

## HMGB1/HMG-1 Protein, Human (HEK293, His)

Cat. No.:	HY-P70274
Synonyms:	rHuHigh mobility group protein B1/HMGB1, His; High Mobility Group Protein B1; High Mobility Group Protein 1; HMG-1; HMGB1; HMG1
Species:	Human
Source:	HEK293
Accession:	P09429 (G2-E215)
Gene ID:	3146
Molecular Weight:	25-35 kDa

### PROPERTIES

AA Sequence	G K G D P K K P R G      K M S S Y A F F V Q      T C R E E H K K K H      P D A S V N F S E F S K K C S E R W K T      M S A K E K G K F E      D M A K A D K A R Y      E R E M K T Y I P P K G E T K K K F K D      P N A P K R P P S A      F F L F C S E Y R P      K I K G E H P G L S I G D V A K K L G E      M W N N T A A D D K      Q P Y E K K A A K L      K E K Y E K D I A A Y R A K G K P D A A      K K G V V K A E K S      K K K K E E E E D E      E D E E D E E E E E D E E D E D E E E D      D D D E
Appearance	Solution
Formulation	Supplied as a 0.2 µm filtered solution of PBS,10% Glycerol, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

### DESCRIPTION

Background	<p>HMGB1/HMG-1, a multifunctional redox-sensitive protein, exhibits diverse roles across different cellular compartments. Within the nucleus, it stands as a major chromatin-associated non-histone protein, functioning as a DNA chaperone involved in crucial processes such as replication, transcription, chromatin remodeling, V(D)J recombination, DNA repair, and genome stability. Proposed as a universal biosensor for nucleic acids, HMGB1/HMG-1 plays a pivotal role in promoting the host inflammatory response to both sterile and infectious signals, coordinating innate and adaptive immune responses. In the cytoplasm, it serves as a sensor and/or chaperone for immunogenic nucleic acids, activating TLR9-mediated immune responses and mediating autophagy. Released to the extracellular environment, HMGB1/HMG-1 engages with various</p>
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molecules such as DNA, nucleosomes, IL-1 beta, CXCL12, AGER isoform 2/sRAGE, lipopolysaccharide (LPS), and lipoteichoic acid (LTA), activating cells through multiple surface receptors. The extracellular HMGB1 exists in different redox states, with fully reduced HMGB1 acting as a chemokine, disulfide HMGB1 as a cytokine, and sulfonyl HMGB1 promoting immunological tolerance. Beyond its immunomodulatory roles, HMGB1/HMG-1 is implicated in proangiogenic activity, platelet activation, neuronal outgrowth signaling via RAGE, and potential involvement in the accumulation of expanded polyglutamine proteins. Its nuclear functions, attributed to fully reduced HMGB1, include association with chromatin, DNA bending, and enhancement of DNA flexibility through looping, facilitating various gene promoter activities. Additionally, HMGB1/HMG-1 may play roles in nucleotide excision repair, mismatch repair, base excision repair, double-strand break repair, V(D)J recombination, displacement of histone H1, restructuring nucleosomes, enhancing transcription factor binding, and modulating the telomerase complex. The intricate functions of HMGB1/HMG-1 highlight its significance in diverse cellular processes.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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