abcam

ab41651

Anti-Japanese encephalitis virus NS1 glycoprotein antibody [MV12/2/A5-1/6]

Key facts

Isotype	IgG3
Host species	Mouse
Storage buffer	Preservative: 0.1% Proclin 150 Constituents: 89.9% RPMI 1640, 10% BSA
Form	Liquid
Clonality	Monoclonal
Clone number	MV12/2/A5-1/6
Purity	Tissue culture supernatant
Light chain type	kappa

Reactivity data

Flow Cyt

Expected

Species	Japanese encephalitis virus
Dilution info	-
Notes	ab18392 - Mouse monoclonal IgG3, is suitable for use as an isotype control with this antibody.

ELISA

Expected

Species	Japanese encephalitis virus
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Japanese encephalitis virus
Dilution info	1/50 - 1/100
Notes	-

IHC-FoFr

Expected

Species	Japanese encephalitis virus
Dilution info	Use at an assay dependent concentration.
Notes	-

ICC/IF

Tested

Species	Japanese encephalitis virus
Dilution info	1/5 - 1/20
Notes	-

Target data

See full target information Genome polyprotein

Function Capsid protein C. Capsid protein C self-assembles to form an icosahedral capsid about 30 nm in diameter. The capsid encapsulates the genomic RNA (Probable). Plays a role in virus budding by binding to the cell membrane and gathering the viral RNA into a nucleocapsid that forms the core of a mature virus particle. During virus entry, may induce genome penetration into the host cytoplasm after hemifusion induced by the surface proteins. Can migrate to the cell nucleus where it modulates host functions. Overcomes the anti-viral effects of host EXOC1 by sequestering and degrading the latter through the proteasome degradation

pathway. Peptide pr. Prevents premature fusion activity of envelope proteins in trans-Golgi by binding to envelope protein E at pH 6.0. After virion release in extracellular space, gets dissociated from E dimers. Protein prM. Acts as a chaperone for envelope protein E during intracellular virion assembly by masking and inactivating envelope protein E fusion loop. prM is the only viral peptide matured by host furin in the trans-Golgi network probably to avoid catastrophic activation of the viral fusion activity in acidic Golgi compartment prior to virion release. prM-E cleavage is inefficient, and many virions are only partially matured. These uncleaved prM would play a role in immune evasion. Small envelope protein M. May play a role in virus budding. Exerts cytotoxic effects by activating a mitochondrial apoptotic pathway through M ectodomain. May display a viroporin activity. Envelope protein E. Type II fusion protein that binds to host cell surface receptor and mediates fusion between viral and cellular membranes (By similarity). The envelope protein E shifts from dimeric state to trimeric state to perform fusion with the host membrane (By similarity). The fusion loops of the three subunits come together to form a membrane-insertable tip containing aromatic residues (By similarity). Efficient virus attachment to cell is, at least in part, mediated by host HSPA5 (PubMed:28053106). Envelope protein is synthesized in the endoplasmic reticulum in the form of heterodimer with protein prM. They play a role in virion budding in the ER, and the newly formed immature particle is covered with 60 spikes composed of heterodimer between precursor prM and envelope protein E. The virion is transported to the Golgi apparatus where the low pH causes dissociation of PrM-E heterodimers and formation of E homodimers. prM-E cleavage is inefficient, and many virions are only partially matured. These uncleaved prM would play a role in immune evasion. Non-structural protein 1. Involved in immune evasion, pathogenesis and viral replication. Once cleaved off the polyprotein, is targeted to three destinations: the viral replication cycle, the plasma membrane and the extracellular compartment. Essential for viral replication. Required for formation of the replication complex and recruitment of other non-structural proteins to the ER-derived membrane structures. Excreted as a hexameric lipoparticle that plays a role against host immune response. Antagonizing the complement function. Binds to the host macrophages and dendritic cells. Inhibits signal transduction originating from Toll-like receptor 3 (TLR3). Non-structural protein 2A. Component of the viral RNA replication complex that functions in virion assembly and antagonizes the host alpha/beta interferon antiviral response. Serine protease subunit NS2B. Required cofactor for the serine protease function of NS3 (PubMed:7897348). May have membrane-destabilizing activity and form viroporins (By similarity). Serine protease NS3. Displays three enzymatic activities: serine protease, NTPase and RNA helicase (PubMed:18201743, PubMed:7897348). NS3 serine protease, in association with NS2B, performs its autocleavage and cleaves the polyprotein at dibasic sites in the cytoplasm: C-prM, NS2A-NS2B, NS2B-NS3, NS3-NS4A, NS4A-2K and NS4B-NS5 (Probable). NS3 RNA helicase binds RNA and unwinds dsRNA in the 3' to 5' direction (By similarity). Non-structural protein 4A. Regulates the ATPase activity of the NS3 helicase activity (By similarity). NS4A allows NS3 helicase to conserve energy during unwinding (By similarity). Peptide 2k. Functions as a signal peptide for NS4B and is required for the interferon antagonism activity of the latter. Non-structural protein 4B. Induces the formation of ER-derived membrane vesicles where the viral replication takes place (By similarity). Inhibits interferon (IFN)-induced host STAT1 phosphorylation and nuclear translocation, thereby preventing the establishment of cellular antiviral state by blocking the IFN-alpha/beta pathway (By similarity). Inhibits STAT2 translocation in the nucleus after IFN-alpha treatment (By similarity). RNA-directed RNA polymerase/Methyltransferase NS5. Replicates the viral (+) and (-) RNA genome (PubMed:24293643). Performs the capping of genomes in the

