

HMGB1 Antibody

Catalog # ASC11770

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	P09429
Other Accession	NP_002119 , 4504425
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	24894
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	HMGB1 antibody can be used for detection of HMGB1 by Western blot at 1 - 2 μ g/ml. Antibody can also be used for Immunohistochemistry starting at 5 μ g/mL. For immunofluorescence start at 20 μ g/mL.

Additional Information

Gene ID	3146
Other Names	High mobility group protein B1, High mobility group protein 1, HMG-1, HMGB1, HMG1
Target/Specificity	HMGB1; HMGB1 antibody is human, mouse and rat reactive.
Reconstitution & Storage	HMGB1 antibody can be stored at 4°C for three months and -20°C, stable for up to one year.
Precautions	HMGB1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	HMGB1 (HGNC:4983)
Synonyms	HMG1
Function	Multifunctional redox sensitive protein with various roles in different cellular compartments. In the nucleus is one of the major chromatin-associated non-histone proteins and acts as a DNA chaperone involved in replication, transcription, chromatin remodeling, V(D)J recombination, DNA repair and genome stability (PubMed: 33147444). Proposed to be an universal biosensor for nucleic acids. Promotes host inflammatory response to sterile and infectious signals and is involved in the coordination and integration of innate and adaptive immune responses. In the cytoplasm functions as a sensor and/or chaperone for immunogenic nucleic acids implicating the activation of

TLR9-mediated immune responses, and mediates autophagy. Acts as a danger-associated molecular pattern (DAMP) molecule that amplifies immune responses during tissue injury (PubMed:[27362237](#)). Released to the extracellular environment can bind DNA, nucleosomes, IL-1 beta, CXCL12, AGER isoform 2/sRAGE, lipopolysaccharide (LPS) and lipoteichoic acid (LTA), and activates cells through engagement of multiple surface receptors (PubMed:[34743181](#)). In the extracellular compartment fully reduced HMGB1 (released by necrosis) acts as a chemokine, disulfide HMGB1 (actively secreted) as a cytokine, and sulfonyl HMGB1 (released from apoptotic cells) promotes immunological tolerance (PubMed:[23446148](#), PubMed:[23519706](#), PubMed:[23994764](#), PubMed:[25048472](#)). Has proangiogenic activity (By similarity). May be involved in platelet activation (By similarity). Binds to phosphatidylserine and phosphatidylethanolamide (By similarity). Bound to RAGE mediates signaling for neuronal outgrowth (By similarity). May play a role in accumulation of expanded polyglutamine (polyQ) proteins such as huntingtin (HTT) or TBP (PubMed:[23303669](#), PubMed:[25549101](#)).

Cellular Location

Nucleus. Chromosome {ECO:0000250|UniProtKB:P10103, ECO:0000250|UniProtKB:P63159, ECO:0000305}. Cytoplasm. Secreted {ECO:0000250|UniProtKB:P63158, ECO:0000269|PubMed:12231511, ECO:0000269|PubMed:14532127, ECO:0000269|PubMed:15944249, ECO:0000269|PubMed:19811284, ECO:0000269|PubMed:22869893, ECO:0000269|PubMed:33147444}. Cell membrane {ECO:0000250|UniProtKB:P63158, ECO:0000250|UniProtKB:P63159, ECO:0000269|PubMed:11154118}; Peripheral membrane protein {ECO:0000250|UniProtKB:P63158, ECO:0000250|UniProtKB:P63159, ECO:0000269|PubMed:11154118}; Extracellular side {ECO:0000250|UniProtKB:P63158, ECO:0000250|UniProtKB:P63159, ECO:0000269|PubMed:11154118}. Endosome {ECO:0000250|UniProtKB:P63158} Endoplasmic reticulum-Golgi intermediate compartment {ECO:0000250|UniProtKB:P63158}. Note=In basal state predominantly nuclear. Shuttles between the cytoplasm and the nucleus (PubMed:12231511, PubMed:17114460). Translocates from the nucleus to the cytoplasm upon autophagy stimulation (PubMed:20819940). Release from macrophages in the extracellular milieu requires the activation of NLR4 or NLRP3 inflammasomes (By similarity). Passively released to the extracellular milieu from necrotic cells by diffusion, involving the fully reduced HGMB1 which subsequently gets oxidized (PubMed:19811284) Also released from apoptotic cells (PubMed:16855214, PubMed:18631454) Active secretion from a variety of immune and non-immune cells such as macrophages, monocytes, neutrophils, dendritic cells and natural killer cells in response to various stimuli such as LPS and cytokines involves a nonconventional secretory process via secretory lysosomes (PubMed:12231511, PubMed:14532127, PubMed:15944249). Secreted by plasma cells in response to LPS (By similarity). Found on the surface of activated platelets (PubMed:11154118). An increased chromatin association is observed when associated with the adenovirus protein pVII (PubMed:27362237). {ECO:0000250|UniProtKB:P63158, ECO:0000269|PubMed:11154118, ECO:0000269|PubMed:12231511, ECO:0000269|PubMed:14532127, ECO:0000269|PubMed:15944249, ECO:0000269|PubMed:16855214, ECO:0000269|PubMed:17114460, ECO:0000269|PubMed:18631454, ECO:0000269|PubMed:19811284, ECO:0000269|PubMed:20819940, ECO:0000269|PubMed:27362237, ECO:0000305|PubMed:20123072}

