Recombinant Human TNF RI/TNFRSF1A Fc Chimera

Catalog Number: 372-RI

DESCRIPTION

Source Mouse myeloma cell line, NS0-derived

Human TNF RI (Leu30-Thr211) & (Asp41-Thr211) Accession # P19438	IEGRMD	Human IgG_1 (Pro100-Lys330)	6 His tag

N-terminus C-terminus

N-terminal Sequence Analysis	Leu30 & Asp41
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	48 kDa (monomer)

SPECIFICATIONS

SDS-PAGE	60-66 kDa, reducing conditions
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 ED_{50} for this effect is 0.4-2 ng/mL in the presence of 0.25 ng/mL Recombinant Human TNF-α (Catalog # 210-TA).
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/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). Human TNF RI is a 455 amino acid (aa) protein that contains a 21 aa signal sequence and 190 aa 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 221 aa cytoplasmic sequence that contains a neutral sphingomyelinase activation domain and a death domain (3, 4). The ECD of human TNF RI shows 70%, 69%, 80%, 80%, and 73% aa identity with mouse, rat, canine, feline and porcine TNF RI, respectively; and it shows 23% aa identity with the ECD of TNF RII. 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 NFκB 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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