abcam

ab176528

Anti-CD16 antibody [3G8] - Low endotoxin, Azide free

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing FCGR3A protein. The exact immunogen used to generate this antibody is proprietary information. Database link P08637
Carrier free	Yes
Clone number	3G8
Purification technique	Affinity purification Protein A
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	ab176528 is purified from hybridoma culture supernatant by protein-A affinity chromatography. Purity: > 95% (by SDS-PAGE).

Reactivity data

IP

Expected

Species	Human

Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Primates
Dilution info	-
Notes	-

Flow Cyt

Expected

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

Predicted

Species	Primates
Dilution info	-
Notes	-

FuncS

Expected

Species	Human
Dilution info	-
Notes	In vitro Stimulation of NK cell proliferation, blocking of IgG binding and phagocytosis, inhibition of cytotoxic activity, in vivo NK cell depletion.

Predicted

Species	Primates
Dilution info	-

Notes	-

IHC-Fr

Expected

Species	Human
Dilution info	-
Notes	Acetone fixation.

Predicted

Species	Primates
Dilution info	-
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 duration	1-2 weeks
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

Notes

Endotoxin level is less than 0.01 EU/μg of the protein, as determined by the LAL test.

Supplementary info

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

Activity summary	CD16 also known as FCGR3A or CD16A protein is a low-affinity receptor for the Fc region of IgG. It weighs approximately 50-70 kDa and exists on the surface of several immune cells such as natural killer (NK) cells some populations of T cells and macrophages. The expression of CD16 mediates various cellular responses including antibody-dependent cellular cytotoxicity (ADCC) where it acts by engaging with immune complexes. Researchers often use anti-CD16 antibodies in flow cytometry to analyze the presence and quantity of CD16-expressing cells.
Biological function summary	This receptor plays a significant role in immune system regulation by contributing to the activation of immune effector cells. CD16 is not part of a larger complex but it operates in concert with CD3 proteins to trigger intracellular signaling pathways upon engagement with its ligand. Its function is important for the antibody-

	dependent clearance of infected or malignant cells from the body representing an essential linkage between innate and adaptive immunity.
Pathways	Signaling involving CD16 is integrated into the immune response mechanisms that include the Fc gamma receptor-mediated phagocytosis pathway. This pathway involves interactions with IgG antibodies and complements the activity of other Fc gamma receptors such as CD32 and CD64. Through these interactions CD16 enhances phagocytic activity and stimulates the secretion of cytokines and chemokines important for orchestrating an effective immune response.
Associated diseases and disorders	CD16 plays an important role in conditions like autoimmune diseases and certain cancers. Its expression and function are important in the pathophysiology of systemic lupus erythematosus where an imbalance in immune complex clearance leads to tissue damage. In oncology CD16 aids in the immune system's recognition and elimination of tumor cells working alongside proteins such as CD3 in modulating the body's anti-tumor response. Understanding CD16's involvement in these diseases helps in developing therapeutic strategies that harness the immune system's power such as monoclonal antibody therapies targeting CD16.

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.

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