

Human Cell Expressed TNF-alpha **HCX Catalog number 8005_**

Source	A DNA sequence encoding the human TNF-alpha (TNF-a) protein sequence was expressed in modified human 293 cells.
Molecular Mass	Symansis TNF-alpha HCX migrates as two bands between 15 and 20 kDa in SDS-PAGE due to post-translation modifications. This compares with the unmodified TNF-alpha that has a predicted molecular mass of 17.4kDa.
pI	Symansis TNF-alpha HCX separates into a number of isoforms with a pI between 5.3 and 8.0 in 2D PAGE due to post-translational modifications. This compares with the unmodified TNF-alpha that has a predicted pI of 7.0.
Purity	>95%, as determined by SDS-PAGE and visualized by silver stain.
Formulation	When reconstituted in 0.5 ml sterile phosphate-buffered saline, the solution will contain 1% human serum albumin (HSA) and 10% trehalose.
Reconstitution	It is recommended that 0.5 ml of sterile phosphate-buffered saline be added to the vial.
Storage	Lyophilized products should be stored at 2 to 8°C. Following reconstitution short-term storage at 4°C is recommended, and longer-term storage of aliquots at -18 to -20°C. Repeated freeze thawing is not recommended.
Activity	The ED50 of TNF-alpha HCX is typically 0.04-0.06 ng/ml as measured in cytotoxicity assay using the TNF-alpha susceptible murine WEHI 164 cell line in the presence of actinomycin D.
Theoretical Sequence	VRSSSRTPSDKPVAHVVANPQAEGLQLWLNRRANALLANGVELRDNQLVVPSEGLYLIYSQ VLFKGGQCPSTHVLLTHTISRIVSYQTKVNLLSAIKSPCQRETPEGAEAKPWYEPYIYLGGVFQ LEKGDRLSAEINRPDYLDFAESGQVYFGIALL
Background Information	<p>Tumor necrosis factor alpha (TNF-a, TNF alpha) and the structurally related lymphotoxin-alpha are pro-inflammatory cytokines produced by a variety of immune and non-immune cells in response to multiple stimuli. These stimuli can include bacteria and bacterial products such as LPS, viral infections, T-cell receptor activation and cross-linking of surface immunoglobulin (Ig) on B cells. Expression of TNF-alpha has been detected in macrophages/monocytes, B-cells, T-cells, basophils, eosinophils, glial cells and mast cells.</p> <p>The effects of TNF-alpha are mediated through the TNF receptors, TNFR1 and TNFR2, and this induces a variety of signaling events within cells, leading to necrosis or apoptosis particularly in transformed cells, as well as the induction of inflammatory processes, cell proliferation, cytokine release and activation of T- and B-lymphocytes. Additionally, localized, low-level expression of TNF-alpha participates in tissue re-modeling and host defence responses, including the destruction of tumor cells or virus infected cells and enhancement of antibacterial activities of granulocytes.</p> <p>TNF-alpha is synthesized as a 233 amino acid peptide and is expressed as a 26kDa membrane bound protein. This membrane bound form can be cleaved by TNF alpha converting enzyme (TACE) to produce a soluble 17 kDa protein that associates to form a biologically active homotrimer.</p> <p>For a review of the potential role of TNF-alpha in rheumatoid arthritis please refer to Mikuls TR & Weaver AL (2003) <i>Curr Rheumatol Rep.</i> 5(4): 270-7.</p>