PRODUCT INFORMATION

TIM-3 Extracellular Domain (human, recombinant)

Item No. 32011

Overview and Properties

Synonyms:	CD366, Hepatitis A Virus Cellular Receptor 2 Precursor, KIM-3, T Cell Immunoglobulin and Mucin Domain-containing Protein 3, T Cell Immunoglobulin Mucin Receptor 3, T Cell Membrane Protein 3, TIMD-3
Source:	Recombinant C-terminal mouse IgG2a Fc-tagged human TIM-3 expressed in HEK293 cells
Amino Acids:	22-200
Molecular Weight:	46.2 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile 20 mM Tris, 150 mM sodium chloride, pH 8.5

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

Image

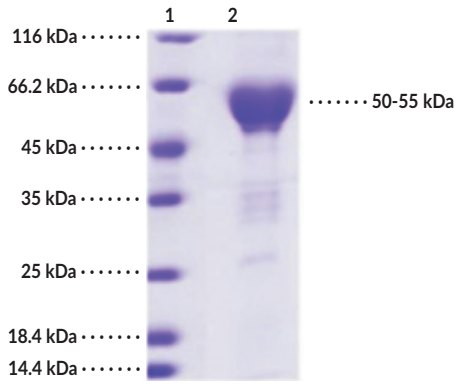

Figure 1: SDS-PAGE Analysis
Lane 1: MW Marker
Lane 2: TIM-3 (human, recombinant)

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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Description

TIM-3 is a member of the T-cell immunoglobulin and mucin domain-containing (TIM) protein family of immunoregulatory proteins and is encoded by the *HAVCR2* gene in humans.[1] It is a transmembrane protein composed of an N-terminal immunoglobulin variable (IgV) domain, as well as mucin stalk, transmembrane, and C-terminal cytoplasmic tail domains. The IgV domain contains cysteine residues that form non-canonical intramolecular disulfide bonds resulting in a cleft and channel not found in non-TIM immunoglobulin domains that is important for non-canonical ligand binding.[2] TIM-3 is expressed primarily on T cells but is also expressed on other immune cells such as natural killer and dendritic cells.[3] The TIM-3 ligand galectin 9 (Item No. 32012), located on immune or tumor cells, binds to glycosylated sites of the IgV and mucin stalk domains and induces TIM-3 oligomerization to activate downstream signaling that impairs immune synapse formation and leads to T cell anergy or apoptosis.[1] The TIM-3 IgV cleft domain binds non-canonical ligands, such as phosphatidylserine on apoptotic cells or CEACAM1 on antigen-presenting or tumor cells.[1-3] TIM-3 is an inhibitory co-receptor that helps maintain immune tolerance but, when expressed on certain cells during chronic infection or cancer, can lead to immune exacerbation.[3] Inhibition of the TIM-3 pathway by Tim-3 fusion or extracellular domain-only proteins prevents the induction of immune tolerance in a mouse islet allograft model or increases weight loss and tissue injury in a mouse model of TNBS-induced colitis, respectively.[4,5] Expression of TIM-3 is decreased in patients with autoimmune diseases, including ulcerative colitis.[1,6] TIM-3 is expressed on tumor-infiltrating T cells and expressed on a higher proportion of regulatory T cells from cancer patients.[1] Its overexpression on T cells increases tumor progression in an EL4 mouse model of lymphoma, while TIM-3 inhibition decreases tumor growth in a mouse model of head and neck cancer. SNPs in *HAVCR2* are associated with allergic diseases, immunity, and cancer. Cayman's TIM-3 Extracellular Domain (human, recombinant) protein is a disulfide-linked homodimer. The reduced monomer, comprised of TIM-3 (amino acids 22-200) fused to mouse IgG1 Fc at its C-terminus, consists of 412 amino acids, has a calculated molecular weight of 46.2 kDa, and a predicted N-terminus of Ser22 after signal peptide cleavage. As a result of glycosylation, the monomer migrates at approximately 50-55 kDa by SDS-PAGE under reducing conditions.

References

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5. Li, X., Chen, G., Li, Y., *et al.* Involvement of T cell Ig Mucin-3 (Tim-3) in the negative regulation of inflammatory bowel disease. *Clin. Immunol.* **134(2)**, 169-177 (2009).
6. Shi, F., Guo, X., Jiang, X., *et al.* Dysregulated Tim-3 expression and its correlation with imbalanced CD4 helper T cell function in ulcerative colitis. *Clin. Immunol.* **145(3)**, 230-240 (2012).

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