abcam

ab181147

Anti-C3 antibody [EPR2988]

Anti-C3 antibody [EPR2988] (ab181147) is a rabbit monoclonal antibody detecting C3/C3b in **Western Blot, Flow Cytometry (Intra), ICC/IF**. Suitable for **Human**.

- Biophysical QC for unrivalled batch-batch consistency

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR2988
Purification technique	Affinity purification Protein A
Specificity	Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.
Concentration	0.11 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	**For unpurified use at 1/250 - 1/500.**

WB

Tested

Species	Human
Dilution info	1/1000
Notes	**For unpurified use at 1/1000 - 1/10000.**

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/10
Notes	For unpurified use at 1/10. ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Target data

See full target information C3

Function

Precursor of non-enzymatic components of the classical, alternative, lectin and GZMK complement pathways, which consist in a cascade of proteins that leads to phagocytosis and breakdown of pathogens and signaling that strengthens the adaptive immune system. Complement C3b. Non-enzymatic component of C5 convertase (PubMed:28264884, PubMed:31507604, PubMed:3653927, PubMed:3897448). Generated following cleavage by C3 convertase, it covalently attaches to the surface of pathogens, where it acts as an opsonin that marks the surface of antigens for removal (PubMed:28264884, PubMed:31507604, PubMed:3653927, PubMed:3897448, PubMed:833545, PubMed:8349625). Complement C3b binds covalently via its reactive thioester, to cell surface carbohydrates or immune aggregates (PubMed:6903192). Together with complement C4b, it then recruits the serine protease complement C2b to form the C5 convertase, which cleaves and activate C5, the next component of the complement pathways (PubMed:12878586, PubMed:18204047, PubMed:2387864). In the alternative complement pathway, recruits the serine protease CFB to form the C5 convertase that cleaves and activates C5 (PubMed:624565, PubMed:6554279). C3a anaphylatoxin. Mediator of local inflammatory process released following cleavage by C3 convertase (PubMed:6968751,

PubMed:37169960, PubMed:37852260). Acts by binding to its receptor, C3AR1, activating G protein-coupled receptor signaling, promoting the phosphorylation, ARRB2-mediated internalization and endocytosis of C3AR1 (PubMed:8702752, PubMed:37169960, PubMed:37852260). C3a anaphylatoxin stimulates the activation of immune cells such as mast cells and basophilic leukocytes to release inflammation agents, such as cytokines, chemokines and histamine, which promote inflammation development (PubMed:23383423). Also acts as potent chemoattractant for the migration of macrophages and neutrophils to the inflamed tissues, resulting in neutralization of the inflammatory triggers by multiple ways, such as phagocytosis and generation of reactive oxidants (PubMed:23383423, PubMed:342601, PubMed:5778786). Acylation stimulating protein. Adipogenic hormone that stimulates triglyceride synthesis and glucose transport in adipocytes, regulating fat storage and playing a role in postprandial triglyceride clearance (PubMed:10432298, PubMed:15833747, PubMed:16333141, PubMed:19615750, PubMed:2909530, PubMed:8376604, PubMed:9059512). Appears to stimulate triglyceride synthesis via activation of the PLC, MAPK and AKT signaling pathways (PubMed:16333141). Acts by binding to its receptor, C5AR2, activating G protein-coupled receptor signaling, promoting the phosphorylation, ARRB2-mediated internalization and endocytosis of C5AR2 (PubMed:11773063, PubMed:12540846, PubMed:19615750). In contrast to C3a anaphylatoxin peptide, does not show pro-inflammatory activity (PubMed:37852260). C3-beta-c. Acts as a chemoattractant for neutrophils in chronic inflammation.

Storage

Shipped at conditions	Conditional Ambient
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

What is this antibody validated in?
Anti-C3 antibody [EPR2988] (ab181147) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Flow Cytometry (Flow Cyt), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

What is the molecular weight of C3/C3b?
Anti-C3 [EPR2988] (ab181147) specifically detects a band for C3/C3b (UniProt: P01024) at a molecular weight of

187kDa.

Other related products
We have a range of other formats of antibody clone [EPR2988] also available for your convenience: ab181147, Alexa Fluor® 488 - ab196458, Alexa Fluor® 647 - ab196639, Alexa Fluor® 594 - ab198517, Carrier free - ab240245, APC - ab319317, PE - ab319455, Alexa Fluor® 555 - ab319950

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

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.

Supplementary info

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

Activity summary	Complement component 3 (C3) commonly known as C3 complement is a central protein in the complement system which plays a significant role in immune response. C3b a fragment of C3 is produced when C3 undergoes cleavage. C3 is a large protein with a mass of approximately 185 kDa. The liver primarily secretes C3 into the bloodstream. It circulates in the plasma and is found in high concentration making it one of the most abundant components of the complement system.
Biological function summary	Complement component C3 forms part of the innate immune system by promoting opsonization which enhances phagocytosis of pathogens. C3b binds to pathogens' surfaces facilitating their recognition by phagocytes. C3 as part of a complex with C3 convertase also has a role in amplifying the activation of the complement cascade. The proteolytic cleavage of C3 into C3b and C3a leads to the activation of other components forming the membrane attack complex and orchestrating inflammation.
Pathways	The complement component C3 functions within both the classical and alternative complement pathways. It acts as a convergence point where the complement activation pathways meet. C3 is activated into C3b and C3a which are key to amplifying the cascade. Furthermore C3 interacts with proteins such as factor B and factor D in the alternative pathway and C4 and C2 in the classical pathway facilitating the formation of C3 convertase necessary for pathway progression.

