

# PRODUCT INFORMATION

## TNF- $\alpha$ Chimeric Mouse-Human Monoclonal Antibody (Clone D2E7) Item No. 37180

### Overview and Properties

<b>Contents:</b>	This vial contains 200 $\mu$ g of protein A-affinity purified monoclonal antibody.
<b>Synonyms:</b>	DIF, Differentiation-inducing Factor, TNFA, TNFSF2, Tumor Necrosis Factor- $\alpha$
<b>Immunogen:</b>	Human TNF- $\alpha$
<b>Cross Reactivity:</b>	(+) TNF- $\alpha$ , soluble TNF- $\alpha$ ; (-) TNF- $\beta$
<b>Species Reactivity:</b>	(+) Human
<b>Uniprot No.:</b>	P01375
<b>Form:</b>	Liquid
<b>Storage:</b>	-20°C (as supplied)
<b>Stability:</b>	$\geq$ 1 year
<b>Storage Buffer:</b>	PBS with 0.02% ProClin™ 300
<b>Clone:</b>	D2E7 (Adalimumab)
<b>Host:</b>	Chimeric Monoclonal Antibody
<b>Isotype:</b>	Human IgG1 $\kappa$
<b>Applications:</b>	ELISA, Immunofluorescence (IF), and immunohistochemistry (IHC); the optimal working concentration/dilution should be determined empirically.

### Description

TNF- $\alpha$  is a cytokine and a member of the TNF/TNF receptor (TNFR) cytokine superfamily.<sup>1</sup> TNF- $\alpha$  is produced as a 233-amino acid transmembrane precursor protein from which mature, soluble TNF- $\alpha$  is formed by proteolysis.<sup>2</sup> Soluble TNF- $\alpha$  is a 157-amino acid polypeptide, cleaved from the precursor protein on the extracellular side of the membrane, that forms bell-shaped homotrimers with the C-termini at the base, each containing three receptor interaction sites.<sup>3</sup> It is primarily produced by activated macrophages but can also be produced by a variety of other cells, such as T cells, natural killer cells, and osteoblasts.<sup>3,4</sup> TNF- $\alpha$  binds to and activates its receptors, TNFR1 and TNFR2, which are associated with intracellular protein complexes that activate caspases to induce cell death, induce p38 MAPK signaling, and initiate NF- $\kappa$ B or AP-1-mediated transcription of immune and inflammatory mediators.<sup>5</sup> TNF- $\alpha$  promotes inflammation partly by inducing endothelial cells to express adhesion molecules, COX enzymes, and pro-coagulant factors.<sup>4</sup> Exogenous TNF- $\alpha$  induces death of cancer cells *in vitro*, as well as disrupts tumor vascularization and induces tumor necrosis *in vivo*, but it has tumor-promoting properties when produced in the cancer microenvironment.<sup>1,6</sup> In contrast, it plays a role in resistance to infection, with mice lacking *Tnf* having an increased susceptibility to certain microbial infections but lacking resistance to leishmania.<sup>5</sup> *Tnf* knockout mice are also resistant to certain types of cancer, including chemically induced skin carcinogenesis.<sup>1</sup> TNF- $\alpha$  increases lung metastases in a mouse model of fibrosarcoma, an effect that can be reduced by an anti-TNF- $\alpha$  antibody. Mice overexpressing *Tnf* develop an arthritis similar to rheumatoid arthritis in humans.<sup>7</sup> TNF- $\alpha$  is produced in the inflamed tissues of patients with inflammatory diseases such as rheumatoid arthritis, and neutralizing antibodies to TNF- $\alpha$  reduce the levels of TNF- $\alpha$  *in vitro* and in mouse models of the disease.<sup>4</sup> Cayman's TNF- $\alpha$  Chimeric Mouse-Human Monoclonal Antibody (Clone D2E7) was produced recombinantly from the original D2E7 antibody sequence and can be used for ELISA, immunofluorescence (IF), and immunohistochemistry (IHC) applications. The D2E7 antibody was generated by affinity maturation from the 2SD4 scFv, which, in turn, was selected on human TNF- $\alpha$  by guided phage-display technology using the mouse anti-hTNF- $\alpha$  antibody Mab32 as a template.<sup>8,9</sup>

WARNING  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## References

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