converts $CD4^+$ T cells to $Foxp3^+$ regulatory T cells in patients with ulcerative colitis. Oncotarget 8: 53552-53562.
2. Gong, D., et al. 2019. Inhibition of histone deacetylase 11 promotes human liver cancer cell apoptosis. Am. J. Transl. Res. 11: 983-990.
3. Wu, B., et al. 2020. Pyrimethamine conjugated histone deacetylase inhibitors: design, synthesis and evidence for triple negative breast cancer selective cytotoxicity. Bioorg. Med. Chem. 28: 115345.
4. Kim, S.L., et al. 2020. A novel HDAC1 inhibitor, CBUD-1001, exerts anticancer effects by modulating the apoptosis and EMT of colorectal cancer cells. Int. J. Oncol. 57: 1027-1038.
5. Shin, M.W., et al. 2021. The HDAC1 inhibitor CBUD-1001 enhances TRAIL-induced apoptosis in colorectal cancer cells. Anticancer Res. 41: 4353-4364.
6. Chandrasekaran, B., et al. 2023. Antiandrogen-equipped histone deacetylase inhibitors selectively inhibit androgen receptor (AR) and AR-splice variant (AR-SV) in castration-resistant prostate cancer (CRPC). Cancers 15: 1769.
7. Shin, M.W., et al. 2023. HDAC inhibitor SB939 potentiates TRAIL-induced apoptosis in colorectal cancer cells. Cell. Mol. Biol. 69: 12-18.

PROTOCOLS

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