

## Product Information Sheet

# Tumor Necrosis Factor- $\alpha$ human

Xeno-free, recombinant, expressed in HEK 293 cells, suitable for cell culture

**H8916**

## Product Description

Recombinant human Tumor Necrosis Factor  $\alpha$  (TNF- $\alpha$ ) is expressed in human HEK 293 cells with a calculated molecular mass of 17 kDa (monomer). It has been shown to be predominantly a glycosylated, non-covalently linked homotrimer with a molecular mass of 51 kDa (gel filtration). This protein is manufactured in human cells, with no serum. The human cells expression system allows human-like glycosylation and folding, and often supports higher specific activity of the protein. The protein is produced with no artificial tags and no carrier proteins.

TNF- $\alpha$  is a protein secreted by lipopolysaccharide stimulated macrophages and causes tumor necrosis in vivo when injected into tumor bearing mice.<sup>1</sup> TNF- $\alpha$  is believed to mediate pathogenic shock and tissue injury associated with endotoxemia.<sup>2</sup> TNF- $\alpha$  is closely related to the 25 kDa protein Tumor Necrosis Factor- $\beta$  (lymphotoxin), sharing the same receptors and cellular actions.<sup>3</sup> TNF- $\alpha$  causes cytolysis or cytostasis of certain transformed cells,<sup>4,5</sup> being synergistic with  $\gamma$  interferon in its cytotoxicity.<sup>6</sup> Although it has little effect on many cultured normal human cells,<sup>5</sup> TNF- $\alpha$  appears to be directly toxic to vascular endothelial cells.<sup>7</sup>

This product is supplied as a lyophilized powder in phosphate buffered saline (PBS), pH 7.4, with no carrier proteins. It is aseptically filled.

The biological activity of recombinant human TNF- $\alpha$  was tested in culture by measuring its ability to stimulate cytotoxicity of the TNF- $\alpha$  sensitive cell line L-929 in the presence of actinomycin D.

EC50:  $\leq 1.0$  ng/mL

The EC50 is defined as the effective concentration of TNF- $\alpha$  that elicits a 50% decrease in cell growth in a cell-based bioassay.

Purity:  $\geq 95.0\%$  (SDS-PAGE)

Endotoxin:  $\leq 1.00$  EU/ $\mu$ g TNF- $\alpha$  (LAL)

Uniprot: P01375

Xeno-free means:

- Absence of non-human animal components means
- Absence of animal components which are non-human (human cells such as HEK cells are OK and not considered as animal-source)
- Excepting the human original cells, ABSENCE of animal component

## Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

## Preparation Instructions

Briefly centrifuge the vial before opening. Reconstitute in water to a concentration of 0.1 mg/mL. Do not vortex. This solution can be stored at 2–8 °C for up to 1 week. For extended storage, it is recommended to store in working aliquots at –20 °C.

## Storage/Stability

Store the lyophilized product at –20°C. The product is stable for at least 2 years as supplied.

## References

1. Carswell, E.A., et al., Proc. Natl. Sci. USA, 72, 3666 (1975).
2. Tracey, K.J., et al., Science, 234, 470 (1986).
3. Hass, P.E., et al., J. Biol. Chem., 260, 12213 (1985).
4. Granger, G.A., et al., J. Clin. Immunol., 5, 217 (1985).
5. Helson, L., et al., Nature, 258, 731 (1975).
6. Williamson, B D., et al., Proc. Natl. Acad. Sci. USA, 80, 5397 (1983).
7. Sato, N., et al., J. Natl. Cancer Inst., 76, 1113 (1986).

## Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

### Technical Assistance

Visit the tech service page at [SigmaAldrich.com/techservice](https://SigmaAldrich.com/techservice).

### Terms and Conditions of Sale

Warranty, use restrictions, and other conditions of sale may be found at [SigmaAldrich.com/terms](https://SigmaAldrich.com/terms).

### Contact Information

For the location of the office nearest you, go to [SigmaAldrich.com/offices](https://SigmaAldrich.com/offices).

The life science business of Merck operates as MilliporeSigma in the U.S. and Canada.

Merck and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources.

© 2023 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.  
H8916PIS Rev 03/23

