

Product Specification Sheet

Human KIM1/TIM1 antibody (21-290 aa) Antibodies and Controls

- Cat # TIM12-A	Rabbit Anti-Human KIM1/TIM1 antibody (21-290 aa) IgG, purified	SIZE: 100 ul
- Cat # TIM12-C	Recombinant Human KIM1/TIM1 (21-290 aa) protein control for western blot	SIZE: 100 ul

Ebola virus (EBOV, formerly Zaire ebolavirus) causes severe disease in humans and in nonhuman primates in the form of viral hemorrhagic fever.. Zaire Ebolavirus is a virological taxon included in the genus Ebolavirus, family Filoviridae, order Mononegavirales. The species has a single virus member, Ebola virus (EBOV). **Ebolavirus species Zaire (ZEBOV)** causes highly lethal hemorrhagic fever, resulting in the death of **90%** of patients within days. Ebola Zaire attacks every organ and tissue in the human body except skeletal muscle and bone. Ebola is classified as a **Level 4** pathogen (higher than AIDS) with a 2 to 21 day (7 to 14 days average) incubation period. There are currently four known strains of Ebola: **Zaire, Sudan, Reston and Tai**. All cause illness in sub-human primates. Only Ebola Reston does not cause illness in humans. While nearly identical to **Marburg virions** in structure, Ebola virions are antigenically distinct.

A protein called T-cell immunoglobulin and mucin domain 1 (**TIM-1**, HAVCR, HAVCR-1, KIM-1, KIM1, TIMD-1, TIMD1) has been identified as a receptor for Ebola and Marburg viruses. It is also a membrane receptor for both human hepatitis A virus (HHA V). TIM1 is a type 1 integral membrane glycoprotein, in humans is encoded by the **HAVCR1 gene**. It consists of an N-terminal immunoglobulin (Ig)-like domain, a mucin domain with distinct length, a single transmembrane domain, and a C-terminal short cytoplasmic tail. The ECD contains one V-type Ig-like domain extended above the cell surface by a mucin-like domain characterized by a variable number of threonine, serine, and proline (TSP) hexameric repeats. Rat TIM1 ECD shares 50% and 81% amino acid sequence homology with human and mouse

TIM-1 is preferentially expressed on Th2 cells and has been identified as a stimulatory molecule for T-cell activation. TIM1 plays a critical role in T-helper cell development and the regulation of asthma and allergic diseases. It is widely expressed with highest levels in kidney and testis. TIM-1 binds to Ebola virus glycoproteins (GP) and mediates Ebola virus cellular entry. Studies have shown that T-cell Ig and mucin domain 1 (TIM-1) binds to the receptor binding domain of the Zaire Ebola virus (EBOV) glycoprotein, and ectopic TIM-1 expression in poorly permissive cells enhances EBOV infection by 10- to 30-fold. TIM-1 IgV domain specific antibody **ARD5** inhibited Ebola virus infectivity, indicating that TIM-1 was critical for Ebola virus entry. Also, TIM-1 expression on human mucosal epithelial cells from the trachea, cornea and conjunctiva demonstrated the correlation of TIM-1 expression feature and viral entry routes.

Recognition that TIM-1 serves as a receptor for filoviruses on these mucosal epithelial surfaces provides an understanding of routes of entry into the human body via inhalation of aerosol particles or hand-to-eye contact. The results suggest that being able to block Ebola's entry into epithelial cells, perhaps with a human-compatible version of the ARD5 antibody, might provide a way to prevent initial infection and potentially limit the spread of the disease during an outbreak.