cytoplasm. NS5 methylates viral RNA cap at guanine N-7 and ribose 2'-O positions (By similarity). Besides its role in RNA genome replication, also prevents the establishment of cellular antiviral state by blocking the interferon-alpha/beta (IFN-alpha/beta) signaling pathway (PubMed:16731929). Inhibits host TYK2 and STAT2 phosphorylation, thereby preventing activation of JAK-STAT signaling pathway (PubMed:16731929).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	The Japanese encephalitis virus NS1 glycoprotein also known as NS1 is an important non-structural protein in the lifecycle of the Japanese encephalitis virus. It has a molecular mass of approximately 46 kDa and is expressed in both the infected host cells and the virus itself. NS1 plays an important role in viral replication and immune evasion making it a significant focus of research. It is expressed on the surface of infected cells as a dimer or can be secreted as a hexamer providing multiple functional roles and making it a target for antibody development.
Biological function summary	The NS1 glycoprotein participates in the virus's evasion of the host's immune system. It doesn't operate as part of a complex but serves several independent functions. NS1 helps inhibit the host's complement system reducing the immune-mediated damage to the virus-infected cells. Additionally it assists in viral RNA synthesis by enhancing the efficiency of the viral replication complex supporting the production of new viral particles within the infected cell environment.
Pathways	The NS1 glycoprotein interacts with several host cell mechanisms to modulate the immune response. Specifically it is involved in the complement inhibition and RNA synthesis pathways. In the complement inhibition pathway NS1 plays a part by binding to host complement proteins impeding their function and providing an advantage to the virus against the host immune defense. Its association with the viral RNA synthesis pathway is essential for the replication of the Japanese encephalitis virus coordinating with other non-structural proteins like NS3 to ensure effective viral proliferation.

Associated diseases and disorders	NS1 is closely linked to the pathogenesis of Japanese encephalitis and other flavivirus-related conditions. The protein's interaction with host immune responses directly correlates with the severity of these diseases by contributing to immune evasion and facilitating virus spread within the host. Additionally NS1 has been observed to share functional similarities with proteins of other viruses including dengue virus NS1 which plays a similar role in disrupting immune pathways and aiding in viral replication. Understanding these connections helps in developing effective strategies for therapeutic interventions against flaviviruses.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

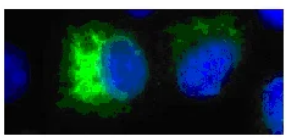
We do not recommend this combination. It is not covered by our product promise.

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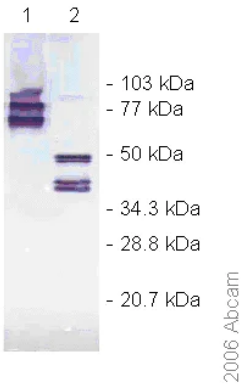
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2 product images



Immunocytochemistry/ Immunofluorescence - Anti-Japanese encephalitis virus NS1 glycoprotein antibody [MV12/2/A5-1/6] (ab41651)

Japanese encephalitis virus (Nakayama) infected PS clone D cells stained with ab41651 (green).



Western blot - Anti-Japanese encephalitis virus NS1 glycoprotein antibody [MV12/2/A5-1/6] (ab41651)

This antibody recognsies 2 forms of NS1 - NS1 and NS1' (46 and 53 kDa respectively). NS1' is thought to be formed when NS1 is cleaved from NS2A at an alternative site. Both NS1 and NS1' exist as dimers in untreated samples but are dissociated into monomers when samples are boiled.
All lanes:
Western blot - Anti-Japanese encephalitis virus NS1 glycoprotein antibody [MV12/2/A5-1/6] (ab41651)

Lane 1:
Japanese encephalitis virus infected C6/36 cell lysate (unheated)

Lane 2:
Japanese encephalitis virus infected C6/36 cell lysate (boiled)

Predicted band size: 46 kDa

Observed band size: 100 kDa, 46 kDa, 50 kDa, 92 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.