

## Product Information

### MACROPHAGE STIMULATING PROTEIN RECEPTOR (MSP R)/Fc CHIMERA

Human, Recombinant

Expressed in mouse NSO cells

Product Number **M 1564**

#### Product Description

Recombinant Human Macrophage Stimulating Protein Receptor (MSP R)/Fc Chimera is produced from the extracellular domain of human MSP receptor (amino acid residues 1 to 956)<sup>1</sup> fused to the C-terminal 6X histidine-tagged Fc region of human IgG1 by a peptide linker. It is a disulfide-linked tetramer containing two  $\alpha$  subunits and two Fc-linked  $\beta$  subunits. One  $\alpha$  subunit and one Fc-linked  $\beta$  subunit together contain 1176 amino acid residues with a calculated molecular mass of approximately 127 kDa.

Macrophage stimulating protein receptor (MSP R), encoded by the human *RON* (Receptur d'Origine Nantaise) and the mouse *Stk* (stem cell-derived tyrosine kinase) genes, is a member of the family of receptor tyrosine kinases (RTKs).<sup>2,3</sup> Other members include human Met (receptor for hepatocyte growth factor) and chicken Sea. This family of receptors are synthesized as a single-chain precursor that is cleaved into a mature disulfide-linked heterodimer composed of an extracellular  $\alpha$  chain and a membrane spanning  $\beta$  chain with intrinsic tyrosine kinase activity. Mouse STK and human RON exhibit approximately 74% amino acid sequence identity.

Both the heterodimeric MSP and the free MSP  $\beta$  chain bind to MSP R.<sup>4</sup> However, only heterodimeric MSP binding induces receptor dimerization and phosphorylation and causes biological activity. MSP may be particularly important to macrophage phagocytosis in its very earliest stages and, as such, may be positioned to significantly impact macrophage-influenced downstream adoptive and continuing innate immune responses. MSP is required for macrophages to respond to complement in a chemotactic fashion<sup>5,6</sup> and it also promotes in vitro complement-driven phagocytosis.<sup>7</sup> MSP impacts some aspects of chemotaxis but it apparently does not provide a stimulus for monocyte migration out of the blood.

Monocytes are not even known to express the MSP receptor RON.<sup>8,9,10</sup> MSP will induce the terminal differentiation of recently migrated and resident phagocytes into "mature" macrophages.<sup>9,10</sup> MSP also is suggested to have a role in embryogenesis and is proposed to enhance megakaryocyte maturation.<sup>11</sup>

Expression of the MSP receptor is restricted to specific areas of the central and peripheral nervous systems, epithelial cells (along the digestive tract, skin, and lung), and in subpopulations of the mononuclear phagocyte lineage. Other cells known to express the MSP receptor include macrophages, keratinocytes, osteoclasts, neutrophils, megakaryocytes, chromaffin cells of the adrenal medulla, and sperm.

#### Reagent

Recombinant Macrophage Stimulating Protein Receptor (MSP R)/Fc Chimera is supplied as approximately 50  $\mu$ g of protein lyophilized from a 0.2  $\mu$ m filtered solution in phosphate buffered saline (PBS).

#### Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS) containing at least 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 50  $\mu$ g/ml.

#### Storage/Stability

Store at  $-20$  °C. Upon reconstitution, store at 2 °C to 8 °C for one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

#### Product Profile

Recombinant Macrophage Stimulating Protein Receptor (MSP R)/Fc Chimera is measured by its ability to bind MSP.

Immobilized recombinant human MSP R/Fc at 2 µg/ml (100 µl/well) binds recombinant human MSP (linear range of 0.2 to 10.0 ng/ml) in an ELISA assay.

Purity: > 90 % as determined by SDS-PAGE, visualized by silver stain.

Endotoxin level is < 0.1 ng/µg protein as determined by the LAL (Limulus amoebocyte lysate) method.

#### References

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