Source of Antigen and Antibodies

Antigen	Recombinant Human KIM1 /TIM1 Protein
Ab Host/type	Rabbit, Polyclonal antibody protein A or G purified # TIM12-A). Supplied in 0.01% Sodium Azide as preservative.
2-Ab	Goat Anti-rabbit IgG-HRP cat # 20320 (AP, biotin, FITC conjugates)
-ve control IgG	Cat# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control

Cat#TIM12-C, positive control

Recombinant TIM-1 protein was expressed in HEK cells as his-tag fusion protein (21-290 aa, >95%, ~31 KDa). Purified glycoprotein for Western blot +ve control (**Cat# TIM12-C**) is supplied in SDS-PAGE sample buffer (reduced). Load 10 ul/lane of # **TIM12-C** for good visibility with antibody **Cat # TIM12-S**. Store at -20oC in suitable size aliquots. SDS may crystallize in cold conditions. It should be re dissolved by warming before taking it from the stock. It should be heated once prior to loading on gels. If the product has been stored for several weeks, then it may be preferable to add 5 ul of fresh 2x sample buffer per 10 ul of the # **TIM12-C** solution prior to heating and loading on gels. This preparation is not biologically active. It is not suitable for

ELISA or other applications where native protein is required. Do not freeze, thaw, or heat repeatedly.

Form & Storage of Antibodies/Peptide Control

Antibody
 100 ul solution lyophilized powder
 Buffer: PBS+0.01% azide **Reconstitute powder** 100 ul water

Storage
Short-term: unopened, undiluted vials for less than a week at 4oC.
Long-term: at -20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at -20oC or below.
Shipping: 4oC for solutions and room temp for powder.

Recommended Usage

Western Blotting: Assay-dependent dilution (range 1:200-:1000). The antibody detected recombinant TIM 1 when tested at 0.5-2 ug/ml.~80-100 kDa recombinant. Native ~31 kDa. Use ADI #TIM12-C as western control.

ELISA: Assay dependent. (1:1000-10,00; using 100-200 ng antigen/well). Use ADI #TIM16-R-10

Histochemistry & Immunofluorescence: not tested.

Specificity & Crossreactivity: This antibody reacts with human TIM-1 protein and recombinant TIM-1. Human TIM-1 is conserved in rat (50%) and mouse (85%). Antibody cross reactivity has not been established. Antibodies and recombinant proteins to various Ebola and Marburg virus strains are available for control studies.

References: Silberstein, E. et al., 2003, J Virol. 77 (16): 8765-74; Andrew S (2011) PNAS (108)20: 8426-8431; Feigelstock D (1998) Virol 72 (8): 6621-8

*This product is for In vitro research use only.

http://www.4adi.com/objects/catalog/product/extras/Ebola_Marburg_Vaccines_ELISA_Fir.pdf

TIM12-A	Rabbit Anti-Human Ebola receptor (KIM1/TIM1) antibody (21-290 aa) IgG, purified
TIM12-C	Recombinant Human Ebola receptor (KIM1/TIM1) (21-290 aa) protein control for western blot
TIM13-M	Mouse Monoclonal Anti-human Ebola receptor (KIM1/TIM1) (21-290 aa) IgG, aff pure
TIM16-R-10	Recombinant (HEK) Human Ebola receptor (KIM1/TIM1) Protein (21-290 aa, his tag, ->95% low endotoxin) purified
TIM22-A	Rabbit Anti-Mouse Ebola receptor (KIM1/TIM1) antibody (22-212 aa) IgG, aff pure
TIM22-C	Recombinant Mouse Ebola receptor (KIM1/TIM1) (22-212 aa) protein control for western blot
TIM25-R-10	Recombinant (HEK) mouse Ebola receptor (KIM1/TIM1) Protein (22-212 aa, His tag, >95% low endotoxin) purified
EVP401-A	Anti-Zaire-Ebola virus VP40 peptide (EBOV VP40) IgG, EVP401-C
	Rec. Zaire-Ebola virus VP40 protein control for Western
EVP405-R-10	Rec. (E.coli) Zaire-Ebola virus VP40

TIM12-A-rabbit-anti-TIM1-IgG-WB-positive-control 141008P

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