Technical Data Sheet

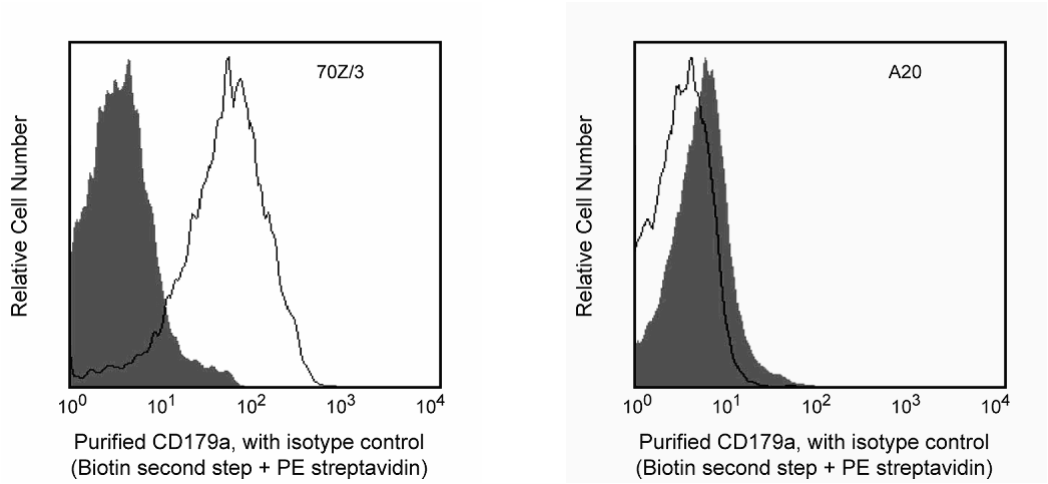
Purified Rat Anti-Mouse CD179a

Product Information

Material Number:	**558271**
Alternate Name:	VpreB
Size:	0.1 mg
Concentration:	0.5 mg/ml
Clone:	R3/VpreB
Immunogen:	Recombinant mouse VpreB protein and mouse pre-B lymphoma 70Z/3
Isotype:	Rat (CD) IgG2a, κ
Reactivity:	QC Testing: Mouse
Storage Buffer:	Aqueous buffered solution containing ≤0.09% sodium azide.

Description

The pre-B cell receptor (pre-BCR) expressed during the early stages of B lymphocyte development is a heterodimer of immunoglobulin heavy chain (IgH) with surrogate light chain, which is an Ig-light-chain-like molecule composed of the non-covalently linked CD179b (λ5) and CD179a (VpreB) proteins. The pre-BCR is believed to control IgH repertoire selection and proliferation of differentiating B lymphocytes. The R3/VpreB antibody reacts with CD179a and pre-BCR in pre-B-cell lines, but not CD179b alone. It detects pre-BCR on the surface of early B-lineage cell lines. R3/VpreB antibody has been reported to detect both cell-surface and intracytoplasmic surrogate light chain in normal bone marrow. However, in CD179b-deficient (λ5[-/-]) bone marrow, R3 antibody can detect only intracytoplasmic CD179a. At the earliest stages of B chain associates with a complex of glycoproteins, including a nonclassical cadherin, which could be involved in selective adhesion events during B-lymphocyte development.



Differential expression of CD179a (VpreB) on B lymphomas. *The 70Z/3 (sIg- pre-B lymphoblast, left panel) and A20 (sIg+ B lymphoma, right panel) cell lines were stained with either purified rat IgG2a, κ isotype control mAb R35-95 (Cat. No. 553927, solid histograms) or purified mAb R3/VpreB (open histograms), followed by biotinylated anti-rat IgG2a mAb RG7/1.30 (Cat. No. 553894), then Streptavidin-PE (Cat. No. 554061). Flow cytometry was performed on a BD FACSCalibur™ flow cytometry system.*

Preparation and Storage

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.
Store undiluted at 4° C.

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Application Notes

Application

Flow cytometry	Routinely Tested
Immunoprecipitation	Reported
ELISA	Reported
Western blot	Reported

Recommended Assay Procedure:

Because CD179a is expressed at very low levels on bone-marrow-derived early B lineage cells, amplification of staining (using a biotinylated second-step antibody and a "bright" third-step reagent) and the use of Mouse BD Fc Block™ purified anti-mouse CD16/CD32 mAb 2.4G2 (Cat. No. 553141/553142) are recommended. The second-step antibody must not cross-react with the 2.4G2 mAb (rat IgG2b, κ); we recommend the use of biotinylated anti-rat IgG2a mAb RG7/1.30 (Cat. No. 553894), followed by Streptavidin-PE (Cat. No. 554061) or Streptavidin-APC (Cat. No. 554067).

Suggested Companion Products

Catalog Number	Name	Size	Clone
553927	Purified Rat IgG2a, κ Isotype Control	0.5 mg	R35-95
553894	Biotin Mouse Anti-Rat IgG2a	0.5 mg	RG7/1.30
554063	Streptavidin APC-Cy7	0.1 mg	(none)
553141	Purified Rat Anti-Mouse CD16/CD32 (Mouse BD Fc Block™)	0.1 mg	2.4G2
554061	PE Streptavidin	0.5 mg	(none)
554067	APC Streptavidin	0.1 mg	(none)

Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.
3. 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.
4. Sodium azide is a reversible inhibitor of oxidative metabolism; therefore, antibody preparations containing this preservative agent must not be used in cell cultures nor injected into animals. Sodium azide may be removed by washing stained cells or plate-bound antibody or dialyzing soluble antibody in sodium azide-free buffer. Since endotoxin may also affect the results of functional studies, we recommend the NA/LE (No Azide/Low Endotoxin) antibody format, if available, for in vitro and in vivo use.

References

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Melchers F, ten Boekel E, Seidl T, et al. Repertoire selection by pre-B-cell receptors and B-cell receptors, and genetic control of B-cell development from immature to mature B cells. *Immunol Rev.* 2000; 175:33-46.(Biology)

Ohnishi K, Shimizu T, Karasuyama H, Melchers F. The identification of a nonclassical cadherin expressed during B cell development and its interaction with surrogate light chain. *J Biol Chem.* 2000; 275(40):31134-31144.(Biology)

Shimizu T, Mundt C, Licence S, Melchers F, Martensson IL. VpreB1/VpreB2/lambda 5 triple-deficient mice show impaired B cell development but functional allelic exclusion of the IgH locus. *J Immunol.* 2002; 168(12):6286-6293.(Biology)

Stephan RP, Elgavish E, Karasuyama H, Kubagawa H, Cooper MD. Analysis of VpreB expression during B lineage differentiation in lambda5-deficient mice. *J Immunol.* 2001; 167(7):3734-3739.(Immunogen: ELISA, Flow cytometry, Immunoprecipitation, Western blot)

Wang YH, Stephan RP, Scheffold A, et al. Differential surrogate light chain expression governs B-cell differentiation. *Blood.* 2002; 99(7):2459-2467. (Clone-specific: Flow cytometry)