

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived mouse TIM-1/KIM-1/HAVCR protein		
	Mouse TIM-1/KIM-1/HAVCR (Tyr22-Gly237) Accession # NP_599009.2	IEGRMD	Human IgG ₁ (Pro100-Lys330)
	N-terminus		C-terminus
N-terminal Sequence Analysis	Tyr22		
Structure / Form	Disulfide-linked homodimer		
Predicted Molecular Mass	50 kDa		

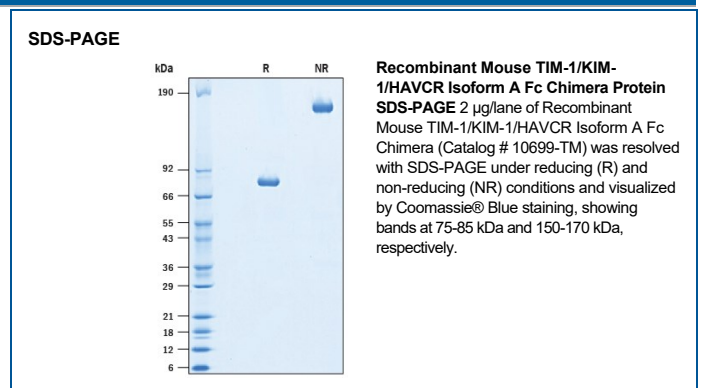
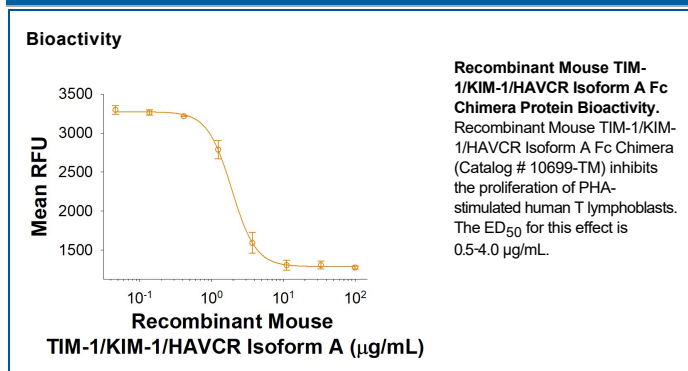
SPECIFICATIONS

SDS-PAGE	75-85 kDa, under reducing conditions
Activity	Measured in a cell proliferation assay using PHA-stimulated human T lymphoblasts. The ED ₅₀ for this effect is 0.5-4.0 µg/mL.
	Measured by its binding ability in a functional ELISA. When Recombinant Mouse TIM-1/KIM-1/HAVCR Isoform A Fc Chimera (Catalog # 10699-TM) is immobilized at 1 µg/mL (100 µL/well), Recombinant Mouse TIM-4 (Catalog # 2826-TI) binds with an ED ₅₀ of 0.8-6.4 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

DATA



BACKGROUND

TIM-1 (T cell-immunoglobulin-mucin; also KIM-1 and Tapr) is a 70-80 kDa, type I transmembrane glycoprotein member of the TIM family of immunoglobulin superfamily molecules (1, 2, 3, 4). This gene family is involved in the regulation of Th1 and Th2-cell-mediated immunity. In mouse, there are eight known TIM genes (# 1-8) vs. only three genes in human (# 1, 3 & 4) (1, 2). Mouse TIM-1 and -2 are counterparts of human TIM-1, while mouse TIM-5 through TIM-8 have no human counterparts (2). Mouse TIM-1 (isoform 2) is synthesized as a 282 amino acid (aa) precursor that contains a 21 aa signal sequence, a 193 aa extracellular domain (ECD), a 21 aa transmembrane segment and a 47 aa cytoplasmic domain (5, 6). The ECD contains one V-type Ig-like domain and a mucin region characterized by multiple T-S-P motifs. The mucin region undergoes extensive O-linked glycosylation. The mouse TIM-1 gene is highly polymorphic and, based on rat, may undergo alternate splicing (4, 6). One isoform (termed isoform 1) possesses a 23 aa insertion after Pro182 (GenBank # NP_599099). Another splice variant (of isoform 1) shows a 15 aa deletion in the mucin region of the ECD (6). This difference is associated with a decreased susceptibility to asthma. In human, TIM-1 is known to circulate as a soluble form that arises from cleavage by an undefined MMP, releasing an 85 - 90 kDa soluble molecule (7). In mouse, a 60-65 kDa soluble form has also been detected (in urine) that presumably arises from proteolytic processing (8). In-house data from R&D Systems Inc. has demonstrated the presence of soluble TIM-1 in mouse circulation. The ECD of mouse TIM-1 shares 37% and 81% aa sequence identity with human and rat TIM-1 ECD, respectively. Reported ligands for TIM-1 include TIM-4, phosphatidylserine, P-Selectin and the hepatitis A virus (3, 9, 10, 11). TIM-1 ligation induces T cell proliferation and promotes cytokine production (1, 12). In particular, it induces IL-4 production, and requires the TIM-1 cytoplasmic tyrosine phosphorylation motif (5). TIM-1 also serves as a cellular entry receptor for various viruses, including hepatitis A virus, Ebolavirus, Marburgvirus and has been indicated as a possible receptor for SARS-CoV-2 (9, 13, 14).

References:

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