

# Ac-Histone H3 (D-4): sc-518011

## 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

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

## SOURCE

Ac-Histone H3 (D-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1-28 of Histone H3 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>3</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Ac-Histone H3 (D-4) is recommended for detection of Histone H3 acetylated at Lys 9 and Lys 14 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).

Molecular Weight of Ac-Histone H3: 17 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210 or NIH/3T3 + Trichostatin A whole cell lysate.

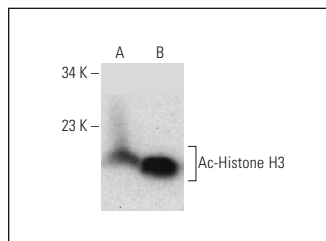
## RECOMMENDED SUPPORT REAGENTS

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.

## 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 H3 (D-4): sc-518011. Western blot analysis of Ac-Histone H3 expression in NIH/3T3 (A) and NIH/3T3 treated Trichostatin A (B) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Nepon-Sixt, B.S., et al. 2019. Myc-driven chromatin accessibility regulates Cdc45 assembly into CMG helicases. *Commun. Biol.* 2: 110.
- 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.
- Ma, S., et al. 2019. Histone deacetylases inhibitor MS-275 suppresses human esophageal squamous cell carcinoma cell growth and progression via the PI3K/Akt/mTOR pathway. *J. Cell. Physiol.* 234: 22400-22410.
- Jacob, J.T., et al. 2020. Keratin 17 regulates nuclear morphology and chromatin organization. *J. Cell Sci.* 133: jcs254094.
- Borgonetti, V. and Galeotti, N. 2021. Combined inhibition of histone deacetylases and BET family proteins as epigenetic therapy for nerve injury-induced neuropathic pain. *Pharmacol. Res.* 165: 105431.
- Jiang, Y., et al. 2022. Potent hydrazide-based HDAC inhibitors with a superior pharmacokinetic profile for efficient treatment of acute myeloid leukemia *in vivo*. *J. Med. Chem.* 65: 285-302.
- Wang, R., et al. 2022. The HN1/HMGB1 axis promotes the proliferation and metastasis of hepatocellular carcinoma and attenuates the chemosensitivity to oxaliplatin. *FEBS J.* 289: 6400-6419.
- Riyahi, J., et al. 2022. Multigenerational effects of paternal spatial training are lasting in the F1 and F2 male offspring. *Behav. Pharmacol.* 33: 342-354.
- 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.

## RESEARCH USE

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