

Technical Data Sheet

R718 Mouse Anti-Human IgM

Product Information

Material Number:	751881
Size:	50 µg
Clone:	UCH-B1
Alternative Name:	UCHB1; IGHM; MU
Reactivity:	Tested in Development:Human
Isotype:	Mouse BALB/c IgG1, κ
Application:	Flow cytometry(Qualified)
Concentration:	0.2 mg/ml
Storage Buffer:	Aqueous buffered solution containing ≤0.09% sodium azide.
Regulatory Status:	RUO

Description

The UCH-B1 (also known as, UCHB1) monoclonal antibody specifically recognizes the heavy chain constant region (C μ) of human Immunoglobulin M (IgM) that is encoded by IGHM (immunoglobulin heavy constant mu). It does not crossreact with other immunoglobulin heavy or light chain isotypes. An intracytoplasmic form of IgM is expressed by pre-B cells whereas immature and a portion of mature B cells, including naive and memory B cells, express cell surface IgM. These forms of IgM can also be expressed by cells from some leukemias or lymphomas. Cell surface IgM is comprised of two type I transmembrane heavy chain glycoproteins (Ig μ heavy chains) that are paired with immunoglobulin light chains of the same type, ie, either immunoglobulin kappa (Ig κ) or lambda (Ig λ) light chains. Cell surface IgM serves as a receptor that can specifically bind to antigens, including those expressed by microbial pathogens, and trigger the clonal expansion and differentiations of B cells into antibody-secreting plasma cells. A soluble pentameric form of IgM can be produced and secreted by plasma cells into the blood. Pentameric IgM is comprised of 5 monomers that consist of two Ig μ heavy chains and two light chains that are complexed with a polypeptide J-chain. The UCH-B1 monoclonal antibody recognizes both cell surface and soluble human IgM. IgM is an important component in the first line of defense against foreign pathogens, but may also play a role in autoimmune diseases. The UCH-B1 antibody can reportedly activate or costimulate the proliferation of normal B cells or some transformed B cell lines.

The antibody was conjugated to BD Horizon Red 718, which has been developed exclusively for BD Biosciences as a better alternative to Alexa Fluor® 700. BD Horizon Red 718 can be excited by the red laser (628 – 640 nm) and, with an Em Max around 718 nm, it can be detected using a 730/45 nm filter. Due to similar excitation and emission properties, we do not recommend using R718 in combination with APC-R700 or Alexa Fluor® 700.

Preparation and Storage

Store undiluted at 4°C and protected from prolonged exposure to light. Do not freeze. The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography. The antibody was conjugated to the dye under optimum conditions that minimize unconjugated dye and antibody.

Recommended Assay Procedure

BD™ CompBeads can be used as surrogates to assess fluorescence spillover (Compensation). When fluorochrome conjugated antibodies are bound to BD CompBeads, they have spectral properties very similar to cells. However, for some fluorochromes there can be small differences in spectral emissions compared to cells, resulting in spillover values that differ when compared to biological controls. It is strongly recommended that when using a reagent for the first time, users compare the spillover on cells and BD CompBead to ensure that BD CompBeads are appropriate for your specific cellular application.

Suggested Companion Products

Catalog Number	Name	Size
564219	Human BD Fc Block™	50 µg
554656	Stain Buffer (FBS)	500 mL
554657	Stain Buffer (BSA)	500 mL

555899	Lysing Buffer	100 mL
349202	Lysing Solution 10X Concentrate	100 mL
566928	R718 Mouse IgG1, κ Isotype Control	50 μ g

Product Notices

1. Researchers should determine the optimal concentration of this reagent for their individual applications.
2. The production process underwent stringent testing and validation to assure that it generates a high-quality conjugate with consistent performance and specific binding activity. However, verification testing has not been performed on all conjugate lots.
3. An isotype control should be used at the same concentration as the antibody of interest.
4. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.
5. Alexa Fluor® is a registered trademark of Life Technologies Corporation.
6. Please refer to <http://regdocs.bd.com> to access safety data sheets (SDS).
7. Please refer to www.bdbiosciences.com/us/s/resources for technical protocols.
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References

Smith-Ravin J, Spencer J, Beverley PC, Isaacson PG. Characterization of two monoclonal antibodies (UCL4D12 and UCL3D3) that discriminate between human mantle zone and marginal zone B cells.. *Clin Exp Immunol*. 1990; 82(1):181-7. (Clone-specific: ELISA, Flow cytometry).

Armitage RJ, Rowe DJ, Beverly PC. A new antigen identified by the monoclonal antibody UCHB 1 delivers a costimulatory signal to a subset of human B cells.. *Eur J Immunol*. 1988; 18(1):67-76. (Immunogen: Activation, Calcium Flux, (Co)-stimulation, Flow cytometry, Functional assay).

Bain B, Morilla R, Monard S, Kokai Y, Catovsky D. Spectrum of Reactivity with Three Monoclonal Antibodies-MHM6(CD23), L30(CD24) and UCHB1-in B-Cell Leukaemias.. *Leuk Lymphoma*. 1990; 3(2):97-102. (Clone-specific: Immunocytochemistry, Immunofluorescence).

Klymenko T, Bloehdorn J, Bahlo J, et al. Lamin B1 regulates somatic mutations and progression of B-cell malignancies.. *Leukemia*. 2018; 32(2):364-375. (Clone-specific: Cell separation).

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