Human HMGB1 / HMG1 Protein (His Tag)

Catalog Number: 10326-H08H

Sino Biological
Biological Solution Specialist

General Information

Gene Name Synonym:

HMG-1; HMG1; HMG3; SBP-1

Protein Construction:

A DNA sequence encoding the human HMGB1 protein (NP_002119.1) (Met 1-Glu 215) was fused with a polyhistidine tag at the C-terminus and a signal peptide at the N-terminus.

Source: Human

Expression Host: HEK293 Cells

QC Testing

Purity: ≥ 93 % as determined by SDS-PAGE. ≥ 95 % as determined by SEC-HPLC.

Bio Activity:

Measured by its binding ability in a functional ELISA. Immobilized human HMGB at 2 μg/ml (100 μl/well) can bind human AGER. The EC_{50} of human AGER is 0.27 μg/ml.

Endotoxin:

< 1.0 EU per μg of the protein as determined by the LAL method

Predicted N terminal: Met 1

Molecular Mass:

The recombinant human HMGB1 consists of 226 amino acids and has a predicted molecular mass of 26.3 kDa. As a result of glycosylation, the apparent molecular mass of rhHMGB1 is approximately 30-34 kDa in SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile PBS, 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

Stability & Storage:
Samples are stable for twelve months from date of receipt at -20℃ to -80℃.

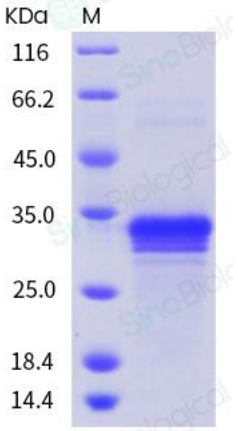
Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



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

1.Ulloa L, et al. (2006) High-mobility group box 1 (HMGB1) protein: friend and foe. Cytokine Growth Factor Rev. 17 (3): 189-201.
2.Pisetsky DS, et al. (2008) High-mobility group box protein 1 (HMGB1): an alarmin mediating the pathogenesis of rheumatic disease. Arthritis Res Ther. 10 (3): 209.
3.Volz HC, et al. (2010) The role of HMGB1/RAGE in inflammatory cardiomyopathy. Semin Thromb Hemost. 36(2): 185-94.