

#4827 Store at -20°C

# MacroH2A1.2 Antibody

✓ 100 µl  
(10 western blots)



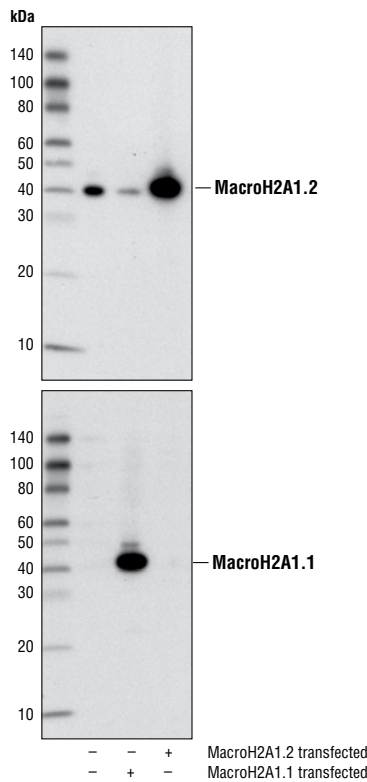
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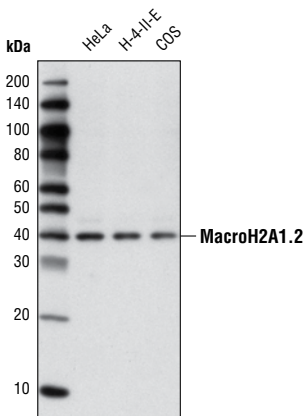
This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IF-IC Endogenous	H, M, R, Mk, (C, B)	40 kDa	Rabbit**

**Background:** Histone macroH2A1 and macroH2A2 comprise a family of variant histone H2A proteins. MacroH2A1 exists as two distinct isoforms due to alternative splicing of a single gene; macroH2A1.1 levels accumulate throughout differentiation and development while macroH2A1.2 shows a constant level of expression (1). MacroH2A1 and macroH2A2 are encoded by completely distinct genes located on separate chromosomes (2,3). Both macroH2A1 and macroH2A2 proteins contain an amino-terminal histone-like region with 64% sequence identity to canonical histone H2A, in addition to a carboxy-terminal "macro" domain (1-3). MacroH2A1 and macroH2A2 are enriched in facultative heterochromatin, including inactivated X chromosomes in mammalian females and senescence-associated heterochromatin foci (2-5). Both act to repress gene transcription by inhibiting the binding of transcription factors to chromatin, the acetylation of histones by p300, and the chromatin-remodeling activities of SWI/SNF and ACF (6,7). The macro domain of macroH2A1.1 binds to ADP-ribose and functions to recruit macroH2A1.1 to activated PARP at sites of DNA damage, where it mediates chromatin rearrangements to locally regulate the DNA damage response (8). MacroH2A1.2 and macroH2A2 do not bind poly-ADP-ribose and are not recruited to sites of activated PARP (8).



Western blot analysis of extracts from HeLa cells, either untransfected or transfected with expression constructs for MacroH2A1.1 or MacroH2A1.2, using MacroH2A1.2 Antibody (upper) and MacroH2A1.1 Antibody #4160 (lower).



Western blot analysis of extracts from HeLa, H-4-II-E and COS cells using MacroH2A1.2 Antibody.

**Specificity/Sensitivity:** MacroH2A1.2 Antibody detects endogenous levels of the core histone MacroH2A1.2 protein (MacroH2A1, isoform 2). The antibody does not cross-react with MacroH2A1.1 (MacroH2A1, isoform 1), MacroH2A2 or histone H2A.

**Source/Purification:** Polyclonal antibodies are produced by immunizing animals with a synthetic peptide (KLH-coupled) corresponding to the human MacroH2A1.2 protein (MacroH2A1, isoform 2). Antibodies are purified by protein A and peptide affinity chromatography.

Entrez-Gene ID #9555  
Swiss-Prot Acc. #075367-2

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

\*Species cross-reactivity is determined by western blot.

\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.

**Recommended Antibody Dilutions:**

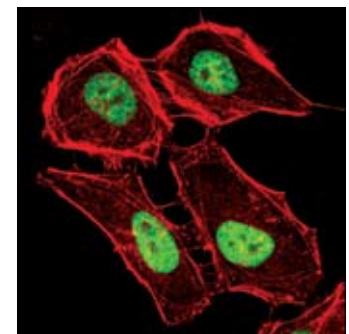
Western blotting 1:1000  
Immunofluorescence (IF-IC) 1:200

For application specific protocols please see the web page for this product at [www.cellsignaling.com](http://www.cellsignaling.com).

Please visit [www.cellsignaling.com](http://www.cellsignaling.com) for a complete listing of recommended companion products.

**Background References:**

- (1) Pehrson, J.R. et al. (1997) *J Cell Biochem* 65, 107-113.
- (2) Chadwick, B.P. and Willard, H.F. (2001) *Hum Mol Genet* 10, 1101-113.
- (3) Costanzi, C. and Pehrson, J.R. (2001) *J Biol Chem* 276, 21776-84.
- (4) Costanzi, C. and Pehrson, J.R. (1998) *Nature* 393, 599-601.
- (5) Zhang, R. et al. (2005) *Dev Cell* 8, 19-30.
- (6) Angelov, D. et al. (2003) *Mol Cell* 11, 1033-41.
- (7) Doyen, C.M. et al. (2006) *Mol Cell Biol* 26, 1156-64.
- (8) Timinsky, G. et al. (2009) *Nat Struct Mol Biol* 16, 923-9.



Confocal immunofluorescent analysis of HeLa cells using MacroH2A1.2 Antibody (green). Actin filaments were labeled using DY-554 phalloidin (red).

**IMPORTANT:** For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.