

Tumor Necrosis Factor alpha Mutant

Human, Recombinant (rHuTNF α Mutant)

Expressed in *E. coli*

Cat. No. CRP0822

Lot. No. (See product label)

PRODUCT INFORMATION

Description: The clinical use of the potent anti-tumor activity of TNF-alpha has been limited by the proinflammatory side effects including fever, dose-limiting hypotension, hepatotoxicity, intravascular thrombosis, and hemorrhage. Designing clinically applicable TNF-a mutants with low systemic toxicity has been an intense pharmacological interest. Human TNF-a, which binds to the murine TNF-R55 but not to the mouse TNF-R75, exhibits retained anti-tumor activity and reduced systemic toxicity in mice compared with murine TNF-a, which binds to both murine TNF receptors. Based on these results, many TNF-a mutants that selectively bind to TNF-R55 have been designed. These mutants displayed cytotoxic activities on tumor cell lines in vitro, and exhibited lower systemic toxicity in vivo. Recombinant Human TNF-alpha Variant/Mutant compared with the wild-type, has an amino acid sequence deletion from a.a. 1-7, and the following a.a. substitutes Arg8, Lys9, Arg10 and Phe157 which is proven to have more activity and with less inflammatory side effect in vivo. Recombinant Human TNF-alpha Mutant produced in *E. coli* is a single, non-glycosylated, polypeptide chain containing 151 amino acids and having a molecular mass of 16,886 Dalton.

Amino-Acid Sequence: The sequence of the first five N-terminal amino acids was determined and was found to be Met-Arg-Lys-Arg-Lys.

M. W. : 16,886 Da

Recombinant: Expressed in *E. coli*

Purity: >95% as determined by SEC-HPLC and SDS-PAGE.

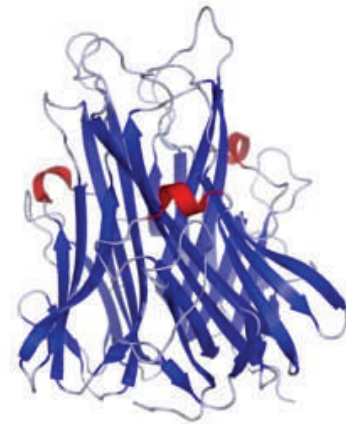
Formulation: Lyophilized from a 0.2 μ m filtered solution in PBS.

Specific Activity: The ED50 as determined by the cytolysis of murine L929 cells in the presence of Actinomycin D is less than 0.01 ng/ml, corresponding to a Specific Activity of 1.0×10^8 IU/mg.

Endotoxin: Less than 0.01ng/ μ g (0.01IEU/ μ g) determined by LAL test.

Reconstitution: It is recommended to reconstitute the lyophilized TNF-alpha Mutant in sterile 18M Ω -cm H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Storage: Lyophilized samples are stable for up to twelve months from date of receipt at -20°C to -70°C. Aliquot to avoid repeated freeze-thaw cycles.



[PDB](#) rendering based on 1TNF.

GENE INFORMATION

Gene Name: [TNF](#)

Gene Alias: DIF; TNF-alpha; TNFA; TNFSF2

Gene Type: protein coding

mRNA Refseq: [NM_000594](#)

Protein Refseq: [NP_000585](#)

MIM: [191160](#)

GeneID: [7124](#)

Chromosome Location: 6p21.3

Summary: This gene encodes a multifunctional proinflammatory cytokine that belongs to the tumor necrosis factor (TNF) superfamily. This cytokine is mainly secreted by macrophages. It can bind to, and thus functions through its receptors TNFRSF1A/TNFR1 and TNFRSF1B/TNFR2.

Function: cytokine activity; identical protein binding; tumor necrosis factor receptor binding

REFERENCES

- 1.Locksley RM, Killeen N, Lenardo MJ. The TNF and TNF receptor superfamilies: integrating mammalian biology. *Cell*; 2001; 104 (4): 487–501
- 2.Kolb WP, Granger GA. Lymphocyte in vitro cytotoxicity: characterization of human lymphotoxin. *Proc. Natl. Acad. Sci. U.S.A.* 1968; 61 (4): 1250–1255
- 3.Pennica D, Nedwin GE, et al. Human tumour necrosis factor. precursor structure, expression and homology to lymphotoxin. *Nature*. 1984; 312 (5996): 724–729

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