Recombinant Mouse TNF-α aa 84-235

Catalog Number: 410-TRNC

DESCRIPTION

Source	*E. coli*-derived Ser84-Leu235 Accession # P06804
N-terminal Sequence Analysis	Ser84
Predicted Molecular Mass	17 kDa (monomer)

SPECIFICATIONS

Activity	Measured in a cytotoxicity assay using 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 typically 5-10 pg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, 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 50 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

Tumor necrosis factor alpha (TNF-α) also known as cachectin and TNFSF1A, is the prototypic ligand of the TNF superfamily. It is a pleiotropic molecule that plays a central role in inflammation, apoptosis, and immune system development. TNF-α is produced by a wide variety of immune and epithelial cell types (1, 2). Mouse TNF-α consisits of a 35 amino acid (aa) cytoplasmic domain, a 21 aa transmembrane segment, and a 179 aa extracellular domain (ECD) (3). Within the ECD, mouse TNF-α shares 94% aa sequence identity with rat and 70 - 77% with bovine, canine, cotton rat, equine, feline, human, porcine, rat, and rhesus TNF-α. The 26 kDa type 2 transmembrane protein is assembled intracellularly to form a noncovalently linked homotrimer (4). Ligation of this complex induces reverse signaling that promotes lymphocyte costimulation but diminishes monocyte responsiveness (5). Cleavage of membrane bound TNF-α by TACE/ADAM17 releases a 55 kDa soluble trimeric form of TNF-α (6, 7). TNF-α trimers bind the ubiquitous TNF RI and the hematopoietic cell-restricted TNF RII, both of which are also expressed as homotrimers (1, 8). TNF-α regulates lymphoid tissue development through control of apoptosis (2). It also promotes inflammatory responses by inducing the activation of vascular endothelial cells and macrophages (2). TNF-α is a key cytokine in the development of several inflammatory disorders (9). It contributes to the development of type 2 diabetes through its effects on insulin resistance and fatty acid metabolism (10, 11).

References:

1. Idriss, H.T. and J.H. Naismith (2000) Microsc. Res. Tech. **50**:184.
2. Hehlgans, T. and K. Pfeffer (2005) Immunology **115**:1.
3. Fransen, L. *et al.* (1985) Nucl. Acids Res. **13**:4417.
4. Tang, P. *et al.* (1996) Biochemistry **35**:8216.
5. Eissner G. *et al.* (2004) Cytokine Growth Factor Rev. **15**:353.
6. Black, R.A. *et al.* (1997) Nature **385**:729.
7. Moss, M.L. *et al.* (1997) Nature **385**:733.
8. Loetscher, H. *et al.* (1991) J. Biol. Chem. **266**:18324.
9. Clark, I.A. (2007) Cytokine Growth Factor Rev. **18**:335.
10. Romanatto, T. *et al.* (2007) Peptides **28**:1050.
11. Hector, J. *et al.* (2007) Horm. Metab. Res. **39**:250.