

## Product Specification Sheet

### Recombinant (HEK) mouse Ebola receptor (KIM1/TIM1)

Cat # TIM25-R-10

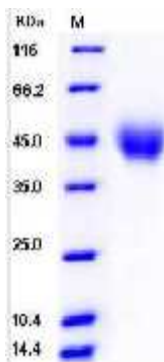
Recombinant (HEK) mouse Ebola receptor (KIM1/TIM1) Protein (22-212 aa, His tag, >95% low endotoxin) purified **SIZE:** 10 ug

**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. Most information on immune responses to ZEBOV comes from in vitro studies and animal models. 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. TIM1 is a type 1 integral membrane glycoprotein, in humans is encoded by the **HAVCR1 gene**. includes 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. is a membrane receptor for both human hepatitis A virus (HHA) and TIMD4. 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

Recombinant mouse TIM-1 protein was expressed in HEK cells as **his-tag** CT fusion protein (22-212 aa, >95%, ~23 kDa, migrates as 42-47 kDa due to glycosylation). Purified protein is supplied in PBS (pH 7.5) and 5-8% mannitol or Trehalose as preservative. (see lot sp. Conc. on the vial, typically 10 ug/ul)

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

**Endotoxin level** : < 1.0 EU per µg protein as determined by the LAL method.

### Storage

**Short-term:** unopened, undiluted vials for less than a week at 40C.

**Long-term:** at -20C 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:** 40C for solutions and room temp for powder.

### Recommended Usage

**Western Blotting:** load 20-100 ng/well.

**ELISA** (50-100 ng antigen/well).

**Histochemistry & Immunofluorescence:** not tested.

### Specificity and cross reactivity:

Mouse TIM-1 is conserved in rat (85%) and human (80%).. 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.

### Related material available from ADI

[http://www.4adi.com/objects/catalog/product/extras/Ebola\\_Marburg\\_Vaccines\\_ELISA\\_Flr.pdf](http://www.4adi.com/objects/catalog/product/extras/Ebola_Marburg_Vaccines_ELISA_Flr.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
- EVGP11-A Rabbit Anti-Zaire Ebola virus glycoprotein peptide (mayinga, EBOV GP) IgG, purified
- EVGP11-C Recombinant (sf9) Zaire Ebola virus glycoprotein (Mayinga, 1-637aa, His-tag, >95%) control for Western Blot
- EVGP17-R-10 Recombinant (sf9) Zaire Ebola virus glycoprotein (Mayinga, 1-637aa, his-tag, >95%), low endotoxin
- EVGP18-M Mouse monoclonal Anti-Zaire Ebola virus glycoprotein (EBOV GP) IgG, purified
- EVGP18-R-10 Recombinant (sf9) Zaire Ebola virus glycoprotein 1 (/GIN/2014/Kissidougou-C15, GP1, 1-501aa, his-ta at CT, >95%), Low endotoxin
- EVRB11-R-10 Recombinant (HEK) Zaire Ebola virus glycoprotein RBD domain (GIN/2014/Kissidougou-C15, 1-308aa, his-tag, >95%, low endotoxin)
- EVRB12-R-10 Recombinant (HEK) Zaire Ebola virus glycoprotein RBD domain (GIN/2014/Kissidougou-C151-308aa, hlgG1-Fc-tag at CT, low endotoxin)

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