abcam

ab239819

Anti-IRAK4 antibody [Y279] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	Y279
Purification technique	Affinity purification Protein A
Concentration	1.027 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information IRAK4

Function	Serine/threonine-protein kinase that plays a critical role in initiating innate immune response against foreign pathogens. Involved in Toll-like receptor (TLR) and IL-1R signaling pathways (PubMed:17878374). Is rapidly recruited by MYD88 to the receptor-signaling complex upon TLR activation to form the Myddosome together with IRAK2. Phosphorylates initially IRAK1, thus stimulating the kinase activity and intensive autophosphorylation of IRAK1. Phosphorylates E3 ubiquitin ligases Pellino proteins (PELI1, PELI2 and PELI3) to promote pellino-mediated polyubiquitination of IRAK1. Then, the ubiquitin-binding domain of IKBKG/NEMO binds to polyubiquitinated IRAK1 bringing together the IRAK1-MAP3K7/TAK1-TRAF6 complex and the NEMO-IKKA-IKKB complex. In turn, MAP3K7/TAK1 activates IKKs (CHUK/IKKA and IKBKB/IKKB) leading to NF-kappa-B nuclear translocation and activation. Alternatively, phosphorylates TIRAP to promote its ubiquitination and subsequent degradation. Phosphorylates NCF1 and regulates NADPH oxidase activation after LPS stimulation suggesting a similar mechanism during microbial infections.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab239819 is the carrier-free version of ab32511.

Species reactivity

Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

Patented technology

Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?

This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide

and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	IRAK4 also known as Interleukin-1 receptor-associated kinase 4 is an important protein with an approximate molecular mass of 51 kDa. This protein is a significant part of the signaling cascade initiated by the Interleukin-1 receptor (IL-1R) and Toll-like receptors (TLRs). Expressed in a variety of tissues including the spleen thymus and lung IRAK4 is involved in innate immune responses. The presence of IRAK4 protein facilitates the downstream signaling pathways that activate the transcription factors responsible for inflammatory cytokine production.
Biological function summary	IRAK4 plays an important role in mediating signaling in the innate immune system by forming complexes with other proteins such as IRAK-1. These complexes propagate signals that result in the activation of transcription factors like NF-kB and AP-1 which regulate the expression of inflammatory genes. Through these mechanisms IRAK4 influences the body's ability to respond to infections and stresses. Its critical involvement in these signaling pathways highlights its importance in maintaining immune homeostasis.
Pathways	IRAK4 is a pivotal player in the Toll-like receptor and IL-1 receptor signaling pathways which are central to the host defense against pathogens. It functions upstream activating the MyD88-dependent pathway resulting in the recruitment and phosphorylation of other kinases such as IRAK-1 and TRAF6. These interactions trigger the NF-kB signaling cascade thereby enhancing pro-inflammatory cytokine production that is essential for initiating immune responses.
Associated diseases and disorders	Mutations or dysregulation of IRAK4 are linked to increased susceptibility to recurrent bacterial infections and sepsis. Patients with IRAK4 deficiency have impaired NF-kB activation leading to a weakened inflammatory response. Additionally overexpression of IRAK4 has been observed in certain autoimmune diseases such as rheumatoid arthritis where the persistent activation of TLR signaling contributes to chronic inflammation. The role of IRAK4 in these disorders ties closely with its interaction with proteins like TRAF6 influencing disease development and progression.

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

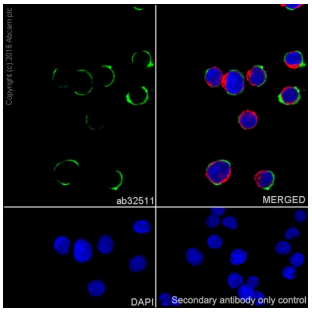
We do not recommend this combination. It is not covered by our product promise.

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.

Full details and terms and conditions can be found here:
Terms & Conditions.

