### DESCRIPTION

**Source**
Chinese Hamster Ovary cell line, CHO-derived
Met1-Glu716 (Cys677Ala)
Accession # NP_032269

**N-terminal Sequence Analysis**
No results obtained for α-chain, sequencing might be blocked: Gin19 predicted (α-chain) & Val489 (β-chain)

**Structure / Form**
Disulfide-linked heterodimer

**Predicted Molecular Mass**
53.7 kDa (α-chain) & 25 kDa (β-chain)

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>SDS-PAGE</th>
<th>61-62 kDa &amp; 30-31 kDa, reducing conditions</th>
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</thead>
<tbody>
<tr>
<td><strong>Activity</strong></td>
<td>Measured by its binding ability in a functional ELISA. When Recombinant Mouse MSP R/Ron Fc Chimera (Catalog # 431-MS) is coated at 1 μg/mL (100 μL/well), the concentration of Recombinant Mouse MSP/MST1 that produces 50% of the optimal binding response is found to be approximately 1 - 6 ng/mL.</td>
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<tr>
<td><strong>Endotoxin Level</strong></td>
<td>&lt;0.10 EU per 1 μg of the protein by the LAL method.</td>
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<tr>
<td><strong>Purity</strong></td>
<td>&gt;95%, by SDS-PAGE under reducing conditions and visualized by silver stain.</td>
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<tr>
<td><strong>Formulation</strong></td>
<td>Lyophilized from a 0.2 μm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.</td>
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</table>

### PREPARATION AND STORAGE

| Reconstitution | Reconstitute at 100 μg/mL in PBS containing at least 0.1% human or bovine serum albumin. |
| 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). Mouse MSP shares 79% and 93% aa sequence identity with human and rat MSP, respectively and 42% aa sequence identity with mouse 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 human MSP, apparently by limiting incorrect disulfide bond formation between the alpha and beta chains (13).

### References: