SANTA CRUZ BIOTECHNOLOGY, INC.

p-Histone H2B (Ser 14): sc-31671

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. Histone H2B, which is not usually phosphorylated in quiescent or growing cells, is phosphorylated after treatment with various apoptotic inducers. Histone H2B phosphorylation occurs universally in apoptotic cells and is associated with apoptosis-specific nucleosomal DNA fragmentation making it a biochemical hallmark of apoptotic cells. Phosphorylation of Histone H2B at Serine 14 correlates with cells undergoing programmed cell death in vertebrates. Mst1 (mammalian sterile twenty kinase) can phosphorylate H2B at Ser 14 *in vitro* and *in vivo,* and the onset of H2B Ser 14 phosphorylation is dependent upon cleavage of Mst1 by caspase-3.

REFERENCES

1. Hohmann, P. 1983. Phosphorylation of H1 histones. Mol. Cell. Biochem. 57: 81-92.
2. Doenecke, D., et al. 1988. The H1 and core histone subtypes: differential gene expression and varied primary structures. Adv. Enzyme Regul. 27: 107-120.
3. Lewin, B. 1990. GENES IV. Oxford: Oxford University Press, 411-412.
4. Nilsson, P., et al. 1992. DNA binding of Histone H1 is modulated by nucleotides. FEBS Lett. 313: 67-70.
5. Roth, S.Y., et al. 1992. Chromatin condensation: does Histone H1 dephosphorylation play a role? Trends Biochem. 17: 93-98.
6. Ajiro, K. 2000. Histone H2B phosphorylation in mammalian apoptotic cells. An association with DNA fragmentation. J. Biol. Chem. 275: 439-443.
7. Cheung, W.L., et al. 2003. Apoptotic phosphorylation of Histone H2B is mediated by mammalian sterile twenty kinase. Cell 113: 507-517.

SOURCE

p-Histone H2B (Ser 14) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 14 phosphorylated Histone H2B of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-31671 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

p-Histone H2B (Ser 14) is recommended for detection of Ser 14 phosphorylated Histone H2B of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

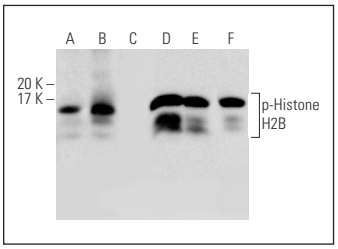
Molecular Weight of p-Histone H2B: 18 kDa.

Positive Controls: HeLa + Calyculin A cell lysate: sc-2271.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Western blot analysis of Histone H2B phosphorylation in untreated (**A**,**D**), calyculin A treated (**B**,**E**) and calyculin A and lambda protein phosphatase (sc-200312A) treated (**C**,**F**) HeLa whole cell lysates. Antibodies tested include p-Histone H2B (Ser 14): sc-31671 (**A**,**B**,**C**) and Histone H2B (FL-126): sc-10808 (**D**,**E**,**F**).

SELECT PRODUCT CITATIONS

1. Lau, A.T., et al. 2011. Phosphorylation of histone H2B serine 32 is linked to cell transformation. J. Biol. Chem. 286: 26628-26637.
2. Tewari, S., et al. 2012. Damaged mitochondrial DNA replication system and the development of diabetic retinopathy. Antioxid. Redox Signal. 17: 492-504.

PROTOCOLS

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