



## Product Information

### Tumor Necrosis Factor- $\alpha$

Rat, Recombinant  
Expressed in *E. coli*

Product Number **T 5944**

#### Product Description

Recombinant Rat Tumor Necrosis Factor- $\alpha$  (TNF- $\alpha$ ) is produced from a DNA sequence encoding soluble rat TNF- $\alpha$ .<sup>1</sup> Recombinant rat TNF- $\alpha$  is a soluble 17.3 kDa protein containing 157 amino acid residues.

Tumor Necrosis Factor- $\alpha$  is a protein secreted by lipopolysaccharide-stimulated macrophages that causes killing of diverse types of tumor cells.<sup>2</sup> Also known as cachectin, TNF- $\alpha$  is believed to mediate pathogenic shock and tissue injury associated with endotoxemia.<sup>3</sup> TNF- $\alpha$  occurs as a secreted, soluble form and as a membrane-anchored form, both of which are biologically active. The naturally occurring form of TNF- $\alpha$  is glycosylated, but non-glycosylated recombinant TNF- $\alpha$  has comparable biological activity. Two types of receptors for TNF- $\alpha$  have been described and virtually all cell types studied show the presence of one or both of these receptor types. TNF- $\alpha$  is closely related to the 25 kDa protein Tumor Necrosis Factor- $\beta$  (lymphotoxin), sharing the same receptors and cellular actions.<sup>4</sup>

TNF- $\alpha$  influences the growth and function of both normal and neoplastic cells. TNF- $\alpha$  causes cytolysis or cytostasis of certain transformed cells,<sup>5,6</sup> being synergistic with  $\gamma$ -interferon in its cytotoxicity.<sup>7</sup> The lysis of certain tumor targets by macrophages or monocytes is mediated by this soluble cytotoxic factor.<sup>8</sup> TNF- $\alpha$  exerts hormone-like activities on various target cells including leukocytes, endothelial cells and fibroblasts.<sup>9</sup> TNF- $\alpha$  and IL-1 share many biological activities, including neutrophil and osteoclast activation, and increased prostaglandin and collagenase synthesis.<sup>9</sup>

#### Reagent

Recombinant Rat Tumor Necrosis Factor- $\alpha$  is supplied lyophilized from 0.2  $\mu$ m filtered buffered solution with carrier.

#### Storage/Stability

Prior to reconstitution, store at  $-20^{\circ}\text{C}$ . The lyophilized protein is stable for a few weeks at room temperature, but best stored at  $-20^{\circ}\text{C}$ . After reconstitution, freeze in working aliquots. Repeated freezing and thawing is not recommended. Do not store in "frost-free" freezer.

#### Preparation Instructions

Reconstitute the contents of the vial in water to a concentration of 0.1-1.0 mg/ml. This solution can then be diluted into other aqueous buffers and stored at  $2-8^{\circ}\text{C}$  for up to 1 week. For extended use, store at  $-20^{\circ}\text{C}$ .

#### Product Profile

The cytolytic activity of TNF- $\alpha$  is measured using murine L929 cells in the presence of actinomycin D.

The ED<sub>50</sub> is defined as the effective concentration of growth factor that elicits 50% inhibition of cell growth.

Purity:  $\geq 98\%$  as determined by SDS-PAGE and HPLC.

Endotoxin level is  $< 0.1$  ng/ $\mu$ g as determined by the LAL (Limulus amoebocyte lysate) method.

#### References

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