

DESCRIPTION

Source Mouse myeloma cell line, NS0-derived mouse TIM-1/KIM-1/HAVCR protein
Tyr22-Thr212, with a C-terminal 6-His tag
Accession # Q3V033

N-terminal Sequence Analysis Tyr22

Predicted Molecular Mass 21.8 kDa

SPECIFICATIONS

SDS-PAGE 40-50 kDa, reducing conditions

Activity Measured by its ability to induce IL-6 or TNF- α secretion by RAW 264.7 mouse monocyte/macrophage cells.
The ED₅₀ for this effect is 0.1-0.4 μ g/mL.

Measured by its ability to bind THP-1 human acute monocytic leukemia cells.

As determined by flow cytometric analysis, there is a greater than 3 fold increase in the fluorescence of apoptotic THP-1 cells treated with 0.5 μ g/mL recombinant mouse TIM-1/His and Mouse Anti-polyHistidine PE-conjugated Monoclonal Antibody (Catalog # IC050P) compared to cells stained with anti-Mouse Anti-polyHistidine PE-conjugated Monoclonal Antibody alone.

Endotoxin Level <0.10 EU per 1 μ g of the protein by the LAL method.

Purity >95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation Lyophilized from a 0.2 μ m filtered solution in Tris-Citrate and NaCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 μ g/mL in sterile PBS.

Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 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.

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. There are at least three reported ligands for TIM-1, and include TIM-4, phosphatidylserine and the hepatitis A virus (3, 9, 10). However, still others are believed to exist, and based on the ligand for TIM-3, one might be an S-type lectin (11). TIM-1 ligation induces T cell proliferation and promotes cytokine production (1, 11). In particular, it induces IL-4 production, and requires the TIM-1 cytoplasmic tyrosine phosphorylation motif (5).

References:

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