

DESCRIPTION

Source *E. coli*-derived
Ile22-Ala212, with an N-terminal Met
Accession # P25118

N-terminal Sequence Met
Analysis

Predicted Molecular Mass 21 kDa

SPECIFICATIONS

Activity Measured by its ability to inhibit the TNF- α 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. *et al.* (eds): IRL Press. 221.
The ED₅₀ for this effect is 0.1-0.6 μ g/mL in the presence of 0.1 ng/mL of recombinant mouse TNF- α .

Endotoxin Level <1.0 EU per 1 μ g of the protein by the LAL method.

Purity >97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation Lyophilized from a 0.2 μ m filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 200 μ g/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.

Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

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- α trimer-binding CRD in their ECD. However, TNF RI is thought to mediate most of the cellular effects of TNF- α (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- β /TNFSF1B (lymphotoxin- α) (6). TNF RI is stored in the Golgi and translocates to the cell surface following pro-inflammatory stimuli (7). TNF- α stabilizes TNF RI and induces its sequestering in lipid rafts, where it activates NF κ 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- α (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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