abcam

ab246692

Anti-CD64 antibody [EPR4623] - Low endotoxin, Azide free

Recombinant | RabMAb | KO Validated

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	EPR4623
Purification technique	Affinity purification Protein A
Dissociation constant	1 x 10^{-11} M
Purification notes	Endotoxin level is less than 1 EU/ml as determined by the TAL test.

Reactivity data

IP

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.

Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human
Dilution info	-
Notes	-

Target data

See full target information FCGR1A

Function	High affinity receptor for the Fc region of immunoglobulins gamma. Functions in both innate and adaptive immune responses. Mediates IgG effector functions on monocytes triggering antibody-dependent cellular cytotoxicity (ADCC) of virus-infected cells.

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

ab246692 is the carrier-free version of ab109449.

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.

What does low endotoxin mean?
Our low endotoxin, azide-free formats have low endotoxin level (1 EU/mg, determined by the TAL assay) and are free from azide, to achieve consistent experimental results in functional assays.

Supplementary info

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

Activity summary	CD64 also known as Fc gamma receptor 1a (FCGR1A) is a high-affinity receptor for the Fc region of immunoglobulin G (IgG). This receptor weighs approximately 72 kDa and is expressed on the surface of immune cells such as macrophages monocytes and activated neutrophils. CD64 protein plays an important role in immune responses by binding to antibodies and mediating processes such as

	phagocytosis and antibody-dependent cellular cytotoxicity (ADCC). Researchers often use anti-CD64 antibodies and CD64 markers to study its expression in various cellular contexts especially in flow cytometry.
Biological function summary	CD64 expression involves the binding of IgG which serves as a pivotal mechanism to facilitate phagocytosis and clearance of opsonized pathogens. CD64 does not operate solely; it is part of a larger receptor family that includes other Fc gamma receptors like CD16 and CD32. The regulation of CD64 differs from its relatives due to its higher affinity for IgG. This attribute enables CD64 to play a more significant role in triggering immune responses especially during infections and inflammatory processes.
Pathways	CD64 participates in the immune response pathway and is critical in the regulation of inflammatory responses. Key proteins interacting with CD64 in these pathways include the aforementioned CD16 and CD32 forming a network that ensures efficient immune system activation. The interaction with IgG and subsequent signal transduction underpin the receptor's functionality in these pathways harmonizing innate and adaptive immune responses.
Associated diseases and disorders	CD64 expression correlates strongly with autoimmune disorders and inflammatory conditions. The receptor's role in orchestrating immune cell activation makes it relevant in diseases such as rheumatoid arthritis and sepsis. In rheumatoid arthritis CD64 interacts with immune complexes intensifying inflammation through enhancement of phagocytic activity. In sepsis increased CD64 marker expression on neutrophils can serve as a diagnostic indicator. Related proteins like CD16 and CD32 also participate in these disorders by modulating immune complex handling and cellular activation.

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

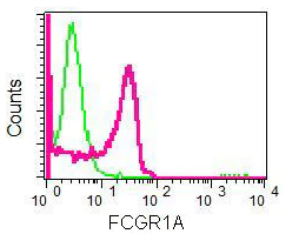
We do not recommend this combination. It is not covered by our product promise.

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.

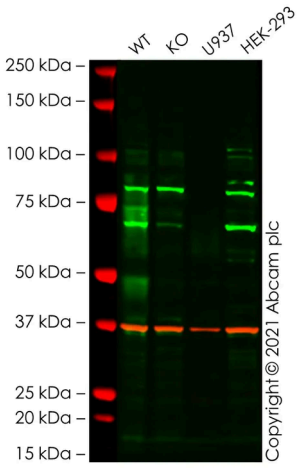
3 product images



Flow Cytometry - Anti-CD64 antibody [EPR4623] - Low endotoxin, Azide free (ab246692)

CD64 Flow Cytometry staining using rabbit Anti-CD64 antibody

ab109449 at 1/100 dilution staining CD64 in U937 cells by Flow cytometry (shown in red). Rabbit IgG negative control (shown in green).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109449).



Western blot - Anti-CD64 antibody [EPR4623] - Low endotoxin, Azide free (ab246692)

CD64 Western blot staining using rabbit Anti-CD64 antibody

False colour image of Western blot: Anti-CD64 antibody [EPR4623] staining at 1/1000 dilution, shown in green; Mouse anti-GAPDH antibody [6C5] (ab8245) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab109449 was shown to bind specifically to CD64. A band was observed at 45-50/55-80 kDa in wild-type THP-1 cell lysates with no signal observed at this size in FCGR1A knockout cell line ab275843 (knockout cell lysate ab275817). To generate this image, wild-type and FCGR1A knockout THP-1 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3 % 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 IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) at 1/20000 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109449).

All lanes:
Western blot - Anti-CD64 antibody [EPR4623] (ab109449) at 1/1000 dilution

Lane 1:
Wild-type THP-1 cell lysate at 20 µg

Lane 2:
FCGR1A knockout THP-1 cell lysate at 20 µg

Lane 2:
Western blot - Human FCGR1A knockout THP-1 cell line (ab275843)

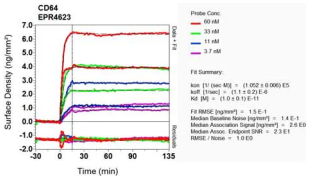
Lane 3:
U937 cell lysate at 20 µg

Lane 4:
HEK-293 cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 43 kDa

Observed band size: 45-50 kDa



OI-RD Scanning - Anti-CD64 antibody [EPR4623] - Low endotoxin, Azide free (ab246692)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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