Associated diseases and disorders	Complement C3 shows associations with immune-related and inflammatory diseases. Deficiencies or malfunctions of complement C3 can lead to increased susceptibility to infections due to impaired opsonization and clearance of pathogens. Additionally overactivation of the complement system involving C3 can contribute to autoimmune disorders such as systemic lupus erythematosus. Other proteins linked to these diseases include C4 in lupus and factor H in age-related macular degeneration which controls complement pathway 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

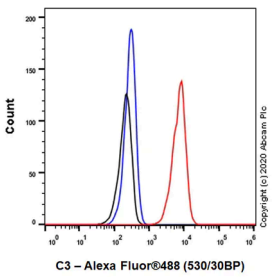
We do not recommend this combination. It is not covered by our product promise.

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.

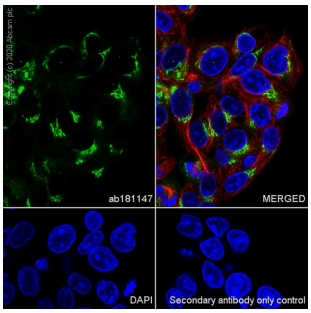
4 product images



Flow Cytometry (Intracellular) - Anti-C3 antibody [EPR2988] (ab181147)

C3 Flow Cytometry (Intracellular) staining using rabbit Anti-C3 antibody

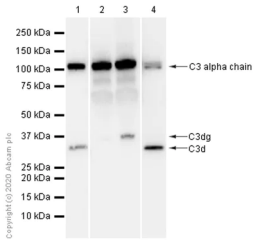
Intracellular Flow Cytometry analysis of HepG2 (Human hepatocellular carcinoma epithelial cell) cells labeling C3 with purified ab181147 at 1/20 dilution (5 µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunocytochemistry/ Immunofluorescence - Anti-C3 antibody [EPR2988] (ab181147)

C3 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-C3 antibody

Immunocytochemistry/ Immunofluorescence analysis of HepG2 (Human hepatocellular carcinoma epithelial cell) cells labeling C3 with purified ab181147 at 1/250 dilution (0.4 µg/mL). Cells were fixed in 100% Methanol and permeabilized with None. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/mL). 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.



Western blot - Anti-C3 antibody [EPR2988] (ab181147)

The molecular weights observed are consistent with what have been described in the literature (PMID: 23619360)
All lanes:
Western blot - Anti-C3 antibody [EPR2988] (ab181147) at 1/1000 dilution

Lane 1:
HepG2 (Human hepatocellular carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
Human plasma lysate at 20 µg

Lane 3:
Human serum lysate at 20 µg

Lane 4:
Human spinal cord lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 187 kDa

Observed band size: 115 kDa, 34 kDa, 40 kDa

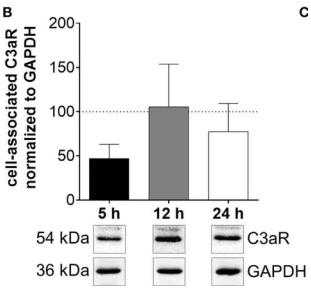


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Western blot - Anti-C3 antibody [EPR2988] (ab181147)

C3 Western blot staining using rabbit Anti-C3 antibody

C3 western blot using anti-C3 antibody [EPR2988] ab181147. Publication image and figure legend from Schäfer, N., Rasras, A., et al., 2021, Front Immunol, PubMed 34819935.

ab181147 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab181147 please see the product overview.

C3aR expression was time-dependently regulated in FHR-3 stressed ARPE-19 cells. (A)C3AR mRNA expression was decreased after 5 h and increased after 24 h FHR-3 incubation. This effect could be confirmed on protein level: (B) Western blots of ARPE-19 cell lysates showed a tendency for decreased C3aR levels (54 kDa) 5 h after FHR-3 treatment. Supplementary Figure 1M shows full Western blots. (C) Decreased C3aR protein levels were detected by immunofluorescence using a specific anti-C3aR antibody (red) after 5 h FHR-3 incubation (upper panels), whereas no differences between FHR-3 stressed and unstressed controls were observed after 24 h (lower panels). Scale bars 40 µm. w/o untreated control (dotted line). Mean with standard deviation is shown. *p < 0.05. (A) Wilcoxon matched-pairs signed rank test (n = 3); (B) Ordinary one-way ANOVA, Turkey's multiple comparisons test (n = 3).

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