

DESCRIPTION

Source Chinese Hamster Ovary cell line, CHO-derived human MSP/MST1 protein
Gln19-Arg483 (alpha) & Val484-Gly711 (Cys672Ala) (beta)
Accession # AAA59872

N-terminal Sequence Analysis Gln19 & Val484

Structure / Form Disulfide-linked heterodimer

Predicted Molecular Mass 53 kDa (α-chain), 25 kDa (β-chain)

SPECIFICATIONS

SDS-PAGE 60 kDa and 30 kDa, reducing conditions

Activity Measured by its binding ability in a functional ELISA.
Recombinant Human MSP/MST1 (Cys672Ala) (Catalog # 4306-MS/CF) binds to Recombinant Human MSPR/Ron Protein (Catalog # 1947-MS) with an ED₅₀ of 4.00-32.0 ng/mL.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >95%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in sterile PBS.

Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Macrophage stimulating protein (MSP), also known as HGF-like protein, and scatter factor-2, is a member of the HGF family of growth factors (1). MSP is secreted as an inactive single chain precursor (pro-MSP) that contains a PAN/APPLE-like domain, four kringle domains, and a peptidase S1 domain which lacks enzymatic activity (2). Human MSP shares 79% aa sequence identity with mouse MSP and 44% aa sequence identity with human HGF. Pro-MSP is secreted by hepatocytes under the positive and negative control of CBP in complex with either HNF-4 or RAR, respectively (3). Circulating pro-MSP is proteolytically cleaved in response to tissue injury to yield biologically active disulfide linked heterodimers consisting of a 45 - 62 kDa alpha and a 25 - 35 kDa beta chain (4, 5). Pro-MSP can be activated by MT-SP1, a transmembrane protease that is expressed on macrophages and is upregulated in many cancers (6). Heterodimeric MSP, as well as the isolated beta chain, binds to MSP R/Ron with high-affinity, although only heterodimeric MSP can induce receptor dimerization and signaling (7, 8). MSP induces macrophage and keratinocyte proliferation and osteoclast activation (9, 10). It also inhibits LPS- or IFN-induced iNOS and IL-12 expression by macrophages and prevents apoptosis of epithelial cells separated from the ECM (11, 12). The substitution of cysteine 672 (in the beta chain) with alanine significantly increases the bioactivity of recombinant MSP, apparently by limiting incorrect disulfide bond formation between the alpha and beta chains (13).

References:

1. Wang, M.-H. *et al.* (2002) *Scand. J. Immunol.* **56**:545.
2. Han, S. *et al.* (1991) *Biochemistry* **30**:9768.
3. Muraoka, R.S. *et al.* (1999) *Endocrinology* **140**:187.
4. Wang, M.-H. *et al.* (1996) *J. Clin. Invest.* **97**:720.
5. Nanney, L.B. *et al.* (1998) *J. Invest. Dermatol.* **111**:573.
6. Bhatt, A.S. *et al.* (2007) *Proc. Natl. Acad. Sci.* **104**:5771.
7. Wang, M.-H. *et al.* (1997) *J. Biol. Chem.* **272**:16999.
8. Danilkovitch, A. *et al.* (1999) *J. Biol. Chem.* **274**:29937.
9. Wang, M.-H. *et al.* (1996) *Exp. Cell Res.* **226**:39.
10. Kurihara, N. *et al.* (1998) *Exp. Hematol.* **26**:1080.
11. Morrison, A.C. *et al.* (2004) *J. Immunol.* **172**:1825.
12. Liu, Q.P. *et al.* (1999) *J. Immunol.* **163**:6606.
13. Wahl, R.C. *et al.* (1997) *J. Biol. Chem.* **272**:15053.