

**DESCRIPTION**

<b>Source</b>	Mouse myeloma cell line, NS0-derived mouse TNF RI/TNFRSF1A protein			
	Mouse TNF RI (Leu30-Ala212) Accession # P25118	DIEGRMD	Human IgG <sub>1</sub> (Pro100-Lys330)	6-His tag
	N-terminus		C-terminus	

<b>N-terminal Sequence Analysis</b>	Leu30
<b>Structure / Form</b>	Disulfide-linked homodimer
<b>Predicted Molecular Mass</b>	48.6 kDa (monomer)

**SPECIFICATIONS**

<b>SDS-PAGE</b>	70 kDa, reducing conditions
<b>Activity</b>	Measured by its ability to inhibit the TNF- $\alpha$ mediated cytotoxicity in the L-929 mouse fibroblast cells in the presence of the metabolic inhibitor actinomycin D. Matthews, N. and M.L. Neale (1987) in Lymphokines and Interferons, A Practical Approach. Clemens, M.J. <i>et al.</i> (eds): IRL Press. 221. The ED <sub>50</sub> for this effect is 0.75-4.5 ng/mL in the presence of 0.1 ng/mL recombinant mouse TNF- $\alpha$ .
<b>Endotoxin Level</b>	<0.10 EU per 1 $\mu$ g of the protein by the LAL method.
<b>Purity</b>	>90%, by SDS-PAGE under reducing conditions and visualized by silver stain.
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 100 $\mu$ g/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

### BACKGROUND

TNF receptor 1 (TNF RI; also called TNF R-p55/p60 and TNFRSF1A) is a 55 kDa type I transmembrane protein member of the TNF receptor superfamily, designated TNFRSF1A (1, 2). Mouse TNF RI is a 454 amino acid (aa) protein that contains a 21 aa signal sequence, a 191 aa extracellular domain (ECD) with a PLAD (pre-ligand assembly domain) that mediates constitutive dimer/trimer formation, followed by four CRD (cysteine-rich domains), a 23 aa transmembrane domain, and a 219 aa cytoplasmic sequence that contains a neutral sphingomyelinase activation domain and a death domain (3, 4). The ECD of mouse TNF RI shares 70%, 88%, 67%, 70% and 64% aa sequence identity with human, rat, canine, feline and porcine TNF RI, respectively. Both TNF RI and TNF RII (TNFRSF1B) are widely expressed and contain four TNF- $\alpha$  trimer-binding CRD in their ECD. However, TNF RI is thought to mediate most of the cellular effects of TNF- $\alpha$  (3). It is essential for proper development of lymph node germinal centers and Peyer's patches, and for combating intracellular pathogens such as *Listeria* (1, 2, 5). TNF RI is also a receptor for TNF- $\beta$ /TNFSF1B (lymphotoxin- $\alpha$ ) (6). TNF RI is stored in the Golgi and translocates to the cell surface following pro-inflammatory stimuli (7). TNF- $\alpha$  stabilizes TNF RI and induces its sequestering in lipid rafts, where it activates NF $\kappa$ B and is cleaved by ADAM-17/TACE (8, 9, 16). Release of the 28-34 kDa TNF RI ECD also occurs constitutively and in response to products of pathogens such as LPS, CpG DNA or *S. aureus* protein A (1, 10-12). Full-length TNF RI may also be released in exosome-like vesicles (13). Release helps to resolve inflammatory reactions, since it down-regulates cell surface TNF RI and provides soluble TNF RI to bind TNF- $\alpha$  (10, 14, 15). Exclusion from lipid rafts causes endocytosis of TNF RI complexes and induces apoptosis (1). Mutations of human TNF R1 can result in inflammatory episodes known as TRAPS (TNFR-associated periodic syndrome) (7).

### References:

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