

Anti-Bundibugyo Ebolavirus, GP

Recombinant Monoclonal Antibody

Product Information

Product No.: E169

Clone: BDBV-317

Isotype: Human IgG1k

Storage: 2° to 8°C

Product Description

Specificity:

BDBV- 317 activity is directed against an epitope near the base of Bundibugyo ebolavirus (BDBV) glycoprotein (GP). BDBV-317 binds to the canonical heptad repeat 2 (HR2) domain (PDBID 5JQ3) near the membrane-proximal external region (MPER) of the GP, close to the viral membrane.

Antigen Distribution:

Ebola virus glycoprotein is a surface protein expressed on the virus envelope.

Background:

Ebola virus is a member of the Filoviridae family that causes severe disease in humans with a mortality rate of 25-90%¹. Three Ebola species are responsible for lethal outbreaks: Zaire ebolavirus (EBOV), Bundibugyo ebolavirus (BDBV), and Sudan ebolavirus (SUDV).

The Ebola virus envelope contains a single surface glycoprotein (GP) which is responsible for viral attachment to the host cell, endosomal entry, and membrane fusion¹. GP is composed of two subunits, GP1 and GP2. GP1 has a heavily glycosylated mucin-like domain and a glycan cap. GP2 contains the internal fusion loop, transmembrane domain, and stalk. GP is the major target of neutralizing monoclonal antibody (mAb) and vaccine design against Ebola virus^{1,2,3}.

BDBV-317 is a GP mAb isolated from B cells of a survivor of the 2007 Uganda BDBV outbreak³. Peripheral blood mononuclear cells from the survivor were transformed with Epstein-Barr virus, CpG, and additional supplements. Subsequently, cell supernatants were screened by ELISA for binding to GPs from BDBV, EBOV, or MARV filoviruses. Positive cells were fused with HMM2.5 myeloma cells by electrofusion and cloned by single-cell fluorescence-activated cell sorting.

BDBV-317 binds to and neutralizes BDBV as well as EBOV heterologous Mayinga (historical) and Makona-Gueckedou-C07 (contemporary) strains^{3,4}. BDBV-317 also neutralizes two strains of Reston virus and recognizes, but does not neutralize, SUDV⁴. BDBV-317 can also recognize a linear synthesized peptide spanning GP amino acids 620-635, suggesting a relatively linear epitope in vivo⁴. A single critical contact residue in GP2 (K633) is located in a region that spans the C-terminal part of HR2 and the N-terminal part of MPER⁴. Three BDBV-317 molecules bind simultaneously to the GP trimer⁴.

BDBV-317 provides complete protection from death against EBOV (Mayinga strain) in mouse and partial protection in guinea pig⁴.

Products are for research use only. Not for use in diagnostic or therapeutic procedures.

Known Reactivity Species:

Ebola

Format:

Purified No Carrier Protein

Immunogen:

Sequenced from PBMCs from a donor who had recovered from a naturally-occurring BDBV infection.

Formulation

This recombinant monoclonal antibody is aseptically packaged and formulated in 0.01 M phosphate buffered saline (150 mM NaCl) PBS pH 7.2 - 7.4 with no carrier protein, potassium, calcium or preservatives added. Due to inherent biochemical properties of antibodies, certain products may be prone to precipitation over time. Precipitation may be removed by aseptic centrifugation and/or filtration.

Purity

≥90% monomer by analytical SEC and SDS-Page

Storage and Stability

This antibody may be stored sterile as received at 2-8°C for up to one month. For longer term storage, aseptically aliquot in working volumes without diluting and store at ≤ -70°C

Avoid Repeated Freeze-Thaw Cycles

Product Preparation

This antibody is purified by a multi-step process including the use of protein A or G to assure extremely low levels of endotoxins, leachable protein A or aggregates.

Applications

Applications Reported in Literature:

**B,
ELISA,
EM,
FA,
N**

Country of Origin

USA

References

- 1) Gilchuk P, Kuzmina N, Illykh PA, et al. Immunity. 49(2):363-374.e10. 2018.
- 2) Bornholdt ZA, Ndungo E, Fusco ML, et al. mBio. 7(1):e02154-15. 2016.
- 3) Flyak AI, Shen X, Murin CD, et al. Cell. 164(3):392-405. 2016.
- 4) Flyak AI, Kuzmina N, Murin CD, et al. Nat Microbiol. 3(6):670-677. 2018.