abcam

ab197141

APC/Cy7® Anti-CD16 antibody [3G8]

Anti-CD16 antibody [3G8] conjugated to APC/Cy7® - suitable for flow cytometry, and reacts with human samples. Clone [3G8] is a mouse monoclonal antibody and one of the most commonly used clones for flow cytometry.

Design your panel with our interactive flow cytometry panel builder. Click here.

Key facts

Isotype	IgG1
Host species	Mouse
Conjugation	APC/Cy7®
Excitation/Emission	Ex: 650nm, Em: 785nm
Storage buffer	pH: 7.4 Preservative: 0.0975% Sodium azide Constituents: PBS, 0.2% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing FCGR3A protein. The exact immunogen used to generate this antibody is proprietary information. Database link P08637
Clone number	3G8
Purification technique	Size-exclusion chromatography
Purification notes	Purified antibody is conjugated with tandem dye Allophycocyanin/Cy7 ® under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use. No reconstitution is necessary.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	4 µL for 10^6 Cells
Notes	Use 4 µl reagent / 100 µl of whole blood or 10^6 cells in a suspension.

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 conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Store in the dark

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

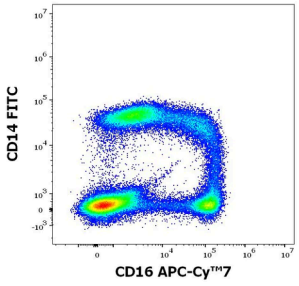
We do not recommend this combination. It is not covered by our product promise.

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.

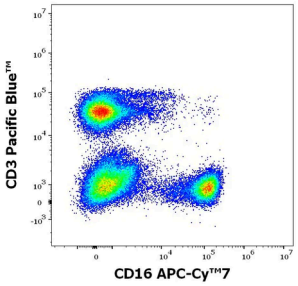
4 product images



Flow Cytometry - APC/Cy7® Anti-CD16 antibody [3G8] (ab197141)

CD16 Flow Cytometry staining of Human peripheral blood using mouse Anti-CD16 antibody

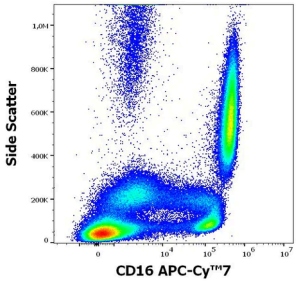
Analysis of the antibody staining profile was performed on blood leukocytes isolated from peripheral whole blood by bulk erythrocyte lysis.
ab197141 was used in concentration 8 µg/ml in stained stained blood sample (2 x 10^6 cells) and Mouse monoclonal anti-human CD14 FITC antibody (clone MEM-15) in concentration 7 µg/ml.



Flow Cytometry - APC/Cy7® Anti-CD16 antibody [3G8] (ab197141)

CD16 Flow Cytometry staining of Human peripheral blood using mouse Anti-CD16 antibody

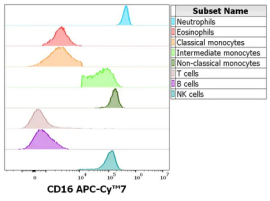
Analysis of the antibody staining profile was performed on blood leukocytes isolated from peripheral whole blood by bulk erythrocyte lysis.
ab197141 was used in concentration 8 µg/ml in stained stained blood sample (2 x 10^6 cells) and Mouse monoclonal anti-human CD3 Pacific Blue™ antibody (clone UCHT1) in concentration 9 µg/ml.



Flow Cytometry - APC/Cy7® Anti-CD16 antibody [3G8] (ab197141)

CD16 Flow Cytometry staining of Human peripheral blood using mouse Anti-CD16 antibody

Analysis of the antibody staining profile was performed on blood leukocytes isolated from peripheral whole blood by bulk erythrocyte lysis.
ab197141 was used in concentration 8 µg/ml in stained blood sample (2 x 10^6 cells).



Flow Cytometry - APC/Cy7® Anti-CD16 antibody [3G8] (ab197141)

CD16 Flow Cytometry staining of Human peripheral blood using mouse Anti-CD16 antibody

Analysis of the antibody staining profile was performed on blood leukocytes isolated from peripheral whole blood by bulk erythrocyte lysis.
Suspension of blood leukocytes (2 x 10^6 cells) was added to the mixture of ab197141 (8 µg/ml in stained blood sample), backbone antibody conjugates and monocyte blocking buffer, vortexed and incubated for 20 min. Stained sample was fixed with 2 ml of 10× diluted lyse solution for 10 min. Finally, samples were centrifuged (670 g, 5 min.), supernatant removed and the cell pellet was resuspended in 200 µl of PBS for acquisition.

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