abcam

ab4544

Anti-MDA5 antibody

Key facts

Isotype	IgG
Host species	Goat
Storage buffer	pH: 7.3 Preservative: 0.02% Sodium azide Constituents: Tris buffered saline, 0.5% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human IFIH1 aa 1-50. The exact immunogen used to generate this antibody is proprietary information. Database link Q9BYX4
Purification technique	Affinity purification Immunogen
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from goat serum by ammonium sulphate precipitation followed by antigen affinity chromatography using the immunizing peptide.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	10 µg/mL
Notes	-

Target data

See full target information IFIH1

Function	Innate immune receptor which acts as a cytoplasmic sensor of viral nucleic acids and plays a major role in sensing viral infection and in the activation of a cascade of antiviral responses including the induction of type I interferons and pro-inflammatory cytokines (PubMed:28594402, PubMed:32169843, PubMed:33727702). Its ligands include mRNA lacking 2'-O-methylation at their 5' cap and long-dsRNA (>1 kb in length) (PubMed:22160685). Upon ligand binding it associates with mitochondria antiviral signaling protein (MAVS/IPS1) which activates the IKK-related kinases: TBK1 and IKBKE which phosphorylate interferon regulatory factors: IRF3 and IRF7 which in turn activate transcription of antiviral immunological genes, including interferons (IFNs); IFN-alpha and IFN-beta. Responsible for detecting the Picornaviridae family members such as encephalomyocarditis virus (EMCV), mengo encephalomyocarditis virus (ENMG), and rhinovirus (PubMed:28606988). Detects coronavirus SARS-CoV-2 (PubMed:33440148, PubMed:33514628). Can also detect other viruses such as dengue virus (DENV), west Nile virus (WNV), and reovirus. Also involved in antiviral signaling in response to viruses containing a dsDNA genome, such as vaccinia virus. Plays an important role in amplifying innate immune signaling through recognition of RNA metabolites that are produced during virus infection by ribonuclease L (RNase L). May play an important role in enhancing natural killer cell function and may be involved in growth inhibition and apoptosis in several tumor cell lines.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

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

Activity summary	MDA5 also known as melanoma differentiation-associated protein 5 or IFIH1 is a cytosolic sensor involved in the detection of viral RNA. It is a member of the RIG-I-like receptor family and possesses a molecular weight of approximately 116 kilodaltons. MDA5 protein is expressed across various tissues but shows higher expression in the immune system's cells including macrophages and dendritic cells. MDA5 recognizes long double-stranded RNA a common viral replication byproduct triggering immune responses.
Biological function summary	In cellular defense mechanisms MDA5 plays an important role in initiating antiviral responses. It operates as part of a signaling complex that includes MAVS (mitochondrial antiviral-signaling protein) leading to the production of type I interferons and pro-inflammatory cytokines. These responses promote an antiviral state in host cells aiding in the containment and clearance of viral infections. MDA5 antibodies can be useful tools for studying these immune processes.
Pathways	MDA5 interacts with antiviral signaling pathways such as the IFN signaling pathway and the RIG-I-like receptor signaling pathway. Upon recognizing viral RNA MDA-5 cooperates with proteins like RIG-I and MAVS to activate downstream signaling cascades that mediate immune responses. This collaboration enables efficient viral recognition and response limiting viral replication and spread.
Associated diseases and disorders	MDA5 has associations with autoimmune diseases like systemic lupus erythematosus and certain types of dermatomyositis. These conditions often involve autoantibodies against MDA5 indicating a possible role in pathogenesis. In these diseases altered function or regulation of related proteins including IFN-induced proteins may contribute to chronic inflammation and autoimmunity. Understanding MDA5's involvement in these contexts is essential for developing therapeutic strategies.

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

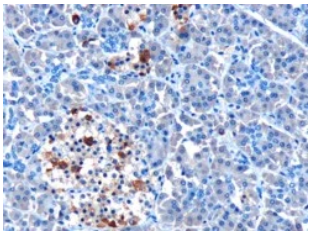
We do not recommend this combination. It is not covered by our product promise.

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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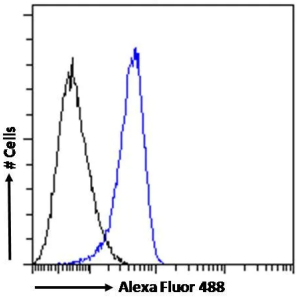
2 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MDA5 antibody (ab4544)

MDA5 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using goat Anti-MDA5 antibody

ab4544 (10ug/ml) staining human MDA5 in human pancreas by immunohistochemistry using paraffin embedded tissue. Microwaved antigen retrieval with Tris/EDTA buffer pH9, HRP-staining. ab4544 shows strong cytoplasmic staining of some cells in the islets of Langerhans.



Flow Cytometry - Anti-MDA5 antibody (ab4544)

MDA5 Flow Cytometry staining using goat Anti-MDA5 antibody

Flow cytometric analysis of paraformaldehyde fixed K562 cells (blue line), permeabilized with 0.5% Triton. Primary incubation 1hr (10 µg/ml) followed by Alexa Fluor 488® secondary antibody (1 µg/ml).
IgG control: Non-immunized goat IgG (black line) followed by Alexa Fluor 488® secondary antibody.

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