PRODUCT INFORMATION

ICOS/CD278 Extracellular Domain (human, recombinant)

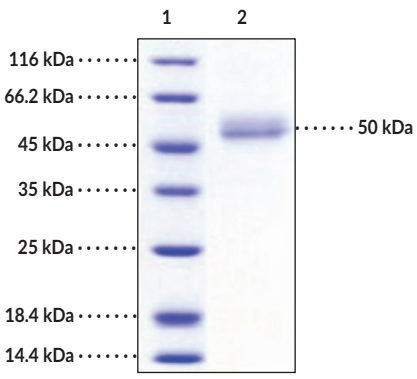
Item No. 32084

Overview and Properties

Synonyms:	Activation-inducible Lymphocyte Immunomediatory Molecule, AILIM, CVID1, Inducible T Cell Costimulator
Source:	Active recombinant C-terminal human IgG1 Fc-His-tagged ICOS expressed in HEK293 cells
Amino Acids:	21-141
Uniprot No.:	Q9Y6W8
Molecular Weight:	41.6 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
Bioactivity:	See figures for details

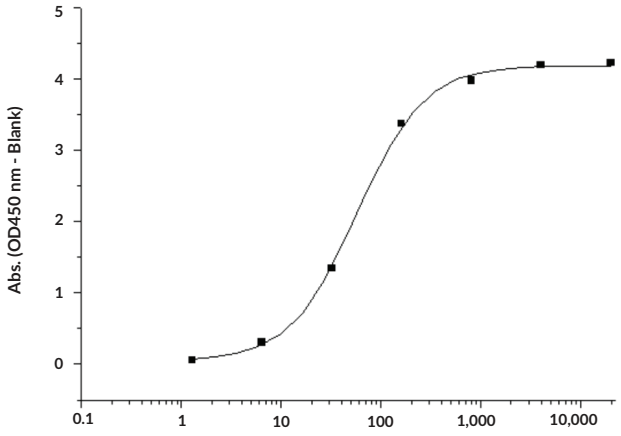
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: ICOS Extracellular Domain

SDS-PAGE Analysis of ICOS Extracellular Domain. This protein has a calculated molecular weight of 41.6 kDa. It has an apparent molecular weight of approximately 50 kDa by SDS-PAGE under reducing conditions due to glycosylation.



ICOS Bioactivity in functional ELISA. Immobilized human human B7-H2 at 1 µg/ml (100 µl/well) can bind human ICOS with a linear range of 1.6-200 ng/ml.

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Description

Inducible T cell co-stimulator (ICOS) is a glycoprotein and member of the CD28/B7 family of co-stimulatory receptors that promotes T cell activation.[1] It exists as a membrane-bound disulfide-linked homodimer and contains a leader peptide, an extracellular domain that interacts with ICOS ligand (ICOSL), and a cytoplasmic tail that mediates association with PI3K and is critical for T cell activation.[1,2] ICOS is expressed on activated $CD4^+$ and $CD8^+$ T cells following T cell receptor crosslinking and/or co-stimulation by CD28.[1] ICOS co-stimulation of T cells induces production of IL-4, IL-5, IL-6, IFN-γ (Item Nos. 32008 | 32078), TNF-α (Item Nos. 32020 | 32069), and GM-CSF (Item Nos. 32044 | 32079), but not IL-2, and superinduces production of IL-10, as well as prevents T cell apoptosis.[2] Human melanoma cells express ICOSL and promote the expansion of $ICOS^+$ IL-10-secreting regulatory T cells, which is positively correlated with unfavorable clinical outcomes.[3] Administration of an anti-ICOS monoclonal antibody ameliorates mucosal inflammation and damage in a mouse model of T helper cell-induced chronic colitis.[4] Cayman's ICOS/CD278 Extracellular Domain (human, recombinant) protein can be used for ELISA. This protein is a disulfide-linked homodimer. The reduced monomer, comprised of ICOS (amino acids 21-141) fused to His-tagged human IgG1 Fc at its C-terminus, consists of 386 amino acids, has a calculated molecular weight of 41.6 kDa, and a predicted N-terminus of Glu21 after signal peptide cleavage. As a result of glycosylation, the monomer migrates at approximately 50 kDa by SDS-PAGE under reducing conditions.

References

1. Wikenheiser, D.J. and Stumhofer, J.S. ICOS Co-Stimulation: Friend or Foe? *Front. Immunol.* **7**, 304 (2016).
2. Beier, K.C., Hutloff, A., Dittrich, A.M., *et al.* Induction, binding specificity and function of human ICOS. *Eur. J. Immunol.* **30(12)**, 3707-3717 (2000).
3. Amatore, F., Gorvel, L., and Olive, D. Inducible co-stimulator (ICOS) as a potential therapeutic target for anti-cancer therapy. *Expert Opin. Ther. Targets* **22(4)**, 343-351 (2018).
4. Kanai, T., Totsuka, T., Tezuka, K., *et al.* ICOS costimulation in inflammatory bowel disease. *J. Gastroenterol.* **37(Suppl 14)**, 78-81 (2002).

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