

Technical Data Sheet

BV510 Mouse Anti-Human CD172a/b

Product Information

Material Number:	743563
Size:	50 µg
Clone:	SE5A5
Alternative Name:	SIRP alpha/beta1; SIRPα/SIRPβ1; Signal Regulatory Protein α/β1
Reactivity:	Tested in Development:Human
Isotype:	Mouse BALB/c IgG1, κ
Application:	Flow cytometry(Qualified)
Concentration:	0.2 mg/ml
Workshop No.:	VII 70259
Storage Buffer:	Aqueous buffered solution containing ≤0.09% sodium azide.
Regulatory Status:	RUO

Description

The SE5A5 monoclonal antibody specifically binds to a common epitope on CD172a/SIRPα (90 kDa) and CD172b/SIRPβ1 (50 kDa). These transmembrane glycoproteins are members of the Signal Regulatory Protein (SIRP) family that, in turn, belongs to the Immunoglobulin superfamily. The SIRP family is comprised of two subgroups, SIRPα and SIRPβ that are distinguished by the presence (α) or absence (β) of a cytoplasmic domain containing two immunoreceptor tyrosine-based inhibition motifs (ITIM). CD172a/SIRPα is expressed on CD34+ stem/progenitor cells, cardiomyocytes, monocytes, macrophages, granulocytes, dendritic cells, and in the central nervous system. It binds to CD47 and is implicated in mediating inhibitory signals via the ITIM/SHP-2 association. CD172b/SIRPβ1 does not possess a cytoplasmic domain but instead the transmembrane domain contains a positively-charged residue that can interact with another transmembrane protein, DAP-12/KARAP. DAP-12 has two immunoreceptor tyrosine-based activation motifs (ITAM) within its cytoplasmic domain that are thought to link CD172b to cellular activation signaling. CD172b is expressed on myeloid cells, including peripheral blood monocytes and granulocytes. It is not expressed on CD34+ cells. CD172a and CD172b have complementary roles in signal regulation and may work together in tuning certain cellular responses to stimuli.

The antibody was conjugated to BD Horizon™ BV510 which is part of the BD Horizon Brilliant™ Violet family of dyes. With an Ex Max of 405-nm and Em Max at 510-nm, BD Horizon BV510 can be excited by the violet laser and detected in the BD Horizon V500 (525/50-nm) filter set. BD Horizon BV510 conjugates are useful for the detection of dim markers off the violet laser.

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 with BD Horizon BV510 under optimal conditions that minimize unconjugated dye and antibody.

Recommended Assay Procedure

For optimal and reproducible results, BD Horizon Brilliant Stain Buffer should be used anytime two or more BD Horizon Brilliant dyes (including BD OptiBuild Brilliant reagents) are used in the same experiment. Fluorescent dye interactions may cause staining artifacts which may affect data interpretation. The BD Horizon Brilliant Stain Buffer was designed to minimize these interactions. More information can be found in the Technical Data Sheet of the BD Horizon Brilliant Stain Buffer (Cat. No. 563794).

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
563794	Brilliant Stain Buffer	100 Tests
555899	Lysing Buffer	100 mL

Product Notices

1. This antibody was developed for use in flow cytometry.
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. Researchers should determine the optimal concentration of this reagent for their individual applications.
4. An isotype control should be used at the same concentration as the antibody of interest.
5. 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.
6. For fluorochrome spectra and suitable instrument settings, please refer to our Multicolor Flow Cytometry web page at www.bdbiosciences.com/colors.
7. Please refer to www.bdbiosciences.com/us/s/resources for technical protocols.
8. BD Horizon Brilliant Stain Buffer is covered by one or more of the following US patents: 8,110,673; 8,158,444; 8,575,303; 8,354,239.
9. BD Horizon Brilliant Violet 510 is covered by one or more of the following US patents: 8,575,303; 8,354,239.

References

Ghannadan M, Hauswirth AW, Scherthaner GH, et al. Detection of novel CD antigens on the surface of human mast cells and basophils. *Int Arch Allergy Immunol*. 2002; 127(4):299-307. (Biology).

Seiffert M, Cant C, Chen Z, et al. Human signal-regulatory protein is expressed on normal, but not on subsets of leukemic myeloid cells and mediates cellular adhesion involving its counterreceptor CD47. *Blood*. 1999; 94(11):3633-3643. (Immunogen: Flow cytometry, Functional assay, Immunoprecipitation, Inhibition).

Seiffert M, Brossart P, Cant C, et al. Signal-regulatory protein alpha (SIRPalpha) but not SIRPbeta is involved in T-cell activation, binds to CD47 with high affinity, and is expressed on immature CD34(+)CD38(-) hematopoietic cells. *Blood*. 2001; 97(9):2741-9. (Clone-specific: Immunoprecipitation, Inhibition).

Dubois NC, Craft AM, Sharma P, et al. SIRPA is a specific cell-surface marker for isolating cardiomyocytes derived from human pluripotent stem cells. *Nat Biotechnol*. 2011; 29:1011-1018. (Biology).

Dietrich J, Cella M, Seiffert M, Bühring HJ, Colonna M. Cutting edge: signal-regulatory protein beta 1 is a DAP12-associated activating receptor expressed in myeloid cells. *J Immunol*. 2000; 164(1):9-12. (Biology).

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Simmons DL, Vernon-Wilson E. Structure and function of the signal regulatory proteins (SIRPs). In: Mason D. David Mason .. et al., ed. *Leucocyte typing VII : white cell differentiation antigens : proceedings of the Seventh International Workshop and Conference held in Harrogate, United Kingdom*. Oxford: Oxford University Press; 2002:35-38.

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United States 877.232.8995	Canada 888.268.5430	Europe 32.53.720.550	Japan 0120.8555.90	Asia Pacific 65.6861.0633	Latin America/Caribbean 0800.771.7157
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