

## Product Information

### TUMOR NECROSIS SOLUBLE FACTOR RECEPTOR II (TNF sRII)/Fc Chimera Human, Recombinant Expressed in mouse NSO cells

Product Number **T7189**

#### Product Description

Recombinant Human Tumor Necrosis Factor soluble Receptor II (TNF sRII)/Fc Chimera is a member of the TNF family of receptors, expressed in mouse NSO cells. The extracellular domain of human TNF RII<sup>1,2</sup> is fused to the carboxy-terminal 6X histidine-tagged Fc region of human IgG<sub>1</sub> via a linker peptide. A cDNA sequence encodes a 461 amino acid residue trans-membrane glycoprotein.<sup>1</sup> The mature protein has a calculated molecular mass of approximately 52.6 kDa. Due to glycosylation, the recombinant human monomer migrates as an approximately 70 kDa protein in SDS-PAGE under reducing conditions.

TNF RII is a disulfide-linked homodimeric protein. The extracellular domain of TNF RII 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%.<sup>3</sup> This drop in extracellular identity is reflected in the observation that human TNF- $\alpha$  is not active in the mouse system.<sup>3</sup> Human TNF RII to human TNF RI, amino acid sequence identity is only about 20% in the extracellular region and 5% in the cytoplasmic domain.<sup>3</sup>

TNF RI and TNF RII are members of the TNF family of receptors. Soluble TNF RII neutralizes the biological activities of both TNF- $\alpha$  and TNF- $\beta$  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- $\alpha$  and TNF- $\beta$ . 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.<sup>4</sup>

TNF RII is expressed in a multitude of cells including monocytes, endothelial cells, macrophages, and Langerhans cells. TNF- $\alpha$  binding to TNF RII has an effect on cells, inducing apoptosis in rhabdomyosarcoma (skeletal muscle tumor) cells<sup>5</sup> and cell migration in Langerhans cells.<sup>6</sup> In the TNF- $\beta$ : TNF RII complex, TNF RII is non-signaling and appears to act as a decoy receptor.<sup>7</sup>

#### Reagents

Recombinant human TNF RII is supplied as an approximately 50  $\mu$ g of protein lyophilized from a 0.2  $\mu$ m filtered solution of phosphate buffered saline.

#### Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS). Prepare a stock solution of no less than 10  $\mu$ 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

TNF Receptor II is measured by its ability to neutralize the TNF- $\alpha$  mediated cytotoxicity in the mouse L-929 cell line, in the presence of the metabolic inhibitor actinomycin D.<sup>8</sup>

The ED<sub>50</sub> for this effect is generally 0.004-0.016  $\mu$ g/ml in the presence of 0.25 ng/ml of TNF- $\alpha$ .

The ED<sub>50</sub> 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/μg of protein, determined by the LAL method.

#### References

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6. Wang, B., et al., Tumour necrosis factor receptor II (p75) signaling is required for the migration of Langerhans' cells. *Immunology*, **88**, 284-288 (1996).
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