

CD40L/CD154/TRAP Protein, Canine (HEK293)

Cat. No.:	HY-P75407
Synonyms:	CD40 ligand; CD40-L; TRAP; CD154; sCD40L; TNFSF5
Species:	Canine
Source:	HEK293
Accession:	O97626 (N-G&P, M112-L260)
Gene ID:	403468
Molecular Weight:	Approximately 19 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μ m filtered solution of PBS, pH 7.4. Normally 5% - 8% trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/ μ g, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μ g/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<p>CD40 Ligand (CD40L; CD154; TRAP) belongs to the tumor necrosis factor (TNF) family, is the ligand for CD40/TNFRSF5, specifically expressed on activated CD4⁺ T-lymphocytes^[1].</p> <p>CD40L is a type II transmembrane protein on B cells triggers important signals for B cell differentiation, maturation, and apoptosis^[4].</p> <p>CD40L acts function by cross-linking on T-cells to generate a costimulatory signal and thus enhances the production of IL4 and IL10 in conjunction with the TCR/CD3 ligation and CD28 costimulation, as well as promoting the production of interferon-γ, and TNF-α^{[1][4]}.</p> <p>CD40L, binding with CD40 on antigen-presenting cells (APC), activates TNFR-associated factor 2- and IKK2-dependent pathways with stimulating I-κB kinase (IKK), increasing NF-κB DNA binding, and p65 nuclear translocation. The activation of I-κB kinase leads to strongly c-Jun N-terminal kinase activation as well as GST-I-κB and GST-p65 phosphorylation^[2].</p> <p>CD40L involves in MAPK pathways that strongly repress Bcl-6 with inducing the phosphorylation of Erk1/2, p38 and Jnk1/2 and activating IRF4 mediated by NF-κB^[3].</p> <p>CD40L also binds to and signals through several integrins, including αvβ3 and α5β1, which bind to the trimeric interface of CD40L. CD40L plays a major role in immune response and is a major target for inflammation^[5].</p>
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REFERENCES

- [1]. Blotta MH, et al. Cross-linking of the CD40 ligand on human CD4+ T lymphocytes generates a costimulatory signal that up-regulates IL-4 synthesis. *J Immunol.* 1996 May 1;156(9):3133-40.
- [2]. Schwabe RF, et al. CD40 activates NF-kappa B and c-Jun N-terminal kinase and enhances chemokine secretion on activated human hepatic stellate cells. *J Immunol.* 2001 Jun 1;166(11):6812-9.
- [3]. Batlle A, et al. CD40 and B-cell receptor signalling induce MAPK family members that can either induce or repress Bcl-6 expression. *Mol Immunol.* 2009 May;46(8-9):1727-35.
- [4]. Mikolajczak SA, et al. The modulation of CD40 ligand signaling by transmembrane CD28 splice variant in human T cells. *J Exp Med.* 2004 Apr 5;199(7):1025-31.
- [5]. Takada YK, et al. Soluble CD40L activates soluble and cell-surface integrin $\alpha\beta3$, $\alpha5\beta1$, and $\alpha4\beta1$ by binding to the allosteric ligand-binding site (site 2). *J Biol Chem.* 2021 Jan-Jun;296:100399.
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