abcam

ab212201

Anti-Human IgM antibody [EPR20731]

Recombinant | RabMAb | 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	EPR20731
Purification technique	Affinity purification Protein A
Concentration	0.497 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1/50
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Target data

See full target information IGHM

Function

Constant region of immunoglobulin heavy chains. Immunoglobulins, also known as antibodies, are membrane-bound or secreted glycoproteins produced by B lymphocytes. In the recognition phase of humoral immunity, the membrane-bound immunoglobulins serve as receptors which, upon binding of a specific antigen, trigger the clonal expansion and differentiation of B lymphocytes into immunoglobulins-secreting plasma cells. Secreted immunoglobulins mediate the effector phase of humoral immunity, which results in the elimination of bound antigens (PubMed:20176268, PubMed:22158414). The antigen binding site is formed by the variable domain of one heavy chain, together with that of its associated light chain. Thus, each immunoglobulin has two antigen binding sites with remarkable affinity for a particular antigen. The variable domains are assembled by a process called V-(D)-J rearrangement and can then be subjected to somatic hypermutations which, after exposure to antigen and selection, allow affinity maturation for a particular antigen (PubMed:17576170, PubMed:20176268). Isoform 1. Constant region of secreted IgM (sIgM), also known as the Fc region of IgM antibody. Able to multimerize, forms high order polymers,

mainly pentamers and occasionally hexamers, providing for multivalency and high avidity recognition of antigens (PubMed:32029689, PubMed:37095205). Natural sIgM are polyreactive and recognize conserved self- and pathogen-derived structures, whereas immune sIgM are secreted only upon exposure to pathogens and are antigen-specific. Both natural and immune sIgM are required for an efficient humoral immune response to infection (By similarity). Mediates sIgM effector functions mostly via Fc receptors and the complement system. On lymphoid cells binds high-affinity Fc receptor FCMR and promotes induction of an efficient neutralizing IgG response while maintaining tolerance to self-antigens. Recruits C1q complement component to initiate the classical complement pathway, facilitating the recognition and neutralization of pathogens by the host. Together with C1q and mannose-binding lectin promotes the phagocytosis of apoptotic cells by macrophages, ensuring the clearance of potential autoimmune epitopes from tissues (By similarity) (PubMed:12847249, PubMed:19006321, PubMed:28230186, PubMed:32029689). Involved in mucosal immunity. It is transported by transcytosis across mucosal epithelium by PIGR and secreted on the apical side in complex with PIGR secretory component to scan mucosal lining for pathogens. IgM-antigen complexes undergo FCMR-mediated retrotranscytosis across mucosal M cells toward antigen-presenting cells in mucosal lymphoid tissues (By similarity) (PubMed:32029689). Isoform 2. Constant region of membrane-bound IgM, part of the B cell receptor complex (BCR). IgM BCR provides constitutive tonic signaling for B cell survival. Mediates pre-BCR signaling that regulates B cell selection and rearrangement of Ig genes via allelic exclusion.

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.

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

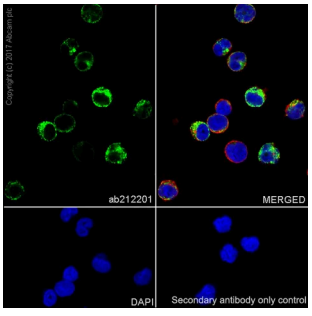
We do not recommend this combination. It is not covered by our product promise.

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.

5 product images

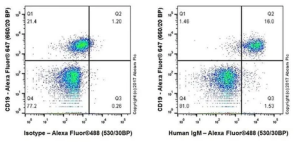


Immunocytochemistry/ Immunofluorescence - Anti-Human IgM antibody [EPR20731] (ab212201)

Human IgM Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Human IgM antibody

Immunofluorescent analysis of 100% methanol-fixed Raji (human Burkitt's lymphoma cell line) cells labeling IgM with ab212201 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining in Raji cells.
The nuclear counterstain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution (red).

