abcam

ab246798

Anti-CD16a antibody [SP189] - Low endotoxin, 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	SP189
Purification technique	Affinity purification Protein A/G
Concentration	1.048 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Endotoxin level is less than 1 EU/ml as determined by the TAL test

Reactivity data

IHC-P

Tested

Species	Human

Dilution info	-
Notes	Antigen retrieval: Boil tissue section in EDTA buffer, pH 8.0 for 10 minutes followed by cooling at room temperature for 20 minutes.

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	-

WB

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information FCGR3A

Function

Receptor for the invariable Fc fragment of immunoglobulin gamma (IgG). Optimally activated upon binding of clustered antigen-IgG complexes displayed on cell surfaces, triggers lysis of antibody-coated cells, a process known as antibody-dependent cellular cytotoxicity (ADCC). Does not bind free monomeric IgG, thus avoiding inappropriate effector cell activation in the absence of antigenic trigger (PubMed:11711607, PubMed:21768335, PubMed:22023369, PubMed:24412922, PubMed:25786175, PubMed:25816339, PubMed:28652325, PubMed:8609432, PubMed:9242542). Mediates IgG effector functions on natural killer (NK) cells. Binds antigen-IgG complexes generated upon infection and triggers NK cell-dependent cytokine production and degranulation to limit viral load and propagation. Involved in the generation of memory-like adaptive NK cells capable to produce high amounts of IFNG and to efficiently eliminate virus-infected cells via ADCC (PubMed:24412922, PubMed:25786175). Regulates NK cell survival and proliferation, in particular by preventing NK cell progenitor apoptosis (PubMed:29967280, PubMed:9916693). Following the engagement of antigen-IgG complexes, triggers phosphorylation of immunoreceptor tyrosine-based activation motif (ITAM)-containing adapters with subsequent activation of phosphatidylinositol 3-kinase signaling and sustained elevation of intracellular calcium that ultimately drive NK cell activation. The ITAM-dependent signaling

coupled to receptor phosphorylation by PKC mediates robust intracellular calcium flux that leads to production of pro-inflammatory cytokines, whereas in the absence of receptor phosphorylation it mainly activates phosphatidylinositol 3-kinase signaling leading to cell degranulation (PubMed:1825220, PubMed:23024279, PubMed:2532305). Costimulates NK cells and trigger lysis of target cells independently of IgG binding (PubMed:10318937, PubMed:23006327). Mediates the antitumor activities of therapeutic antibodies. Upon ligation on monocytes triggers TNFA-dependent ADCC of IgG-coated tumor cells (PubMed:27670158). Mediates enhanced opsonisation and ADCC in response to afucosylated IgGs (PubMed:34485821, PubMed:28566370). (Microbial infection) Involved in Dengue virus pathogenesis via antibody-dependent enhancement (ADE) mechanism. Secondary infection with Dengue virus triggers elevated levels of afucosylated non-neutralizing IgG1s with reactivity to viral envelope/E protein. Viral antigen-IgG1 complexes bind with high affinity to FCGR3A, facilitating virus entry in myeloid cells and subsequent viral replication.

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

ab246798 is the carrier-free version of ab227665.

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	The CD16a protein also known as Fc gamma receptor IIIa (FcγRIIIa) plays an important role in the immune system. This receptor is about 50-70 kDa in mass and is expressed on the surface of natural killer (NK) cells macrophages and some T cells. CD16a facilitates antibody-dependent cellular cytotoxicity (ADCC) by binding to the Fc region of immunoglobulin G (IgG). This interaction allows effector immune cells to recognize and destroy antibody-coated target cells.
Biological function summary	CD16a is important for immune responses and occurs as part of a receptor complex. It signals downstream effects through its association with the CD3 zeta chain and the Fc epsilon receptor gamma chain which possess immunoreceptor tyrosine-based activation motifs (ITAMs). Upon binding to IgG CD16a triggers a cascade of events leading to the release of cytokines and cytotoxic granules. This action helps in eliminating infected or cancerous cells demonstrating its role in both innate and adaptive immunity.
Pathways	CD16a contributes significantly to the immunological synapse formation and NK cell activation pathway. This receptor cooperates with other proteins such as CD3 and CD19 to modulate the immune response. It also participates in signaling pathways like the PI3K-Akt pathway which regulates cell survival and proliferation. CD16a's interaction with these pathways highlights its importance in immune cell communication and function.
Associated diseases and disorders	CD16a is linked to autoimmune diseases and certain cancers. In autoimmune disorders like systemic lupus erythematosus (SLE) abnormal CD16a function can contribute to the pathogenesis by altering immune cell targeting. Additionally in cancers such as lymphoma CD16a's interaction with IgG-coated cancer cells can influence the efficacy of monoclonal antibody therapies. The receptor's association with proteins like CD3 and CD19 in these disease contexts highlights its potential as a therapeutic target.

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

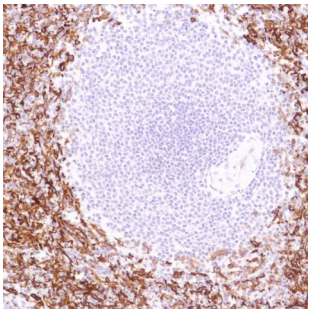
We do not recommend this combination. It is not covered by our product promise.

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.