Tissue Location

Ubiquitous. Expressed in platelets (PubMed:11154118).

Background

The high-mobility group box 1 (HMGB1) protein was originally identified as a highly conserved nuclear

DNA-binding protein that participates in DNA replication, repair and transcriptional regulation of gene expression (1,2). However, HMGB1 has more recently emerged as an extracellularly released mediator of inflammation and repair responses in lipopolysaccharide (LPS)-induced endotoxemia and sepsis (3). HMGB1 has also been suggested to induce secretion of pro-inflammatory cytokines and chemokines by inducing NF- κ B signaling downstream of Toll-like receptor (TLR) 2 and TLR4 activation (4).

References

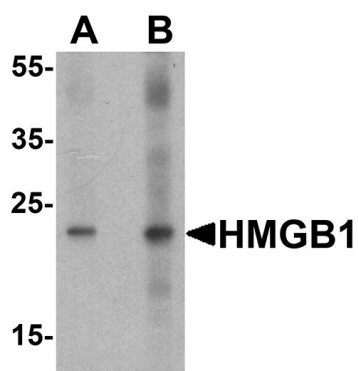
Smerdon MJ and Isenberg I. Interactions between the subfractions of calf thymus H1 and nonhistone chromosomal proteins HMG1 and HMG2. *Biochemistry* 1976; 15:4242-7.

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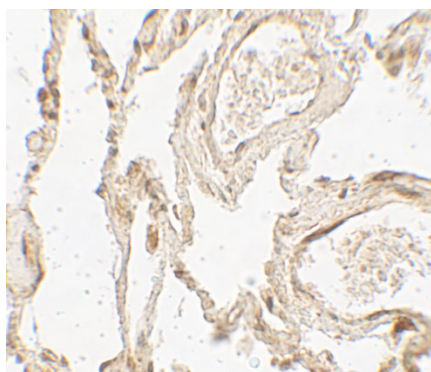
Wang H, Bloom O, Zhang M, , et al. HMG-1 as a late mediator of endotoxin lethality in mice. *Science* 1999; 285:248-51.

van Zoelen MA, Yang H, Florquin S, et al. Role of toll-like receptors 2 and 4, and the receptor for advanced glycation end products in high-mobility group box 1-induced inflammation in vivo. *Shock* 2009; 31:280-4.

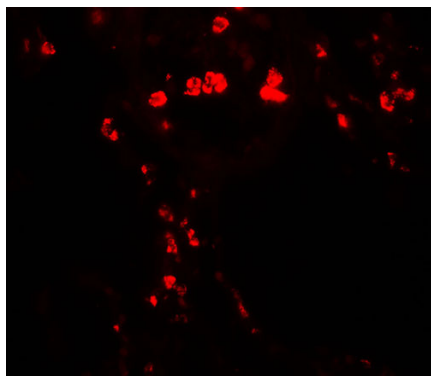
Images



Western blot analysis of HMGB1 in human brain tissue lysate with HMGB1 antibody at (A) 1 and (B) 2 μ g/ml



Immunohistochemistry of HMGB1 in human lung tissue with HMGB1 antibody at 5 μ g/mL.



Immunofluorescence of HMGB1 in human lung tissue with HMGB1 antibody at 20 μ g/mL.