

# p-Histone H3 (HTA28): sc-56745

## 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. Histone H3, the core protein of the nucleosome, becomes phosphorylated at the end of prophase. The two major sites of phosphorylation are the mitosis-specific site Ser 10 and Ser 28, both of which are extensively phosphorylated in DNA-bound forms of Histone H3 and in nucleosomal Histone H3. The nucleosome structure of Histone H3 promotes N-terminal phosphorylation *in vitro*.

## REFERENCES

1. Doenecke, D., Tonjes, R. and Kress, H. 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.
3. Shibata, K., Inagaki, M. and Ajiro, K. 1990. Mitosis-specific Histone H3 phosphorylation *in vitro* in nucleosome structures. *Eur. J. Biochem.* 192: 87-93.
4. Wolffe, A.P. 1997. Histone H1. *Int. J. Biochem. Cell Biol.* 29: 1463-1466.
5. Cobb, J., Miyaike, M., Kikuchi, A. and Handel, M.A. 1999. Meiotic events at the centromeric heterochromatin: Histone H3 phosphorylation, topoisomerase II  $\alpha$  localization and chromosome condensation. *Chromosoma* 108: 412-425.
6. Zhong, S.P., Ma, W.Y. and Dong, Z. 2000. ERKs and p38 kinases mediate ultraviolet B-induced phosphorylation of Histone H3 at Serine 10. *J. Biol. Chem.* 275: 20980-20984.
7. Choi, H.S., Choi, B.Y., Cho, Y.Y., Mizuno, H., Kang, B.S., Bode, A.M. and Dong, Z. 2005. Phosphorylation of Histone H3 at Serine 10 is indispensable for neoplastic cell transformation. *Cancer Res.* 65: 5818-5827.

## CHROMOSOMAL LOCATION

Genetic locus: HIST1H3A (human) mapping to 6p22.2, Hist1h3a (mouse) mapping to 13 A3.1.

## SOURCE

p-Histone H3 (HTA28) is a rat monoclonal antibody raised against synthetic peptide corresponding to amino acids 23-35 of p-Histone H3 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

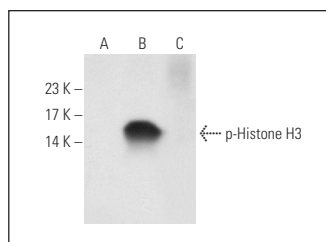
## APPLICATIONS

p-Histone H3 (HTA28) is recommended for detection of Ser 28 phosphorylated Histone H3 of mouse, rat, human and bovine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells); not recommended for detection of the unphosphorylated epitope.

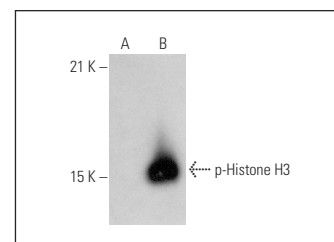
Molecular Weight of p-Histone H3: 15 kDa.

Positive Controls: Jurkat + Calyculin A cell lysate: sc-2277, HeLa + Calyculin A cell lysate: sc-2271 or A-431 + Calyculin A cell lysate: sc-2260.

## DATA



p-Histone H3 (HTA28): sc-56745. Western blot analysis of Histone H3 phosphorylation in untreated (A), calyculin A treated (B) and calyculin A and lambda protein phosphatase treated (C) HeLa whole cell lysates.



p-Histone H3 (HTA28): sc-56745. Western blot analysis of Histone H3 phosphorylation in Jurkat (A) and Calyculin A-treated Jurkat (B) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Serrano, C., Galán, S., Rubio, J.F., Candelario-Martínez, A., Montes-Gómez, A.E., Cháñez-Paredes, S., Cedillo-Barrón, L., Schnoor, M., Meraz-Ríos, M.A., Villegas-Sepúlveda, N., Ortiz-Navarrete, V. and Nava, P. 2019. Compartmentalized response of IL-6/Stat3 signaling in the colonic mucosa mediates colitis development. *J. Immunol.* 202: 1239-1249.
2. Bakalar, D., O'Reilly, J.J., Lacaille, H., Salzbank, J., Ellegood, J., Lerch, J.P., Sasaki, T., Imamura, Y., Hashimoto-Torii, K., Vacher, C.M. and Penn, A.A. 2022. Lack of placental neurosteroid alters cortical development and female somatosensory function. *Front. Endocrinol.* 13: 972033.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.



See **p-Histone H3 (C-2): sc-374669** for p-Histone H3 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor<sup>®</sup> 488, 546, 594, 647, 680 and 790.