PRODUCT INFORMATION

TIM-4 Extracellular Domain (human, recombinant) - Biotinylated

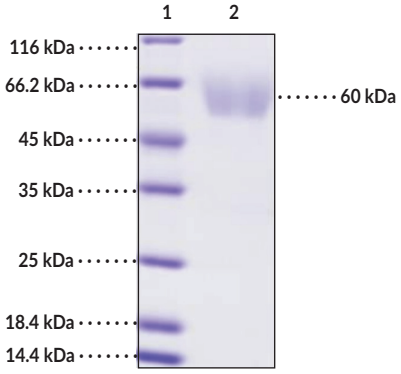
Item No. 37098

Overview and Properties

Synonyms:	T Cell Immunoglobulin and Mucin Domain-containing Protein 4, T Cell Immunoglobulin Mucin Receptor 4, T Cell Membrane Protein 4, TIMD-4
Source:	Recombinant human C-terminal His-tagged TIM-4 extracellular domain expressed in HEK293 cells
Amino Acids:	25-315
Uniprot No.:	Q96H15
Molecular Weight:	32.7 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	Lyophilized from from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay

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

Image



Lane 1: MW Markers
Lane 2: TIM-4 Extracellular Domain (human, recombinant) - Biotinylated

SDS-PAGE Analysis of TIM-4 Extracellular Domain (human, recombinant) - Biotinylated. This protein has a calculated molecular weight of 32.7 kDa. It has an apparent molecular weight of approximately 60 kDa by SDS-PAGE under reducing conditions due to glycosylation.

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

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Description

TIM-4 is a type I transmembrane protein and member of the T cell immunoglobulin and mucin domain-containing (TIM) family of immunoregulatory proteins.[1] It is composed of an N-terminal immunoglobulin variable (IgV) domain that binds to phosphatidylserine, as well as a mucin stalk, which contains O- and N-linked glycosylation sites, a transmembrane domain, and a C-terminal cytoplasmic tail, which lacks a tyrosine phosphorylation site, unlike TIM-1 and TIM-3.[1,2] TIM-4 is expressed in antigen-presenting cells (APCs) such as dendritic cells and macrophages and binds to TIM-1 on activated T cells.[3] It is mainly involved in phagocytosis of apoptotic cells *via* recognition of phosphatidylserine, but also plays a role in T cell proliferation and survival, viral entry, and antitumor immunity.[2,4,5,6] TIM-4 targeting antibodies prevent HIV-1 entry into host cells *in vitro* and enhance the efficacy of anticancer vaccines in a murine melanoma model.[5,6] SNPs in *TIMD4* are associated with increased susceptibility of asthma in children.[7] Cayman's TIM-4 Extracellular Domain (human, recombinant) - Biotinylated protein consists of 302 amino acids, has a calculated molecular weight of 32.7 kDa, and a predicted N-terminus of Glu25 after signal peptide cleavage. By SDS-PAGE, the apparent molecular mass of the protein is approximately 60 kDa due to glycosylation.

References

1. Freeman, G.J., Casasnovas, J.M., Umetsu, D.T., *et al.* TIM genes: A family of cell surface phosphatidylserine receptors that regulate innate and adaptive immunity. *Immunol. Rev.* **235(1),** 172-189 (2010).
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3. Meyers, J.H., Chakravarti, S., Schlesinger, D., *et al.* TIM-4 is the ligand for TIM-1, and the TIM-1-TIM-4 interaction regulates T cell proliferation. *Nat. Immunol.* **6,** 455-464 (2005).
4. Rodriguez-Manzanet, R., Meyers, J.H., Balasubramanian, S., *et al.* TIM-4 expressed on APCs induces T cell expansion and survival. *J. Immunol.* **180(7),** 4706-4713 (2008).
5. Sims, B., Farrow, A.L., Williams, S.D., *et al.* Role of TIM-4 in exosome-dependent entry of HIV-1 into human immune cells. *Int. J. Nanomedicine* **12,** 4823-4833 (2017).
6. Baghdadi, M., Nagao, H., Yoshiyama, H., *et al.* Combined blockade of TIM-3 and TIM-4 augments cancer vaccine efficacy against established melanomas. *Cancer Immunol. Immunother.* **62(4),** 629-637 (2013).
7. Cai, P.C., Hu, L.H., Cui, T.P., *et al.* Association of TIM4 promoter polymorphism -1419G>A with childhood asthma in a Chinese Han population. *Tissue Antigens* **74,** 11-16 (2009).

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