

# Recombinant Human TNF protein

**Cat. No.** TNF-38H    **Lot. No.** (See product label)

## SPECIFICATION

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Overview</b> | Recombinant Human TNF protein (variant) was expressed in Escherichia coli. Compared with wild type, this variant has an amino acid sequence (a.a.) 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Species</b>          | Human                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Source</b>           | E.coli                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>ProteinLength</b>    | 151                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Description</b>      | The clinical use of the potent antitumor 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- $\alpha$ mutants with low systemic toxicity has been an intense pharmacological interest. Human TNF- $\alpha$ , which binds to the murine TNF-R55 but not to the murine TNF-R75, exhibits retained antitumor activity and reduced systemic toxicity in mice compared with murine TNF- $\alpha$ , which binds to both murine TNF receptors. Based on these results, many TNF- $\alpha$ 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. |
| <b>Form</b>             | Lyophilized from a 0.2 $\mu$ m filtered concentrated solution in PBS, pH 7.0.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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|                       |                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bio-activity</b>   | Fully biologically active when compared to standard. The ED50 as determined by a cytotoxicity assay using murine L929 cells is less than 0.01 ng/ml, corresponding to a specific activity of $> 1.0 \times 10^7$ IU/mg in the presence of actinomycin D.                                                                                                                                          |
| <b>Molecular Mass</b> | Approximately 16.9 kDa, a single non-glycosylated polypeptide chain containing 151 amino acids. Compared with the wild-type, rHuTNF- $\alpha$ Variant has an amino acid sequence (a.a.) 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.                             |
| <b>AA Sequence</b>    | MRKRKPVAHVVANPQAEGQLQWLNRRANALLANGVELRDNQLVVPSEGLYLIYSQ<br>VLFGKGQGPCSTHVLLTHTISRIAVSYQTKVNLLSAIKSPCQRETPEGAEAKPWYEPIY<br>LGGVFQLEKGDRLSAEINRPDYLDFAESGQVYFGIIAF                                                                                                                                                                                                                                  |
| <b>Endotoxin</b>      | Less than 1 EU/ $\mu$ g of rHu TNF- $\alpha$ /TNFSF2, Variant as determined by LAL method.                                                                                                                                                                                                                                                                                                        |
| <b>Purity</b>         | >98% by SDS-PAGE and HPLC analysis.                                                                                                                                                                                                                                                                                                                                                               |
| <b>Storage</b>        | Use a manual defrost freezer and avoid repeated freeze-thaw cycles. 12 months from date of receipt, -20 to -70 centigrade as supplied. 1 month, 2 to 8 centigrade under sterile conditions after reconstitution. 3 months, -20 to -70 centigrade under sterile conditions after reconstitution.                                                                                                   |
| <b>Reconstitution</b> | We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in sterile distilled water or aqueous buffer containing 0.1 % BSA to a concentration of 0.1-1.0 mg/mL. Stock solutions should be apportioned into working aliquots and stored at $\leq -20$ centigrade. Further dilutions should be made in appropriate buffered solutions. |

## GENE INFORMATION

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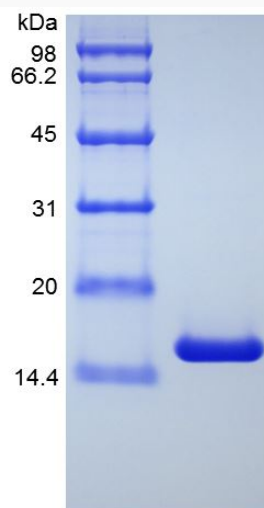
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|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Gene Name</b>       | TNF                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Official Symbol</b> | TNF                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Synonyms</b>        | TNF; tumor necrosis factor; TNFA, tumor necrosis factor (TNF superfamily, member 2); DIF; TNF superfamily; member 2; TNF alpha; TNFSF2; TNF-a; cachectin; APC1 protein; TNF, monocyte-derived; TNF, macrophage-derived; TNF superfamily, member 2; tumor necrosis factor alpha; tumor necrosis factor-alpha; tumor necrosis factor ligand superfamily member 2; TNFA; TNF-alpha; |
| <b>Gene ID</b>         | 7124                                                                                                                                                                                                                                                                                                                                                                             |
| <b>mRNA Refseq</b>     | NM_000594                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Protein Refseq</b>  | NP_000585                                                                                                                                                                                                                                                                                                                                                                        |
| <b>MIM</b>             | 191160                                                                                                                                                                                                                                                                                                                                                                           |
| <b>UniProt ID</b>      | P01375                                                                                                                                                                                                                                                                                                                                                                           |

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**SDS-PAGE of TNF-  
38H**



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