abcam

ab41623

Anti-Dengue Virus NS1 glycoprotein antibody [DN2]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.1% Proclin 150 Constituents: 89.9% RPMI 1640, 10% BSA
Form	Liquid
Clonality	Monoclonal
Clone number	DN2
Purity	Tissue culture supernatant
Specificity	Recognises NS1 from both Dengue Virus 2 strains, 16681 and NGC.
Light chain type	kappa

Reactivity data

Flow Cyt

Expected

Species	Dengue virus 2
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Dengue virus 2
Dilution info	1/50 - 1/100
Notes	-

ICC/IF

Tested

Species	Dengue virus 2
Dilution info	1/5 - 1/20
Notes	-

Target data

See full target information Dengue virus 2 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 (PubMed:23522008). Peptide pr. Prevents premature fusion activity of envelope proteins in trans-Golgi by binding to envelope protein E at pH6.0. 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 (Probable). 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). 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 heterodimers of precursor prM and envelope

protein E (By similarity). Envelope protein exposes a positively-charged pr-binding pocket at the E dimer interface, inducing (prM/E)2 dimer formation to generate smooth particles in the Golgi (By similarity). The virion is transported to the Golgi apparatus where the low pH causes dissociation of PrM-E heterodimers and formation of E homodimers (By similarity). prM-E cleavage is inefficient, and many virions are only partially matured. These uncleaved prM would play a role in immune evasion (By similarity). Pr is shed from the particle upon subsequent secretion into the extracellular environment, leaving an activated particle, prone to mediate acidic pH-triggered membrane fusion upon entry into a target cell (By similarity). 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 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) (By similarity). Mediates complement activation, which may contribute to the pathogenesis of the vascular leakage that occurs in severe dengue disease (PubMed:16544248). Activates autophagy through the AMPK/ERK/mTOR signaling pathway. Mechanistically, acts as the assembly platform for STK11-AMPK interactions and promotes STK11-AMPK interactions. In turn, promotes phosphorylation of the AMPK kinase structural domain and activates AMPK, thereby positively regulating the AMPK/ERK/mTOR signaling pathway and inducing autophagy (PubMed:37821951). Non-structural protein 2A. Component of the viral RNA replication complex that functions in virion assembly and antagonizes the host immune response. Serine protease subunit NS2B. Required cofactor for the serine protease function of NS3. May have membrane-destabilizing activity and form viroporins (By similarity). Serine protease NS3. Displays three enzymatic activities: serine protease, NTPase and RNA helicase. 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. NS3 RNA helicase binds RNA and unwinds dsRNA in the 3' to 5' direction. Non-structural protein 4A. Regulates the ATPase activity of the NS3 helicase activity. NS4A allows NS3 helicase to conserve energy during unwinding. Plays a role in the inhibition of the host innate immune response. Interacts with host MAVS and thereby prevents the interaction between RIGI and MAVS. In turn, IFN-beta production is impaired. Interacts with host AUP1 which mediates induction of lipophagy in host cells and facilitates production of virus progeny particles (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. 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

(PubMed:15956546). RNA-directed RNA polymerase/Methyltransferase NS5. Replicates the viral (+) and (-) RNA genome, and performs the capping of genomes in the cytoplasm (By similarity). NS5 methylates viral RNA cap at guanine N-7 and ribose 2'-O positions (PubMed:19850911). 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:15944325). Inhibits host TYK2 and STAT2 phosphorylation, thereby preventing activation of JAK-STAT signaling pathway (PubMed:19754307). May reduce immune responses by preventing the recruitment of the host PAF1 complex to interferon-responsive genes (PubMed:30550790).

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 Dengue Virus NS1 glycoprotein also known as NS1 alternative DN1 and others like BC5 and CC6 is a non-structural protein that plays an important role in dengue virus infection. It has a molecular mass of about 46-50 kDa and expresses in both intracellular and extracellular environments. Within infected cells NS1 produces in the endoplasmic reticulum (ER). Outside the cells it exists as a soluble hexamer and gets secreted into the bloodstream.
Biological function summary	Within infected cells NS1 aids dengue virus replication and contributes to viral RNA synthesis. Though not part of a ribonucleoprotein complex NS1 interacts with the viral RNA and RNA polymerase facilitating efficient genome replication. It also interferes with the host’s immune response helping the virus escape immune detection. The extracellular form of NS1 triggers immune responses and can lead to vascular leakage by disrupting endothelial cell function.
Pathways	NS1 significantly impacts the flavivirus replication cycle and the host's immune pathways. It interacts with proteins such as FB10 in the replication pathway affecting replication efficiency. In the immune pathway NS1 modulation impairs the complement system through interactions with proteins like OB4 reducing the host's ability to clear the virus.

Associated diseases and disorders	The NS1 protein closely links to dengue fever and dengue hemorrhagic fever. It associates with the severity of these diseases due to its role in immune evasion and vascular permeability. NS1 levels in circulation correlate with disease severity and interactions with DN2 contribute to immune modulation exacerbating symptoms and leading to complications in infected individuals.

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

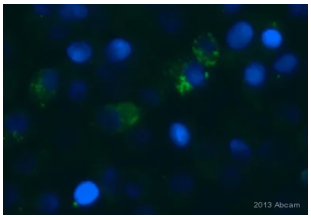
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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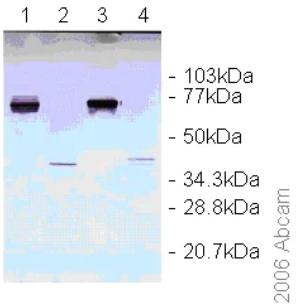


This image is courtesy of a customer review submitted by Lee Gehrke

Immunocytochemistry/ Immunofluorescence - Anti-Dengue Virus NS1 glycoprotein antibody [DN2] (ab41623)

Dengue Virus NS1 glycoprotein Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Dengue Virus NS1 glycoprotein antibody

ab41623 staining Dengue Virus NS1 glycoprotein (green) in Human BHK cells by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed and permeabilized with CytoFix/CytoPerm and blocked with 5% serum for 1 hour at 25°C. Samples were incubated with primary antibody (1/20) for 16 hours at 4°C. An Alexa Fluor® 488-conjugated Goat anti-mouse IgG polyclonal (1/200) was used as the secondary antibody.



Western blot - Anti-Dengue Virus NS1 glycoprotein antibody [DN2] (ab41623)

NS1 exists as a dimer (~80 kDa) in unheated samples but is dissociated into a monomer (~40 kDa) when samples are boiled. ab41623 recognised both forms of NS1.
All lanes:
Western blot - Anti-Dengue Virus NS1 glycoprotein antibody [DN2] (ab41623)

Lane 1:
Dengue Virus 2 (NGC)infected C6/36 cell lysate (unheated)

Lane 2:
Dengue Virus 2 (NGC)infected C6/36 cell lysate (boiled)

Lane 3:
Dengue Virus 2 (16681)infected C6/36 cell lysate (unheated)

Lane 4:
Dengue Virus 2 (16681)infected C6/36 cell lysate (boiled)

Predicted band size: 40 kDa

Observed band size: 40 kDa, 80 kDa

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