

Product Information

TUMOR NECROSIS FACTOR SOLUBLE RECEPTOR I (TNF sRI)/Fc Chimera Human, Recombinant Expressed in mouse NSO cells

Product Number **T3439**

Product Description

Recombinant human Tumor Necrosis Factor soluble Receptor I (TNF sRI)/Fc Chimera is a member of the TNF family of receptors, expressed in mouse NSO cells. A cDNA sequence encoding the extracellular domain of human TNF receptor I is fused to the carboxy-terminal 6X histidine-tagged Fc region of human IgG₁ via a linker peptide. Mature recombinant human TNF sRI/Fc is a 455 amino acid residue transmembrane glycoprotein.⁶ The monomer has a molecular mass of approximately 48 kDa. Due to glycosylation, recombinant human TNF sRI migrates as 55-60 kDa protein in SDS-PAGE. Human TNF RI has 64% amino acid sequence identity (70% in the extracellular region) with mouse TNF-R1, and binds human and mouse TNF- α with equal affinity. Dimeric human TNF RI/Fc is an approximately 45-fold more potent inhibitor of TNF- α than the monomeric soluble TNF RI.

TNF RI and TNF RII are members of the TNF family of receptors. Soluble TNF RI neutralizes the biological activities of both TNF- α and TNF- β . TNF RI relative to TNF RII seems to be the more physiologically-relevant receptor, whereas TNF-RII appears to play a direct role in only a limited number of TNF responses.³ Soluble TNF RI has been identified in both urine and blood.⁴ Serum levels of sTNF receptors increase dramatically in certain pathological situations. The extracellular domain of TNF sRI is required for binding.² The intracellular portion of TNF sRI contains a "death domain" that is required for the signaling of apoptosis and NF- κ B activation.

Two types of soluble TNF receptors, generated by proteolytic cleavage⁵ have been identified in human serum and urine. These binding proteins represent truncated forms of the two types of high-affinity cell surface receptors for TNF (TNFR-p60 Type B and TNFR-p80 Type A). Soluble TNF RI corresponds to TNFR-p60 Type B. These soluble forms appear to arise as a result of shedding of the extracellular domains of the membrane-bound receptors. Although

the physiological role of these proteins is not known, it is thought that the shedding of soluble receptors in response to TNF release is a mechanism to find TNF that is not immediately bound and thus localize the inflammatory response. It is also speculated that the pool of TNF bound to soluble receptors could represent a reservoir for the controlled release of TNF.

TNF-R I is expressed in virtually all nucleated mammalian cells.^{1, 6} Among the numerous cells known to express TNF RI are hepatocytes,⁴ monocytes and neutrophils,⁷ cardiac muscle cells,⁸ endothelial cells,⁹ and CD34⁺ hematopoietic progenitors.¹⁰

Reagents

Recombinant human TNF sRI is supplied lyophilized from a 0.2 μ m filtered solution in phosphate buffered saline containing 2.5 mg of bovine serum albumin.

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 100 μ g/ml.

Storage/Stability

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

Product Profile

Recombinant human TNF sRI is measured by its ability to neutralize apoptosis of mouse L929 cells treated with 0.25 ng/ml recombinant human TNF- α . The ED₅₀ for this effect is generally 0.4-1 ng/ml. The ED₅₀ is defined as the effective concentration of growth factor that elicits a 50% increase in cell growth in a cell based bioassay.

Purity: >95% as determined by SDS-PAGE, visualized by silver stain.

Endotoxin: < 0.1 ng/mg protein as determined by the LAL method.

References

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