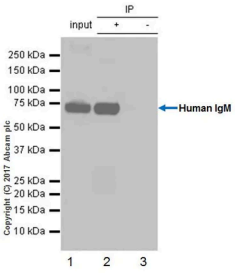
Secondary antibody only control: Used PBS instead of primary antibody, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.



Flow Cytometry - Anti-Human IgM antibody [EPR20731] (ab212201)

Human IgM Flow Cytometry staining using rabbit Anti-Human IgM antibody

Flow cytometric analysis of human PBMC (peripheral blood mononuclear cells) cell line labeling IgM with ab212201 at 1/50 (right panel) compared with an isotype control details (ab172730) (left panel). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077), at 1/2000 dilution was used as the secondary antibody.
Human PBMCs co-stained with anti-CD19 (Y-axis); only CD19+ population give a positive signal for IgM. Gated on total viable cells.



Immunoprecipitation - Anti-Human IgM antibody [EPR20731] (ab212201)

IgM was immunoprecipitated from 0.35 mg of Raji (human Burkitt's lymphoma cell line) whole cell lysate with ab212201 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab212201 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10,000 dilution.
Lane 1: Raji whole cell lysate 10 µg (Input).

Lane 2: ab212201 IP in Raji whole cell lysate.

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab212201 in Raji whole cell lysate.

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

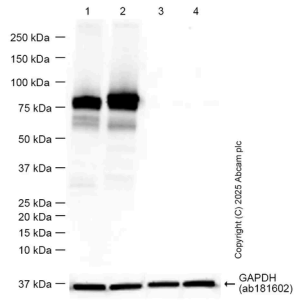
Exposure time: 10 seconds.

All lanes:
Immunoprecipitation - Anti-Human IgM antibody [EPR20731] (ab212201)

Developed using the ECL technique.

Predicted band size: 49 kDa

Observed band size: 78 kDa



Western blot - Anti-Human IgM antibody [EPR20731] (ab212201)

Human IgM Western blot staining using rabbit Anti-Human IgM antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/1000000 dilution.

Low expression or negative samples: MOLT-4, Jurkat (PMID: 24141767, PMID:26121639).

All lanes:
Western blot - Anti-Human IgM antibody [EPR20731] (ab212201) at 1/1000 dilution

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

Lane 2:
Daudi (human Burkitt's lymphoma lymphoblast) whole cell lysate at 20 µg

Lane 3:
MOLT-4 (human lymphoblastic leukemia T lymphoblast) whole cell lysate at 20 µg

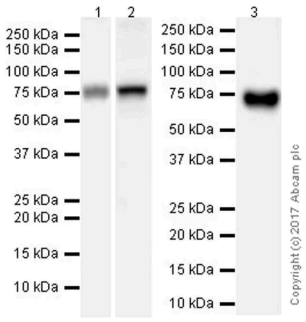
Lane 4:
Jurkat (human T cell leukemia T lymphocyte) whole cell lysate at 20 µg

Secondary

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

Observed band size: 75 kDa

Exposure time: 5s



Western blot - Anti-Human IgM antibody [EPR20731] (ab212201)

The blot was developed on a BIO-RAD® ChemiDoc™ MP instrument.
The molecular mass observed is consistent with the literature (PMID 16199094; PMID: 15955802; PMID 2107027).
Blocking and dilution buffer: 5% NFDM/TBST.

Exposure times.

Lanes 1 & 3: 3 minutes.

Lane 2: 10 seconds.

All lanes:
Western blot - Anti-Human IgM antibody [EPR20731] (ab212201) at 1/1000 dilution

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

Lane 2:
Human tonsil tissue lysate at 20 µg

Lane 3:
Human fetal spleen tissue lysate at 10 µg

Secondary

All lanes:
Western blot - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/4000 dilution

Developed using the ECL technique.

Predicted band size: 49 kDa

Observed band size: 78 kDa

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