Datasheet for ABIN1176823

HMGB1 Protein

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Overview

Quantity:	100 µg
Target:	HMGB1
Origin:	Human, Mouse, Rat
Source:	Escherichia coli (E. coli)
Protein Type:	Recombinant
Biological Activity:	Active
Application:	Activation (Act), Cellular Assay (CA)

Product Details

Sequence:	MGKGDPKKPR GKMSSYAFFV QTCREEHKKK HPDASVNFSE FSKKCSERWK TMSAKEKGKF EDMAKADKAR YEREMKTYIP PKGETKKKFK DPNAPKRPPS AFFLFCSEYR PKIKGEHPGL SIGDVAKKLG EMWNNTAADD KQPYEKKAAK LKEKYEKDIA AYRAKGKPDA AKKGVVKAEK SKKKKEEEDD EEDEEDEEEE EEEEDEDEEE DDDDE
Characteristics:	The product can be used in cell migration assays, both in vitro and in vivo, maximum activity is at 1 nM. Intraperitoneal injection in the mouse recruits neutrophils, monocytes and macrophages. Injection of 2.5 µg HMGB1 in the mouse hippocampus increases epileptic activity after kainate injection (Maroso et al, Nature Medicine 2010, 16: 413-9). Chemotaxis-HMGB1 is a 25 kDa nuclear protein, present in almost all mammalian cells. The protein is almost identical (213/215 aa) in human, mouse, rat. This product corresponds to the rat sequence and is produced in E.coli. It contains only trace amounts of LPS (<0.4 ng/mg protein), and is tested for the ability to induce fibroblast migration. This formulation is fully reduced and DOES NOT induce cytokine/chemokine secretion when given to target cells. LPS-free.

Product Details

	Measured by its ability to induce migration. Maximal activity in the cell migration assay is obtained at 1 nM, or 25 ng/ml. The Chemotaxis-HMGB1 we provide is the natural protein, with no tags or additional amino acids. It is produced in E.coli from an expression plasmid coding for the rat protein.
Purification:	Purified
Purity:	> 95 %
Endotoxin Level:	The purified protein is free from LPS (Cambrex Limulus Amoebocyte Assay QCL-1000, <0.4 ng LPS per mg protein).

Target Details

Target:	HMGB1
Alternative Name:	High-mobility group protein B1 (HMGB1) (HMGB1 Products)
Background:	HMGB1 is a nuclear protein that is released passively by necrotic cells, retained by apoptotic cells, and secreted actively by inflammatory cells. HMGB1 is essential for life: Hmgb1 knockout mice die shortly after birth. Just recently, the two different activities of HMGB1 as a chemoattractanct of motile cells and as inducer of cytokines have been attributed to different biochemical forms. Chemotaxis-HMGB1 (the form with chemoattractanct activity) is completely reduced, cytokine-HMGB1 contains a disulfide bond between C23 and C45.Chemotaxis-HMGB1 had previously been sold by HMGBiotech as HMGB1 LPS free and tested in migration assay, but is otherwise the same identical product.Chemotaxis-HMGB1 behaves as a trigger of inflammation, attracting inflammatory cells, and of tissue repair, attracting stem cells and promoting their proliferation. Moreover, Chemotaxis-HMGB1 activates dedritic cells and promotes their functional maturation and migration to lymph nodes.However, and contrary to early reports, pure Chemotaxis-HMGB1 does not promote cytokine secretion, it does so only when it interacts with other molecules, like LPS, single-stranded DNA, or IL-1beta. High Mobility Group Box 1 Protein Binding to Lipopolysaccharide Facilitates Transfer of Lipopolysaccharide to CD14 and Enhances Lipopolysaccharide-Mediated TNF-alpha Production in Human Monocytes. HMGB1 consists of two fairly rigid, L-shaped DNA-binding domains, each referred to as a 'HMG box', and an unstructured tail that ends with 30 consecutive negatively charged amino acids. HMGB1 consists of 215 amino acid residues and has a calculated molecular mass of approximately 24.8 kDa. It migrates at a position of approximately 30 kD in SDS-PAGE gels, possibly because of the unusual number of positively charged amino acids it contains.

