abcam

ab315160

Anti-CD21 antibody [EPR27369-9]

Recombinant | RabMAb | Advanced Validation | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 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	EPR27369-9
Purification technique	Affinity purification Protein A
Concentration	0.528 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/50
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Mouse, Rat, Transfected cell lysate - Human
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Mouse, Rat, Transfected cell lysate - Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Not recommended

Species	Mouse, Rat, Transfected cell lysate - Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Transfected cell lysate - Human
Dilution info	1/1000
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Not recommended

Species	Mouse, Rat, Transfected cell lysate - Human
Dilution info	-
Notes	-

mIHC

Tested

Species	Human
Dilution info	1/50
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Mouse, Rat, Transfected cell lysate - Human
Dilution info	-
Notes	-

Target data

See full target information CR2

Function	Serves as a receptor for various ligands including complement component CD3d, HNRNPU OR IFNA1 (PubMed:1849076, PubMed:21527715, PubMed:7753047). When C3d is bound to antigens, attaches to C3d on B-cell surface and thereby facilitates the recognition and uptake of antigens by B-cells (PubMed:21527715). This interaction enhances B-cell activation and subsequent immune responses. Forms a complex with several partners on the surface of B-cells including CD19, FCRL5 and CD81, to form the B-cell coreceptor complex that plays a crucial role in B-cell activation and signaling (PubMed:1383329, PubMed:30107486). Also induces specific intracellular signaling separately from the BCR and CD19 by activating the tyrosine kinase SRC, which then phosphorylates nucleolin/NCL and triggers AKT and GSK3 kinase activities in a SYK/CD19-independent manner (PubMed:12938232). Acts as a ligand for CD23 (FcepsilonRII), a low-affinity receptor for IgE, which is expressed on B-cells and other immune cells, and thus participates in the regulation of IgE production (PubMed:1386409). (Microbial infection) Acts as a receptor for Epstein-Barr virus.

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

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	CD21 also known as complement receptor type 2 (CR2) or BU32 is a protein primarily expressed on the surface of B cells and some T cells. It functions as a receptor for complement component C3d EBV (Epstein-Barr Virus) and IFN-α. CD21 weighs approximately 145 kDa and belongs to the membrane protein family. Detection of CD21 can be done via immunohistochemistry (IHC) and blood tests. This marker is valuable for identifying cell populations that have roles in immune responses.
Biological function summary	Complement receptor type 2 is key in the immune system by facilitating B cell activation and proliferation. CD21 forms complexes with CD19 and CD81 increasing the sensitivity of B cells to antigens. This interaction enhances signal transduction enabling B lymphocytes to respond effectively to pathogens. The protein also plays a role in regulating immune tolerance and maintaining humoral immunity being important not only in immune defense but also in preventing autoimmunity.
Pathways	CD21 interacts with complement activation and immune response pathways. It connects with CD19 in a pivotal role where it further amplifies signaling in B lymphocytes. This interaction strengthens the downstream signaling of BCR (B cell receptor) important for antibody production. CD21 contributes to bridging the innate and adaptive immunological pathways by engaging components like C3d.
Associated diseases and disorders	CD21 shows significant relevance in systemic lupus erythematosus (SLE) and some B cell lymphomas. Deficiencies or mutations in CD21 can lead to defective immune responses and increased susceptibility to autoimmune conditions such as SLE where CD19 is also implicated. Furthermore in Epstein-Barr Virus infections CD21 serves as an entry receptor facilitating pathogen establishment which can result in chronic conditions or even malignancies.

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

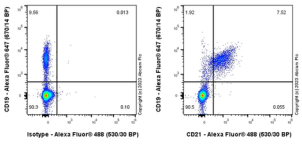
We do not recommend this combination. It is not covered by our product promise.

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.

13 product images

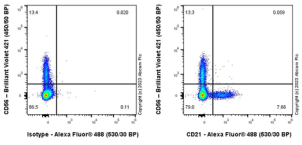


Flow Cytometry - Anti-CD21 antibody [EPR27369-9] (ab315160)

Flow cytometric analysis of Human PBMC (human peripheral blood mononuclear cell) cells labelling CD21 with ab315160 at 1/500 dilution (0.1 ug)/Right compared with a Rabbit monoclonal IgG (ab172730) / Left isotype control.

Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.

Gated on viable cells. Cells are co-stained with CD19 conjugated to Alexa Fluor®647.

