



TUMOR NECROSIS FACTOR SOLUBLE RECEPTOR II (TNF sRII)

Mouse, Recombinant
Expressed in *Escherichia coli*

Product Number **T0690**

Product Description

Recombinant Mouse Tumor Necrosis Factor soluble Receptor II (TNF sRII) is a member of the TNF family of receptors, expressed in *Escherichia coli*. A cDNA sequence encoding the extracellular domain¹ of recombinant soluble mouse TNF RII has a 236 amino acid residue and a predicted molecular mass of approximately 25 kDa.

The extracellular domain of TNF sRII has four cysteine-rich motifs. Mouse to human amino acid sequence identity in the TNF RII cytoplasmic domain is 73%, while amino acid sequence identity in the extracellular region falls to 58%.¹ This drop in extracellular identity is reflected in the observation that human TNF- α is not active in the mouse system.¹ Mouse TNF RII to Mouse TNF RI, amino acid sequence identity is only about 20% in the extracellular region and no sequence identity in the cytoplasmic domain.¹

TNF RI and TNF RII are members of the TNF family of receptors. Soluble TNF RII neutralizes the biological activities of both TNF- α and TNF- β with approximately equal efficiency. Two types of soluble TNF receptors have been identified in human serum and urine that neutralizes the biological activities of TNF- α and TNF- β . 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 RII corresponds to TNFR-p80 Type A. These soluble forms appear to arise as a result of shedding of the extracellular domains of the membrane-bound receptors. Normal concentrations as high as 4 ng/ml are found in the serum of healthy individuals, and higher levels may be present in certain pathological conditions. 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.²

TNF RII is expressed in a multitude of cells including monocytes, endothelial cells, macrophages, and

Product Information

Langerhans cells. TNF- α binding to TNF RII has an effect on cells, inducing apoptosis in rhabdomyosarcoma (skeletal muscle tumor) cells³ and cell migration in Langerhans cells.⁴ In the TNF- β :TNF RII complex, TNF RII is non-signaling and appears to act as a decoy receptor.⁵

Reagents

Recombinant human TNF RII is supplied as an approximately 50 μ g of protein lyophilized from a 0.2 μ m filtered solution of 30% acetonitrile, 0.1% trifluoroacetic acid containing 2.5 mg bovine serum albumin.

Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS). Prepare a stock solution of no less than 50 μ g/ml.

Storage/Stability

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

Product Profile

Recombinant mouse TNF soluble Receptor II is measured by its ability to inhibit the recombinant mouse TNF- α mediated cytotoxicity in the mouse L-929 cell line, in the presence of the metabolic inhibitor actinomycin D.⁶

The ED₅₀ for this effect is generally 1-3 μ g/ml in the presence of 0.1 ng/ml of recombinant mouse TNF- α . 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: >97% as determined by SDS-PAGE, visualized by silver stain.

Endotoxin: < 0.1 ng/ μ g of protein, determined by the LAL method.

References

1. Lewis, M., et al., Cloning and expression of cDNAs for two distinct murine tumor necrosis factor receptors demonstrate one receptor is species

- specific. Proc. Natl. Acad. Sci. USA, **88**, 2830-2834 (1991).
2. Tadahiko, K., et al., A second tumor necrosis factor receptor gene product can shed a naturally occurring tumor necrosis factor inhibitor. Proc. Natl. Acad. Sci. USA, **87**, 8331-8335 (1990).
 3. Medvedev, A.E., et al., Distinct roles of the two tumor necrosis factor (TNF) receptors in modulating TNF and lymphotoxin alpha effects. J. Biol. Chem. **271**, 9778-9784 (1996).
 4. Wang, B., et al., Tumour necrosis factor receptor II (p75) signaling is required for the migration of Langerhans' cells. Immunology, **88**, 284-288 (1996).
 5. Medvedev, A.E., et al., Involvement of the tumor necrosis factor receptor p75 in mediating cytotoxicity and gene regulating activities. Eur. J. Immunol. **11**, 2842-2849 (1994).
 6. Matthews, N., et al., Lymphokines and Interferons, A Practical Approach. Clemens, J.J., et al., Eds., IRL Press, 221 (1987).

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