Target Details

Molecular Weight:	25 kDa
Pathways:	p53 Signaling, Regulation of Muscle Cell Differentiation, Skeletal Muscle Fiber Development, Positive Regulation of Endopeptidase Activity, Regulation of Carbohydrate Metabolic Process, Toll-Like Receptors Cascades, Smooth Muscle Cell Migration, Inflammasome

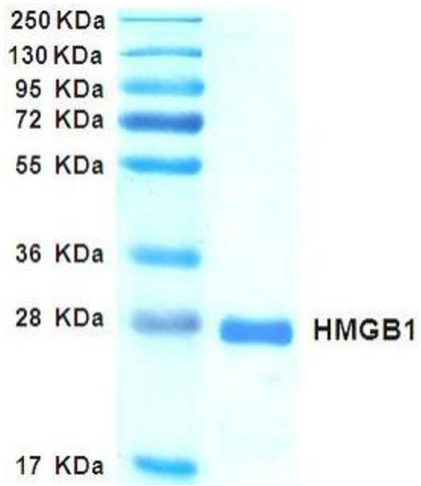
Application Details

Restrictions:	For Research Use only

Handling

Format:	Lyophilized
Buffer:	50 mM HEPES-Na pH 7.9, 500 mM NaCl, 0.5 mM DTT.
Handling Advice:	Oxidation of cysteine 106 makes the protein inactive. To avoid cysteine oxidation, DTT 0.5 mM is added during protein purification.
Storage:	4 °C/-20 °C
Storage Comment:	The protein once resuspended can be stored frozen (-20°C), thawed and re-frozen.

Images



SDS-PAGE

Image 1. SDS-PAGE with Coomassie Blue staining

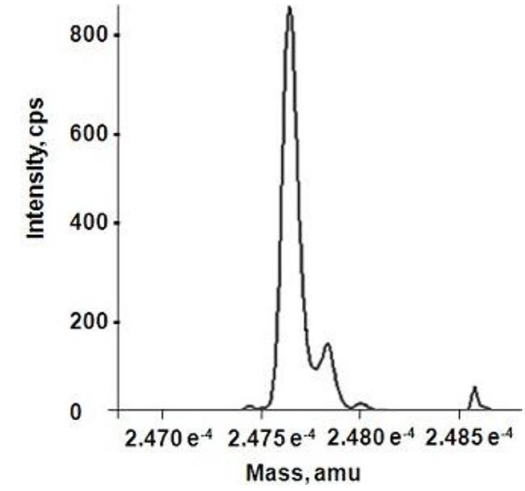


Image 2. Reconstructed molecular weight from MS spectrum. The high peak is Chemotaxis-HMGB1. We interpret the small peak at +23 Da as Chemotaxis-HMGB1 complex to one Na+ ion.

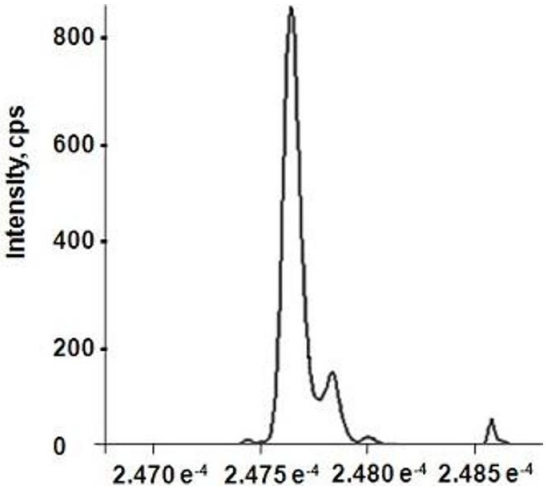


Image 3. Migration assay with 3T3 mouse cells

