**General Information**

**Gene Name Synonym:**
HMG-1; HMG1; HMG3; SBP-1

**Protein Construction:**
A DNA sequence encoding the mature form of human HMGB1 (P09429) (Lys57-Asp158) was expressed with a polyhistidine tag at the N-terminus.

**Source:**
Human

**Expression Host:**
E. coli

**QC Testing**

**Purity:**
> 90 % as determined by SDS-PAGE

**Bio Activity:**
Immobilized human His-HMGB1 at 10 μg/ml (100 μl/well) can bind AGER-Fc (Cat:11629-H02H) with a linear range of 0.31-2.5 μg/ml.

**Endotoxin:**
Please contact us for more information.

**Stability:**
Samples are stable for up to twelve months from date of receipt at -70 °C

**Predicted N terminal:**
His

**Molecular Mass:**
The recombinant human HMGB1 consists of 117 amino acids and predicts a molecular mass of 13.6 KDa. It migrates as an approximately 15 KDa band in SDS-PAGE under reducing conditions.

**Formulation:**
Lyophilized from sterile PBS, 20% Glycerol, pH 7.4.

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

**Usage Guide**

**Storage:**
Store it under sterile conditions at -20 °C to -80 °C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

**Reconstitution:**
Detailed reconstitution instructions are sent along with the products.

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**Protein Description**

High-mobility group box 1 protein (HMGB1), also known as HMG-1 or amphoterin previously, is a member of the HMGB family consisting of three members, HMGB1, HMGB2 and HMGB3. HMGB1 is a DNA-binding nuclear protein, released actively following cytokine stimulation as well as passively during cell death. It is the prototypic damage-associated molecular pattern (DAMP) molecule and has been implicated in several inflammatory disorders. HMGB1 signals via the receptor for advanced glycation end-product (RAGE) and members of the toll-like receptor (TLR) family. The most prominent HMGB1 protein and mRNA expression arthritis is present in pannus regions, where synovial tissue invades articular cartilage and bone. HMGB1 promotes the activity of proteolytic enzymes, and osteoclasts need HMGB1 for functional maturation. As a non-histone nuclear protein, HMGB1 has a dual function. Inside the cell, HMGB1 binds DNA, regulating transcription and determining chromosomal architecture. Outside the cell, HMGB1 can serve as an alarmin to activate the innate system and mediate a wide range of physiological and pathological responses. Extracellular HMGB1 represents an optimal "necrotic marker" selected by the innate immune system to recognize tissue damage and initiate reparative responses. However, extracellular HMGB1 also acts as a potent pro-inflammatory cytokine that contributes to the pathogenesis of diverse inflammatory and infectious disorders. HMGB1 has been successfully therapeutically targeted in multiple preclinical models of infectious and sterile diseases including arthritis. As shown in studies on patients as well as animal models, HMGB1 can play an important role in the pathogenesis of rheumatic disease, including rheumatoid arthritis, systemic lupus erythematosus, and polymyositis among others. In addition, enhanced postmyocardial infarction remodeling in type 1 diabetes mellitus was partially mediated by HMGB1 activation.

**References**