abcam

ab239259

PE/Cy5® Anti-IgM antibody [CH2]

Anti-IgM antibody [CH2] conjugated to PE/Cy5® - suitable for flow cytometry, and reacts with human samples. Clone [CH2] is a mouse monoclonal antibody.

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

Key facts

Isotype	IgG1
Host species	Mouse
Conjugation	PE/Cy5®
Excitation/Emission	Ex: 496nm, Em: 667nm
Storage buffer	pH: 7.4 Preservative: 0.0975% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Native Full Length Protein corresponding to Human IGHM. Database link P01871
Clone number	CH2
Purification technique	Size-exclusion chromatography
Specificity	ab239259 reacts with Fc fragment of human IgM.
Concentration	0.1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified antibody is conjugated with tandem dye PE/Cy5® under optimum conditions. The conjugate is purified by size-exclusion chromatography.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1-2 µg/mL
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	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Store in the dark

Notes

This product or portions thereof is manufactured under license from Carnegie Mellon University under U.S. Patent Number 5, 268, 486 and related patents. Cy® and CyDye® are trademarks of Cytiva.

Supplementary info

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

Activity summary	IgM also known as immunoglobulin M is a type of antibody with a molecular mass of approximately 970 kDa. It is the largest antibody present in the human circulatory system mostly found in plasma and lymphatic tissue. IgM is secreted primarily by B cells as a pentamer with a J chain providing a high avidity for antigens. When bound to an antigen IgM can activate the complement system a part of the immune system that helps clear pathogens from an organism.
Biological function summary	IgM acts as the first line of defense during the initial stages of an immune response. It plays an important part in agglutination and neutralization of pathogens forming a complex that alerts other components of the immune system to take action. IgM exists before class-switching to IgG providing immediate protection. It also plays a role in antibody-dependent cellular cytotoxicity. Although not typically a long-term solution its presence is critical for providing initial protection until more specific antibodies like IgG and IgA are produced.
Pathways	The immune response that involves IgM begins with the activation of the classical complement pathway. This pathway bridges the innate and adaptive immunity ensuring the communication and coordination of immune responses. The pathway involves C1q protein binding to IgM-antigen complexes. IgM also interacts with antigen-presenting cells facilitating the processing of antigens and interaction with T cells. These interactions connect IgM with other proteins like IgG and IgA influencing various immune response pathways.

Associated diseases and disorders	IgM is associated with conditions such as Waldenström's macroglobulinemia and rheumatoid arthritis. Waldenström's macroglobulinemia involves the overproduction of IgM by clonal B cells leading to symptoms like anemia bleeding and neuropathy. Rheumatoid arthritis shows increased IgM levels as part of the autoimmune response affecting joints. In these diseases the IgM antibody interacts with rheumatoid factor and other immune proteins involved in inflammation demonstrating its significant role in autoimmunity and abnormal immune responses.

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

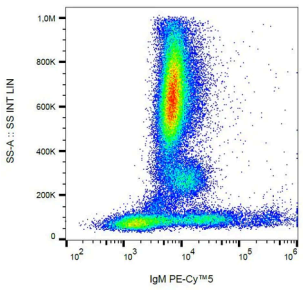
We do not recommend this combination. It is not covered by our product promise.

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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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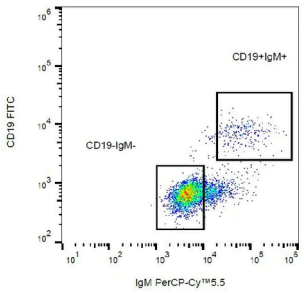
2 product images



Flow Cytometry - PE/Cy5® Anti-IgM antibody [CH2] (ab239259)

IgM Flow Cytometry staining using mouse Anti-IgM antibody

Flow cytometric surface staining pattern of human peripheral blood cells staining IgM with ab239259 at 2 µg/ml concentration



Flow Cytometry - PE/Cy5® Anti-IgM antibody [CH2] (ab239259)

IgM Flow Cytometry staining using mouse Anti-IgM antibody

Flow cytometric analysis of human peripheral blood cells labeling IgM with ab239259. Surface staining. Gated on leukocytes.

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