Technical Data Sheet

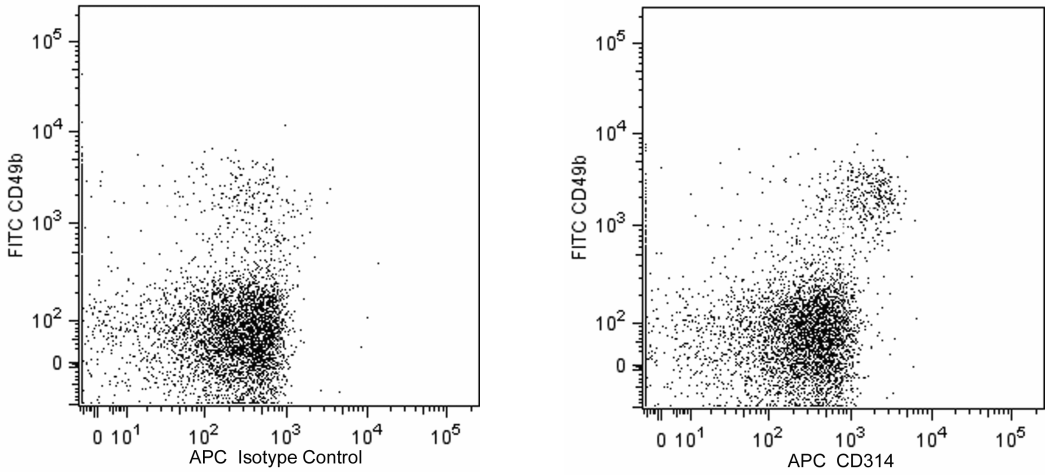
APC Rat Anti-Mouse CD314

Product Information

Material Number:	**562347**
Alternate Name:	Klrk1; NKG2D; NKG2-D; NK cell receptor D; Natural killer cell group 2D
Size:	50 µg
Concentration:	0.2 mg/ml
Clone:	CX5
Immunogen:	Purified Mouse NKG2D protein
Isotype:	Rat IgG1
Reactivity:	QC Testing: Mouse
Storage Buffer:	Aqueous buffered solution containing ≤0.09% sodium azide.

Description

The CX5 monoclonal antibody specifically binds to NKG2D, also known as CD314. NKG2D is a lectin-like receptor that is detected on resting and IL-2-activated NK cells, activated CD8-positive T lymphocytes, and LPS-activated macrophages, but not on resting T cells or unstimulated macrophages. NKG2D has little homology to the other members of the NKG2 family, NKG2A, C, and E, and does not form heterodimers with CD94. On NK cells, NKG2D is an activating receptor that associates with DAP10, an adapter protein that stimulates the PI3 kinase pathway. An isoform of mouse NKG2D can also associate with the signaling adapter protein DAP12, also known as KARAP (*K*iller cell-*A*ssociated *R*eceptor-*A*ssociated *P*olypeptide), that activates the Syk and ZAP70 tyrosine kinases. On cytotoxic T cells, NKG2D is a co-stimulatory receptor that associates with DAP10. The ligands for NKG2D include the minor histocompatibility antigen H60, MULT1 (*M*urine *UL*16-binding protein-*L*ike *T*ranscript *1*), and the five retinoic acid-inducible proteins Rae-1α, β, γ, δ and ε. Interactions of NKG2D with its ligands are involved in the regulation of innate and immune cytotoxic responses to tumor and pathogen-infected cells and in diabetes progression in the NOD mouse. The CX5 mAb blocks the binding of NKG2D to its ligands.



Multicolor flow cytometric analysis of CD314/NKG2D expression on mouse splenocytes. *BALB/c splenocytes were stained with FITC Rat Anti-Mouse CD49b/Pan-NK Cells antibody (Cat. No. 553857) and either APC Rat IgG1, κ Isotype Control (Left Panel, Cat. No. 554686) or APC Rat Anti-Mouse CD314/NKG2D antibody (Right Panel, Cat. No. 562347) in the presence of Mouse BD Fc Block™ Purified Rat Anti-Mouse CD16/CD32 mAb (Cat. No. 553141/553142). Two-color flow cytometric dot plots showing the expression of CD314 versus CD49b (or Ig Isotype control staining) were derived from gated events with the forward and side light-scatter characteristics of viable splenocytes. Flow cytometry was performed using a BD™ LSR II Flow Cytometer System.*

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 APC under optimum conditions, and unconjugated antibody and free APC were removed.

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Application Notes

Application

Flow cytometry	Routinely Tested

Suggested Companion Products

Catalog Number	Name	Size	Clone
554686	APC Rat IgG1, κ Isotype Control	0.1 mg	R3-34
554656	Stain Buffer (FBS)	500 ml	(none)
553857	FITC Rat Anti-Mouse CD49b	0.5 mg	DX5
553141	Purified Rat Anti-Mouse CD16/CD32 (Mouse BD Fc Block™)	0.1 mg	2.4G2
553142	Purified Rat Anti-Mouse CD16/CD32 (Mouse BD Fc Block™)	0.5 mg	2.4G2

Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. An isotype control should be used at the same concentration as the antibody of interest.
3. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.
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. This APC-conjugated reagent can be used in any flow cytometer equipped with a dye, HeNe, or red diode laser.
6. For fluorochrome spectra and suitable instrument settings, please refer to our Multicolor Flow Cytometry web page at www.bdbiosciences.com/colors.

References

Carayannopoulos LN, Naidenko OV, Fremont DH, Yokoyama WM. Murine UL16–binding protein–like transcript 1: A newly described transcript encoding a high–affinity ligand for murine NKG2D. *J Immunol.* 2002; 169(8):4079-4083. (Biology)

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Diefenbach A, Jamieson AM, Liu SD, Shastri N, Raulet DH. Ligands for the murine NKG2D receptor: expression by tumor cells and activation of NK cells and macrophages. *Nat Immunol.* 2000; 1(2):119-126. (Biology)

Diefenbach A, Tomasello E, Lucas M, et al. Selective associations with signaling proteins determine stimulatory versus costimulatory activity of NKG2D. *Nat Immunol.* 2002; 3(12):1142-1149. (Biology)

Gilfillan S, Ho EL, Cella M, Yokoyama WM, Colonna M. NKG2D recruits two distinct adapters to trigger NK cell activation and costimulation. *Nat Immunol.* 2002; 3(12):1150-1155. (Biology)

Ogasawara K, Hamerman JA, Ehrlich LR, et al. NKG2D blockade prevents autoimmune diabetes in NOD mice. *Immunity.* 2004; 20(6):757-767. (Clone-specific: Blocking)

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Yokoyama WM. Natural killer cell receptors. *Curr Opin Immunol.* 1998; 10(3):298-305. (Biology)

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