SANTA CRUZ BIOTECHNOLOGY, INC.

MacroH2A (K-12): sc-54844

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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 hypo-methylation induces heterochromatin reorganization involving the histone variant MacroH2A. J. Cell Sci. 118: 1607-1616.
8. Chu, F., et al. 2006. Mapping post-translational modifications of the histone variant MacroH2A1 using tandem mass spectrometry. Mol. Cell. Proteomics 5: 194-203.
9. Angelov, D., et al. 2006. Nucleolin is a histone chaperone with FACT-like activity and assists remodeling of nucleosomes. EMBO J. 25: 1669-1679.

CHROMOSOMAL LOCATION

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

STORAGE

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

PROTOCOLS

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

SOURCE

MacroH2A (K-12) is an affinity purified goat polyclonal antibody raised against a peptide 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.

Blocking peptide available for competition studies, sc-54844 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-54844 X, 200 µg/0.1 ml.

APPLICATIONS

MacroH2A (K-12) 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), 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 (K-12) is also recommended for detection of MacroH2A in additional species, including equine, canine, bovine, porcine and avian.

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 (K-12) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of MacroH2A: 42 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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