CD40L/CD154/TRAP Trimer Protein, Mouse (HEK293, Fc)

Cat. No.:	HY-P78271
Synonyms:	CD40L; CD40LG; CD154; TNFSF5; TNFSF5IMD3; CD40LIGM; gp39; HIGM1; T-BAM; TRAP; IGM; IMD3; CD40 Ligand
Species:	Mouse
Source:	HEK293
Accession:	P27548 (M112-L260)
Gene ID:	21947
Molecular Weight:	68-80 kDa

PROPERTIES

AA Sequence	MQRGDEDPQI AAHVVSEANS NAASVLQWAK KGYYTMKSNL VMLENGKQLT VKREGLYYVY TQVTFCSNRE PSSQRPFIVG LWLKPSSGSE RILLKAANTH SSSQLCEQQS VHLGGVFELQ AGASVFVNVT EASQVIHRVG FSSFGLLKL
Biological Activity	Immobilized Mouse CD40, His Tag at 1 μg/ml (100 μL/Well) on the plate. Dose response curve for Mouse CD40 Ligand (Trimer), hFc Tag with the EC_{50} of 0.10 μg/ml determined by ELISA.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.4. Normally 8% trehalose is added as protectant before lyophilization.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
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	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]. CD40L is a type II transmembrane protein on B cells triggers important signals for B cell differentiation, maturation, and apoptosis[4]. 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].

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].

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].

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].

CD40L is widely found in different animals, while the sequence in Mouse is highly similar to Rat (93.85%), but very different from Human and Rhesus macaque with similarities of 77.69% and 77.31%, respectively. CD40L in Mouse is cleaved into 2 chains of membrane form (1-260 a.a.) and soluble form (112-260 a.a.), while the soluble form in human derives from the membrane form by proteolytic processing. Release of soluble CD40L from platelets is partially regulated by GP IIb/IIIa, actin polymerization, and a matrix metalloproteinases (MMP) inhibitor-sensitive pathway[6].

REFERENCES

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[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.

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[7]. Rahman M, et al. Platelet-derived CD40L (CD154) mediates neutrophil upregulation of Mac-1 and recruitment in septic lung injury. Ann Surg. 2009 Nov;250(5):783-90.

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