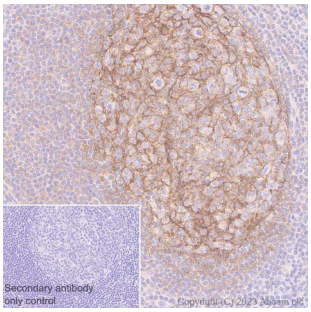


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Flow cytometric analysis of Human PBMC (human peripheral blood mononuclear cell) cells labelling CD21 with ab315160 at 1/500 dilution (0.1 ug)/Right compared with a Rabbit monoclonal IgG (ab172730) / Left isotype control

Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.

Gated on viable cells. Cells are co-stained with CD56 conjugated to Brilliant Violet 421.



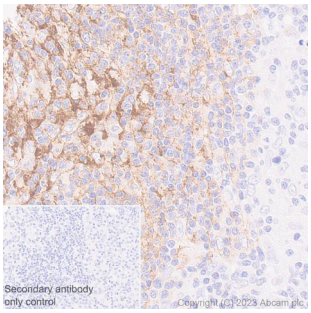
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD21 antibody [EPR27369-9] (ab315160)

Immunohistochemical analysis of paraffin-embedded Human tonsil tissue labeling CD21 with ab315160 at 1/50 (10.56 ug/ml) dilution, followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Positive staining on germinal center of human tonsil. The section was incubated with ab315160 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



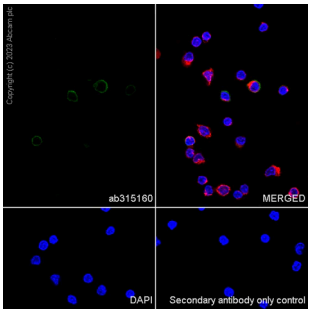
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD21 antibody [EPR27369-9] (ab315160)

Immunohistochemical analysis of paraffin-embedded Human hodgkin's lymphoma tissue labeling CD21 with ab315160 at 1/50 (10.56 ug/ml) dilution, followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Positive staining on human hodgkin's lymphoma. The section was incubated with ab315160 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



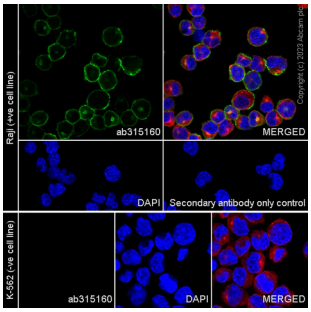
Immunocytochemistry/ Immunofluorescence - Anti-CD21 antibody [EPR27369-9] (ab315160)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% Tween-20 permeabilized Human PBMC (human primary peripheral blood mononuclear cell) cells labelling CD21 with ab315160 at 1/50 (10.56 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 (2 ug/ml) dilution (Green).

Confocal image showing membranous staining in subsets of human PBMCs. Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8).

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 (2.5 ug/ml) dilution (Red). The Nuclear counterstain was DAPI (Blue).

Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 (2 ug/ml) dilution.



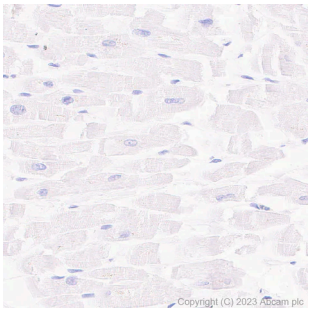
Immunocytochemistry/ Immunofluorescence - Anti-CD21 antibody [EPR27369-9] (ab315160)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% Tween-20 permeabilized Raji (human Burkitt's lymphoma B lymphocyte) cells labelling CD21 with ab315160 at 1/50 (10.56 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 (2 ug/ml) dilution (Green).

Confocal image showing membranous and cytoplasmic staining in Raji cell line. **Negative control:** K-562 (PMID: 6983911).Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8).

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 (2.5 ug/ml) dilution (Red). The Nuclear counterstain was DAPI (Blue).

Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 (2 ug/ml) dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD21 antibody [EPR27369-9] (ab315160)

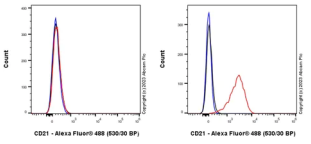
CD21 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human cardiac muscle using rabbit Anti-CD21 antibody

Immunohistochemical analysis of paraffin-embedded Human cardiac muscle tissue labeling CD21 with ab315160 at 1/50 (10.56 ug/ml) dilution, followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Negative control: no staining on human cardiac muscle. The section was incubated with ab315160 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins

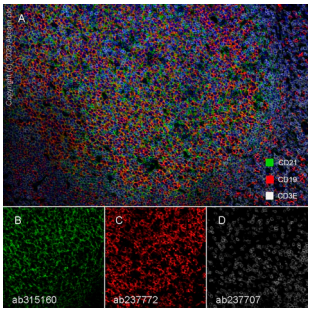


Flow Cytometry - Anti-CD21 antibody [EPR27369-9] (ab315160)

Flow cytometric analysis of K-562 (human chronic myelogenous leukemia lymphoblast, Left) / Raji (human Burkitt's lymphoma B lymphocyte, Right) cells labelling CD21 with ab315160 at 1/500 dilution (0.1 ug)/Red compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue).

Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.

Negative control: K-562. Gated on viable cells.



Multiplex immunohistochemistry - Anti-CD21 antibody [EPR27369-9] (ab315160)

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human tonsil tissue staining CD21 with ab315160 at a 1:50 (10.56 ug/ml) dilution, ab237772 anti-CD19 used at 1:5000 (0.21 ug/ml) dilution and ab237707 anti-CD3E used at a 1:500 (1.01 ug/ml) dilution.

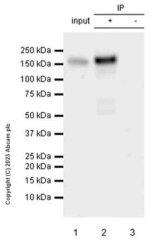
Panel A: merged staining of anti-CD21 (green; Opal™690), anti-CD3E (grey; Opal™520) and anti-CD19 (red; Opal™570) on human tonsil.
Panel B: anti-CD21 staining mature B lymphocytes and T-lymphocytes of human tonsil.
Panel C: anti-CD19 staining B lymphocytes of human tonsil.
Panel D: anti-CD3E staining T lymphocytes of human tonsil.

The section was incubated in three rounds of staining: in the order of ab315160, ab237772, and ab237707 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Immunoprecipitation - Anti-CD21 antibody [EPR27369-9] (ab315160)

CD21 was immunoprecipitated from 0.35 mg Raji (human Burkitt's lymphoma B lymphocyte) with ab315160 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab315160 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP) (ab131366) was used at 1/5000 dilution.

Lane 1: Raji (human Burkitt's lymphoma B lymphocyte) whole cell lysate

Lane 2: ab315160 IP in Raji (human Burkitt's lymphoma B lymphocyte)

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab315160 in Raji whole cell lysate

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

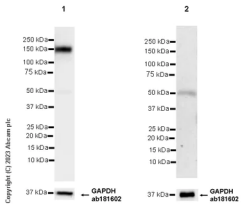
All lanes:
Immunoprecipitation - Anti-CD21 antibody [EPR27369-9] (ab315160) at 1/30 dilution

All lanes:
Raji (human Burkitt's lymphoma B lymphocyte) whole cell lysate

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Exposure time: 41s



Western blot - Anti-CD21 antibody [EPR27369-9] (ab315160)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

Negative control: Human heart.

The identity of the lower MW bands at approximately 50kDa is unknown.

In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200000 dilution.

Exposure time: Lane 1: 15 seconds Lane 2: 180 seconds

All lanes:
Western blot - Anti-CD21 antibody [EPR27369-9] (ab315160) at 1/1000 dilution

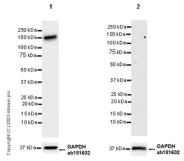
Lane 1:
Human tonsil tissue lysate at 20 µg

Lane 2:
Human heart tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Observed band size: 150 kDa, 36 kDa



Western blot - Anti-CD21 antibody [EPR27369-9] (ab315160)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

Negative control: K-562 (PMID: 6983911).

In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200000 dilution.

Exposure time: Lane 1: 48 seconds Lane 2: 180 seconds

All lanes:
Western blot - Anti-CD21 antibody [EPR27369-9] (ab315160) at 1/1000 dilution

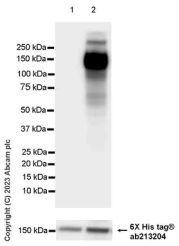
Lane 1:
Raji (human Burkitt's lymphoma B lymphocyte) whole cell lysate at 20 µg

Lane 2:
K-562 (human chronic myelogenous leukemia lymphoblast) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Observed band size: 150 kDa, 36 kDa



Western blot - Anti-CD21 antibody [EPR27369-9] (ab315160)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

In Western blot, Anti-6X His tag® antibody [EPR20547] - ChIP Grade (ab213204) staining at 1/5000 dilution.

All lanes:
Western blot - Anti-CD21 antibody [EPR27369-9] (ab315160) at 1/1000 dilution

Lane 1:
293T (human embryonic kidney epithelial cell) cells transfected with an empty vector containing a myc-His-tag®, whole cell lysate at 10 µg

Lane 2:
293T cells transfected with a human CD21 expression vector containing a myc-His-tag®, whole cell lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Observed band size: 150 kDa

Exposure time: 3.25s

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