4 product images

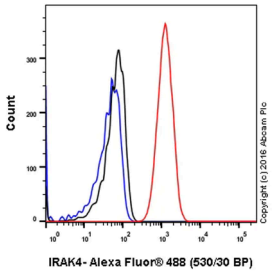


Immunocytochemistry/ Immunofluorescence - Anti-IRAK4 antibody [Y279] - BSA and Azide free (ab239819)

IRAK4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-IRAK4 antibody

Immunocytochemistry/Immunofluorescence analysis of Jurkat (Human T cell leukemia cell line from peripheral blood) cells labeling IRAK4 with ab32511 (unpurified0 at 1/100 dilution. Cells were fixed with 100% methanol. ab150077, an AlexaFluor® 488 conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody. The cells were co-stained with ab195889, anti-alpha tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at 1/200 dilution. Nuclei counterstained with DAPI (blue).

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32511).

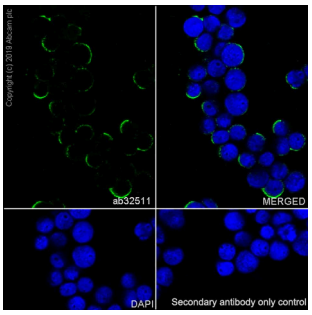


Flow Cytometry (Intracellular) - Anti-IRAK4 antibody [Y279] - BSA and Azide free (ab239819)

IRAK4 Flow Cytometry (Intracellular) staining using rabbit Anti-IRAK4 antibody

Intracellular Flow Cytometry analysis of Jurkat (human acute T cell leukemia) cells labeling IRAK4 with purified ab32511 at 1/110 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) was used as

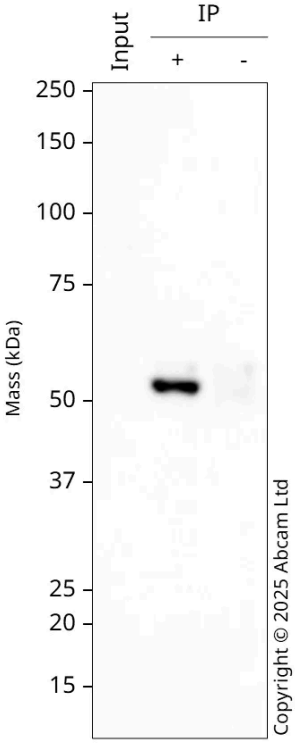
the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) was used as the unlabeled control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32511).



Immunocytochemistry/ Immunofluorescence - Anti-IRAK4 antibody [Y279] - BSA and Azide free (ab239819)

IRAK4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-IRAK4 antibody

Immunocytochemistry/ Immunofluorescence analysis of Jurkat (Human T cell leukemia T lymphocyte) cells labeling IRAK4 with purified ab32511 at 1:500 dilution (2.6 µg/ml). Cells were fixed in 100% Methanol and permeabilized with None. Cells were counterstained with none. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (anti irak4 antibody y279 immunocytochemistry jurkat human)



Western blot - Anti-IRAK4 antibody [Y279] - BSA and Azide free (ab239819)

IRAK4 Western blot staining using rabbit Anti-IRAK4 antibody

This data was developed using ab32511, the same antibody clone in a different buffer formulation.

Western blot: Rabbit Monoclonal [Y279] to IRAK4 ab32511 staining at 1/1000 dilution, shown in black. A band was observed at 55 kDa in MCF7 Pulldown with ab32511, enriched from the MCF7 input sample and no signal observed at this size in MCF7 Pulldown with Isotype Control ab172730. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3pc Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20,000 dilution.
Lanes 1 - 3:
Western blot - Anti-IRAK4 antibody [Y279] (ab32511) at 1/1000 dilution

Lanes 1 - 3:
Western blot - Anti-IRAK4 antibody [Y279] - BSA and Azide free (ab239819) at 1/1000 dilution

Lane 1:
MCF7 Input at 10 µg

Lane 2:
MCF7 Pulldown with ab32511 at 10 µL

Lane 3:
MCF7 Pulldown with Isotype Control ab172730 at 10 µL

Secondary

All lanes:
Western blot - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/1000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 52 kDa

Observed band size: 55 kDa

Exposure time: 45s

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