

## Recombinant Human Tumor Necrosis Factor Receptor (rh TNFR / CD120b)

**Introduction:** TNFR binds specifically to tumor necrosis factor (TNF) and blocks its interaction with cell surface TNF receptors. TNF is a naturally occurring cytokine that is involved in normal inflammatory and immune responses. It plays an important role in the inflammatory processes of rheumatoid arthritis (RA), polyarticular-course juvenile rheumatoid arthritis (JRA) and ankylosing spondylitis and the resulting joint pathology. In addition TNF plays a role in the inflammatory process of plaque psoriasis. Elevated levels of TNF are found in involved tissues and fluids of patients with RA, psoriatic arthritis, ankylosing spondylitis (AS) and plaque psoriasis. Two distinct receptors for TNF (TNFRs), a 55 kilodalton protein (p55) and a 75 kilodalton protein (p75), exist naturally as monomeric molecules on cell surfaces and in soluble forms. Biological activity of TNF is dependent upon binding to either cell surface TNFR. Recombinant Human TNFR is a dimeric soluble form of the p75 TNF receptor that can bind to two TNF molecules. It inhibits the activity of TNF in vitro and has been shown to affect several animal models of inflammation, including murine collagen-induced arthritis. TNFR inhibits binding of both TNF $\alpha$  and TNF $\beta$  (lymphotoxin alpha [LT $\alpha$ ]) to cell surface TNFRs, rendering TNF biologically inactive. Cells expressing transmembrane TNF that bind to TNFR are not lysed in vitro in the presence or absence of complement. TNFR can also modulate biological responses that are induced or regulated by TNF, including expression of adhesion molecules responsible for leukocyte migration (i.e., E-selectin and to a lesser extent intercellular adhesion molecule-1 [ICAM-1]), serum levels of cytokines (e.g., IL-6), and serum levels of matrix metalloproteinase-3 (MMP-3 or stromelysin).

**Description:** Recombinant human Tumor Necrosis Factor Receptor produced in CHO is a dimeric, glycosylated, polypeptide chain consisting of the extracellular ligand-binding portion of the human 75 kilodalton (p75) tumor necrosis factor receptor (TNFR) linked to the Fc portion of human IgG1. The Fc component of TNFR contains the CH2 domain, the CH3 domain and hinge region, but not the CH1 domain of IgG1. It consists of 934 amino acids and has an apparent molecular weight of approximately 150 kilodaltons. The TNFR is purified by standard chromatographic techniques.

**Source:** *Chinese Hamster Ovarian Cells (CHO)*

**Physical Appearance:** Sterile filtered white lyophilized (freeze-dried) powder.

**Formulation:** Each mg contains 1.6mg mannitol, 0.4 mg sucrose and 48  $\mu$ g tromethamine. The aliquots/samples of 1 $\mu$ g contain Trehalose 5% (w/vol) for better recovery

**Solubility:** It is recommended to reconstitute the lyophilized rh TNFR in sterile H<sub>2</sub>O not less than 100  $\mu$ g/ml, which can then be further diluted to other aqueous solutions.

**Stability:** Lyophilized rh TNFR although stable at room temperature for 3 weeks, should be stored desiccated below -18 $^{\circ}$  C. Upon reconstitution rh TNFR should be stored at 4 $^{\circ}$  C between 2-7 days and for future use below -18 $^{\circ}$  C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

**Purity:** Greater than 98.0% as determined by RP-HPLC and by SDS-PAGE.

**Biological Activity:** Potency is determined by its ability to neutralize TNF-alpha mediated growth inhibition of A375 cells, corresponding to a Specific Activity of  $1.7 \times 10^7$  IU/mg.

This material is offered for research only. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

<i>small</i>	10 $\mu$ g	Cat.N $^{\circ}$	11344113
<i>medium</i>	50 $\mu$ g	Cat.N $^{\circ}$	11344115

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