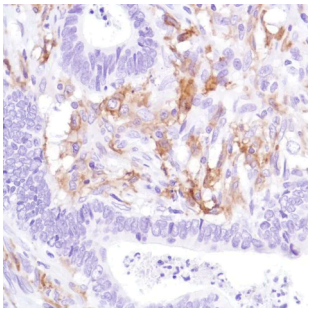
12 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD16a antibody [SP189] - Low endotoxin, Azide free (ab246798)

CD16a Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CD16a antibody

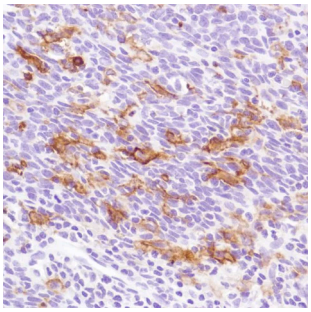
Formalin-fixed, paraffin-embedded human spleen tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab227665).



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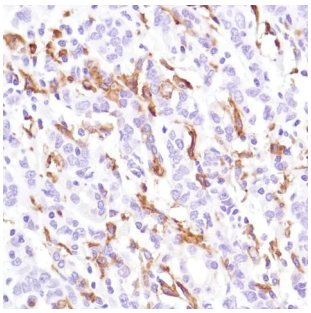
Formalin-fixed, paraffin-embedded human colon adenocarcinoma tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.
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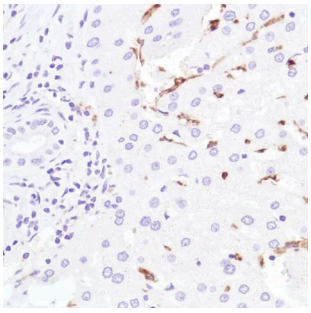
Formalin-fixed, paraffin-embedded human cervical squamous cell carcinoma tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab227665).



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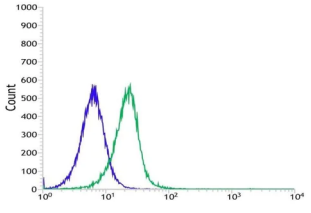
Formalin-fixed, paraffin-embedded human stomach adenocarcinoma tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab227665).



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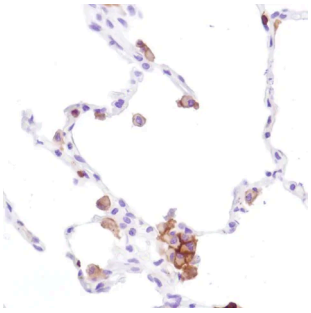
Formalin-fixed, paraffin-embedded human liver tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab227665).



Flow Cytometry (Intracellular) - Anti-CD16a antibody [SP189] - Low endotoxin, Azide free (ab246798)

CD16a Flow Cytometry (Intracellular) staining using rabbit Anti-CD16a antibody

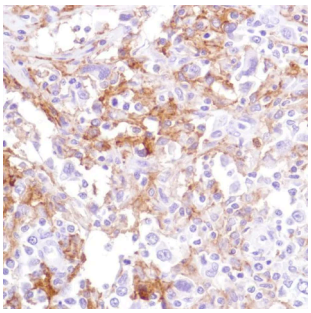
Flow cytometric analysis of Jurkat (human T cell leukemia cell line from peripheral blood) cell line labeling CD16a with ab227665 at 1/100 (green) compared with a rabbit isotype control (blue).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab227665).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD16a antibody [SP189] - Low endotoxin, Azide free (ab246798)

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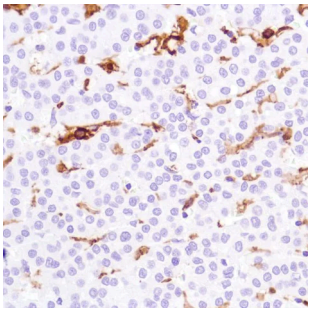
Formalin-fixed, paraffin-embedded human lung tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab227665).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD16a antibody [SP189] - Low endotoxin, Azide free (ab246798)

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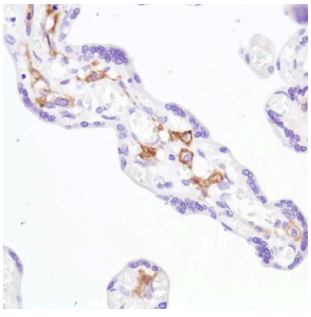
Formalin-fixed, paraffin-embedded human HK lymphoma tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab227665).



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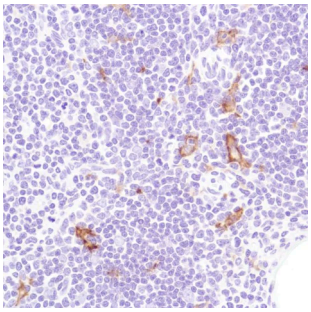
Formalin-fixed paraffin-embedded human liver hepatocellular carcinoma tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.
This data was developed using the same antibody clone in a different buffer formulation containing PBS BSA and sodium azide (ab227665).



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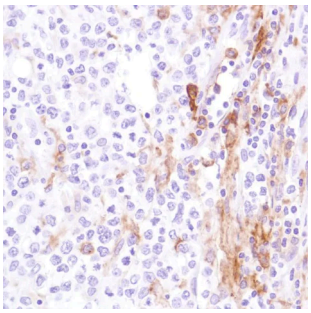
CD16a Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CD16a antibody

Formalin-fixed, paraffin-embedded human placenta tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab227665).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD16a antibody [SP189] - Low endotoxin, Azide free (ab246798)

Formalin-fixed, paraffin-embedded human thymus tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD16a antibody [SP189] - Low endotoxin, Azide free (ab246798)

Formalin-fixed, paraffin-embedded human B-cell lymphoma tissue stained for CD16a with ab227665 at 1/100 dilution in immunohistochemical analysis.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab227665).

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