SANTA CRUZ BIOTECHNOLOGY, INC.

MacroH2A (H-39): sc-67322

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The Power to Question

BACKGROUND

Eukaryotic histones are water soluble, basic nuclear proteins that form hetero-octameric nucleosome particles by wrapping 146 base pairs of DNA in a left-handed super-helical turn sequentially to form chromosomal fiber. Two molecules of each of the four core histones (H2A, H2B, H3, and H4) form the octamer. The octamer consists of two H2A-H2B dimers and two H3-H4 dimers, forming two nearly symmetrical halves by tertiary structure. MacroH2A, also called core histone MacroH2A2 (mH2A2), is a variant Histone H2A, originally isolated in rat liver, that is nearly three times as large as conventional H2A. MacroH2A may be involved in stable X chromosome inactivation as it is enriched in inactive X chromosome chromatin.

REFERENCES

1. Pehrson, J.R. and Fried, V.A. 1992. MacroH2A, a core histone containing a large nonhistone region. Science 257: 1398-1400.
2. Chadwick, B.P. and Willard, H.F. 2001. Histone H2A variants and the inactive X chromosome: identification of a second MacroH2A variant. Hum. Mol. Genet. 10: 1101-1113.
3. Costanzi, C. and Pehrson, J.R. 2001. MacroH2A2, a new member of the MacroH2A core histone family. J. Biol. Chem. 276: 21776-21784.
4. Kustatscher, G., et al. 2005. Splicing regulates NAD metabolite binding to histone MacroH2A. Nat. Struct. Mol. Biol. 12: 624-625.
5. Chakravarthy, S., et al. 2005. Structural characterization of the histone variant MacroH2A. Mol. Cell. Biol. 25: 7616-7624.
6. Hernández-Muñoz, I., et al. 2005. Stable X chromosome inactivation involves the PRC1 Polycomb complex and requires histone MacroH2A1 and the CULLIN3/ SPOP ubiquitin E3 ligase. Proc. Natl. Acad. Sci. USA 102: 7635-7640.
7. Ma, Y., et al. 2005. DNA CpG hypomethylation induces heterochromatin reorganization involving the histone variant MacroH2A. J. Cell Sci. 118: 1607-1616.

CHROMOSOMAL LOCATION

Genetic locus: H2AFY2 (human) mapping to 10q22.1; H2afy2 (mouse) mapping to 10 B4.

SOURCE

MacroH2A (H-39) is a rabbit polyclonal antibody raised against amino acids 144-182 mapping within an internal region of MacroH2A 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.

STORAGE

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

APPLICATIONS

MacroH2A (H-39) is recommended for detection of MacroH2A 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).

MacroH2A (H-39) is also recommended for detection of MacroH2A in additional species, including canine and bovine.

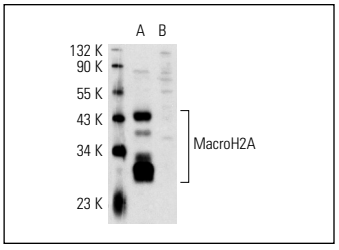
Suitable for use as control antibody for MacroH2A siRNA (h): sc-62575, MacroH2A siRNA (m): sc-62576, MacroH2A shRNA Plasmid (h): sc-62575-SH, MacroH2A shRNA Plasmid (m): sc-62576-SH, MacroH2A shRNA (h) Lentiviral Particles: sc-62575-V and MacroH2A shRNA (m) Lentiviral Particles: sc-62576-V.

MacroH2A (H-39) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

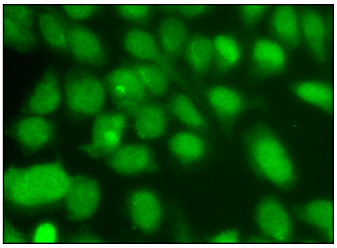
Molecular Weight of MacroH2A: 42 kDa.

Positive Controls: MacroH2A (h): 293 Lysate: sc-111902.

DATA



MacroH2A (H-39): sc-67322. Western blot analysis of MacroH2A expression in human MacroH2A transfected: sc-111902 (**A**) and non-transfected: sc-110760 (**B**) 293 whole cell lysates.



MacroH2A (H-39): sc-sc-67322. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear and cytoplasmic localization. Kindly provided by Yang Xiang, Ph.D., Division of Newborn Medicine, Boston Children's Hospital, Cell Biology Department, Harvard Medical School.

RESEARCH USE

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

PROTOCOLS

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