Revision 5

Store at -20C

#5692

HMGN1 Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IF-IC	H Mk	Endogenous	18	Rabbit	#P05114	3150

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunofluorescence (Immunocytochemistry)	1:800 - 1:1600

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.

Specificity/Sensitivity

HMGN1 Antibody recognizes endogenous levels of total HMGN1 protein. This antibody does not cross-react with other HMGN proteins, including HMGN2, HMGN3, HMGN4, and HMGN5.

Species predicted to react based on 100% sequence homology

Bovine

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Val65 of human HMGN1 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

High mobility group (HMG) proteins are a superfamily of abundant and ubiquitous nuclear proteins that bind DNA without sequence specificity and induce structural changes to the chromatin fiber to regulate access to the underlying DNA. The HMGN family of proteins, which includes five members (HMGN1-5), is characterized by the presence of several conserved protein domains: a positively charged domain, a nucleosome binding domain, and an acidic C-terminal chromatin-unfolding domain (1,2). HMGN proteins function in transcriptional regulation and are recruited to gene promoters by transcription factors, such as estrogen receptor α (ERα), serum responsive factor (SRF), and PITX2, where they can facilitate either gene activation or repression (3-5). HMGN proteins bind specifically to nucleosomal DNA and reduce compaction of the chromatin fiber, in part by competing with linker histone H1 for nucleosome binding (6). In addition, HMGN proteins act to modulate local levels of post-translational histone modifications, decreasing phosphorylation of histone H3 at Ser10 and histone H2A at Ser1 and increasing acetylation of histone H3 at Lys14 (7-9). HMGN proteins can also modulate the activity of several chromatin-remodeling factors and restrict nucleosome mobility (10).
HMGN1 (also known as HMG14) expression is tightly linked to cellular differentiation. HMGN1 is ubiquitous and highly expressed in all embryonic tissues. During mouse embryogenesis, expression is down-regulated throughout the embryo, except in committed but continuously renewing cell types undergoing active differentiation, such as the basal layer of the epithelium and kidney cells undergoing mesenchyme to epithelium transition (11,12). HMGN1 expression is also down-regulated during myogenesis, erythropoiesis, and osteogenesis (11). Over-expression of HMGN1 inhibits myotube formation in C2C12 myoblast cells and chondrocyte differentiation in primary limb bud mesenchymal cells, suggesting a role in blocking cellular differentiation (11,13). HGMN1-/- mice appear normal, most likely due to partial redundancy with other family members such as HMGN2. However, these mice are hypersensitive to various stress conditions, including exposure to UV light and ionizing radiation (IR) (14,15). Further studies have shown that HMGN1 is required for efficient transcription-coupled repair (TCR) following UV treatment, and proper activation of ATM following IR treatment, both of which require HMGN1 chromatin binding activity, suggesting a direct role for HMGN1 in chromatin remodeling during DNA repair (14-17).

Background References

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Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

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

Applications Key

W: Western Blotting **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: Human **Mk:** Monkey

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Limited Uses