SANTA CRUZ BIOTECHNOLOGY, INC.

MacroH2A (C-9): sc-377452

SANTA CRUZ BIOTECHNOLOGY

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., et al. 1992. MacroH2A, a core histone containing a large nonhistone region. Science 257: 1398-1400.
2. Chadwick, B.P., et al. 2001. Histone H2A variants and the inactive X chromosome: identification of a second MacroH2A variant. Hum. Mol. Genet. 10: 1101-1113.
3. Costanzi, C., et al. 2001. MacroH2A2, a new member of the MacroH2A core histone family. J. Biol. Chem. 276: 21776-21784.
4. Chakravarthy, S., et al. 2005. Structural characterization of the histone variant MacroH2A. Mol. Cell. Biol. 25: 7616-7624.
5. Kustatscher, G., et al. 2005. Splicing regulates NAD metabolite binding to histone MacroH2A. Nat. Struct. Mol. Biol. 12: 624-625.
6. 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 (C-9) is a mouse monoclonal antibody raised against amino acids 144-182 mapping within an internal region of MacroH2A of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-377452 X, 200 µg/0.1 ml.

MacroH2A (C-9) is available conjugated to agarose (sc-377452 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-377452 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377452 PE), fluorescein (sc-377452 FITC), Alexa Fluor® 488 (sc-377452 AF488), Alexa Fluor® 546 (sc-377452 AF546), Alexa Fluor® 594 (sc-377452 AF594) or Alexa Fluor® 647 (sc-377452 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377452 AF680) or Alexa Fluor® 790 (sc-377452 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MacroH2A (C-9) is recommended for detection of MacroH2A 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).

MacroH2A (C-9) is also recommended for detection of MacroH2A in additional species, including canine and bovine.

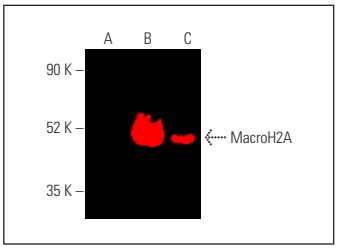
Suitable for use as control antibody for MacroH2A siRNA (h): sc-62575, MacroH2A siRNA (m): sc-62576, MacroH2A shRNA Plasmid (h): sc-62575-SH, MacroH2A shRNA Plasmid (m): sc-62576-SH, MacroH2A shRNA (h) Lentiviral Particles: sc-62575-V and MacroH2A shRNA (m) Lentiviral Particles: sc-62576-V.

MacroH2A (C-9) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

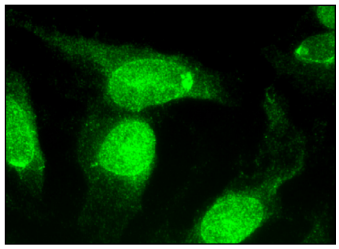
Molecular Weight of MacroH2A: 42 kDa.

Positive Controls: MacroH2A (h): 293 Lysate: sc-111902 or A-673 cell lysate: sc-2414.

DATA



MacroH2A (C-9): sc-377452. Near-Infrared western blot analysis of MacroH2A expression in non-transfected 293: sc-110760 (**A**), human MacroH2A transfected 293: sc-111902 (**B**) and A-673 (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG_{2a} BP-CFL 790: sc-542740.



MacroH2A (C-9): sc-377452. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Grabowska, A., et al. 2022. Activation-induced chromatin reorganization in neurons depends on HDAC1 activity. Cell Rep. 38: 110352.

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.

PROTOCOLS

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