SANTA CRUZ BIOTECHNOLOGY, INC.

Ac-Histone H4 (E-5): sc-377520

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.

SOURCE

Ac-Histone H4 (E-5) is a mouse monoclonal antibody specific for an epitope mapping to a short peptide containing acetylated Serine 1 and Lysine 5, 8 and 12 of Histone H4 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.

Ac-Histone H4 (E-5) is available conjugated to agarose (sc-377520 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377520 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377520 PE), fluorescein (sc-377520 FITC), Alexa Fluor® 488 (sc-377520 AF488), Alexa Fluor® 546 (sc-377520 AF546), Alexa Fluor® 594 (sc-377520 AF594) or Alexa Fluor® 647 (sc-377520 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377520 AF680) or Alexa Fluor® 790 (sc-377520 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-377520 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

Ac-Histone H4 (E-5) is recommended for detection of Ser 1, Lys 5, Lys 8 and Lys 12 acetylated Histone H4 of broad species 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).

Ac-Histone H4 (E-5) is also recommended for detection of Ser 1, Lys 5, Lys 8 and Lys 12 acetylated Histone H4 in additional species, including equine, canine, bovine, porcine and avian.

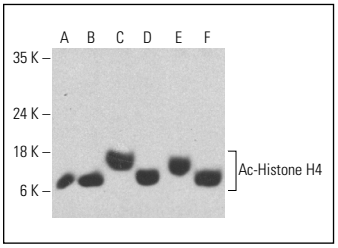
Molecular Weight of acetylated and non-acetylated Ac-Histone H4: 11 kDa.

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

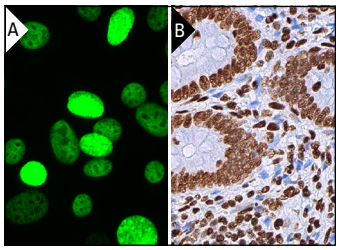
STORAGE

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

DATA



Ac-Histone H4 (E-5) HRP: sc-377520 HRP. Direct western blot analysis of Ac-Histone H4 expression in HL-60 (**A**), Daudi (**B**), MOLT-4 (**C**), NIH/3T3 (**D**), K-562 (**E**) and HeLa (**F**) whole cell lysates.



Ac-Histone H4 (E-5): sc-377520. Immunofluorescence staining of methanol-fixed 3T3-L1 cells showing nuclear localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing nuclear staining of glandular cells and lymphoid cells (**B**).

SELECT PRODUCT CITATIONS

1. Su, X., et al. 2014. The PPARβ/δ agonist GW501516 attenuates peritonitis in peritoneal fibrosis via inhibition of TAK1-NFκB pathway in rats. Inflammation 37: 729-737.
2. Kitir, B., et al. 2017. Chemical editing of macrocyclic natural products and kinetic profiling reveal slow, tight-binding histone deacetylase inhibitors with picomolar affinities. Biochemistry 56: 5134-5146.
3. Bosnakovski, D., et al. 2019. A novel P300 inhibitor reverses DUX4-mediated global Histone H3 hyperacetylation, target gene expression, and cell death. Sci. Adv. 5: eaaw7781.
4. Jacob, J.T., et al. 2020. Keratin 17 regulates nuclear morphology and chromatin organization. J. Cell Sci. 133: jcs254094.
5. Fleischmann, M., et al. 2021. Modulation of FLT3-ITD localization and targeting of distinct downstream signaling pathways as potential strategies to overcome FLT3-inhibitor resistance. Cells 10: 2992.
6. Gaddelapati, S.C., et al. 2022. Juvenile hormone-induced histone deacetylase 3 suppresses apoptosis to maintain larval midgut in the yellow fever mosquito. Proc. Natl. Acad. Sci. USA 119: e2118871119.
7. Huang, C., et al. 2022. BAF-L modulates histone-to-protamine transition during spermiogenesis. Int. J. Mol. Sci. 23: 1985.
8. Yan, J., et al. 2023. Synthesis and bioactivity evaluation of ferrocene-based hydroxamic acids as selective histone deacetylase 6 inhibitors. Eur. J. Med. Chem. 246: 115004.
9. Gaddelapati, S.C., et al. 2024. N(α)-acetyltransferase 40-mediated histone acetylation plays an important role in ecdysone regulation of metamorphosis in the red flour beetle, *Tribolium castaneum*. Commun. Biol. 7: 521.

RESEARCH USE

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