Technical Data Sheet

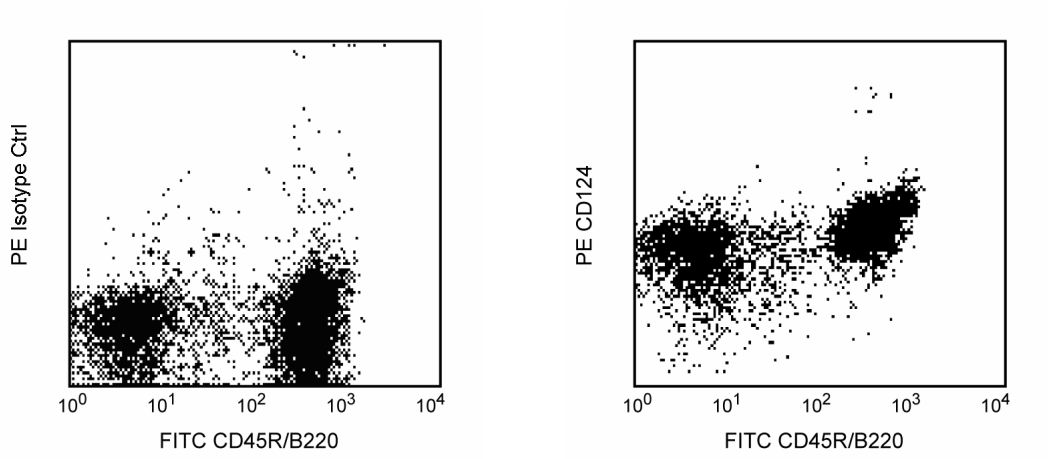
PE Rat Anti-Mouse CD124

Product Information

Material Number:	**561695**
Alternate Name:	IL-4 Receptor α chain
Size:	25 µg
Concentration:	0.2 mg/ml
Clone:	mIL4R-M1
Isotype:	Rat IgG2a, κ
Reactivity:	QC Testing: Mouse
Storage Buffer:	Aqueous buffered solution containing protein stabilizer and ≤0.09% sodium azide.

Description

The mIL4R-M1 monoclonal antibody specifically binds to CD124 which is also known as the α subunit of the mouse Interleukin-4 Receptor (IL-4Rα). The mouse IL-4Rα is a 140 kDa transmembrane glycoprotein that is expressed by B and T lymphocytes and a variety of other hematopoietic and nonhematopoietic cells and cell lines. The cell surface IL-4Rα chain binds IL-4 with high affinity and associates with either the common γ chain (IL-4Rα/γc; aka, type I IL-4R) or the IL-13 receptor alpha subunit (IL-4Rα/IL-13Rα; aka, type II IL-4R complex) to form two distinct types of signal-transducing IL-4R complexes. The type I IL-4 receptor complex specifically binds IL-4 whereas the type II IL-4R binds and transduces signals from either IL-4 or IL-13. The mIL4R-M1 antibody blocks IL-4 binding to cells and is reported to be a potent inhibitor of IL-4's biological activities. The mIL4R-M1 antibody also recognizes naturally-occurring, soluble truncated forms of IL-4Rα (sIL-4R) that result either from enzymatic cleavage of the cell surface extracellular IL-4Rα domain or from differential mRNAsplicing and secretion by cells. These sIL-4R retain their high-affinity ligand binding domain and appear to either enhance or inhibit IL-4-mediated functions depending on the relative local levels of IL-4 and sIL-4R.



Expression of cell surface CD124 by B220-positve and -negative splenic lymphocytes from C57BL/6 mice. *Spleen cells from C57BL/6 mice were treated with ACK lysis buffer, washed, and were labeled with purified Fc Block (Cat. No. 553142) to block mouse Fc receptors. The cells were then stained with PE Rat Anti-Mouse CD124 (Cat. No 561695; 0.25 µg/10e6 cells) and FITC Rat Anti-Mouse CD45R/B220 (0.06 µg; Cat. No. 553088) and were analyzed by two-color flow cytometry. The levels of CD124 expressed by B220-positive and B220-negative cells (with the light-scattering characteristics of viable lymphocytes) are shown in the two-color dot plot (right panel). Staining with the PE-mIL4R-M1 antibody (right panel) is compared to staining derived with a PE Rat IgG2a, κ Isotype Control antibody (0.25 µg, Cat. No. 553930) that is shown in left panel.*

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 R-PE under optimum conditions, and unconjugated antibody and free PE were removed.

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Application Notes

Application

Flow cytometry	Routinely Tested
Neutralization	Tested During Development
ELISA	Tested During Development
Immunoprecipitation	Reported

Recommended Assay Procedure:

Immunofluorescent staining and Flow Cytometric Analysis: The PE conjugated form of the mIL4R-M1 antibody can be used for the immunofluorescent staining and flow cytometric analysis of nucleated mouse cells to measure their expressed levels of surface CD124. An appropriate PE Ig isotype control is clone R35-95 (Cat. No. 553930).

ELISA: The biotinylated mIL4R-M1 (Cat. No. 552508) antibody is useful as a detection antibody in a sandwich ELISA that measures soluble mouse CD124 protein levels. The mIL-4R-M1 antibody can be paired with the mIL4R-M2 antibody, Cat. No. 552952, and recombinant soluble mIL-4Rα as the standard.

Neutralization: The mIL4R-M1 antibody reportedly blocks IL-4 binding to and biological effects on, IL-4R-positive cells. Note: For use in in vivo and in vitro applications, our NA/LE format (no azide/ low endotoxin), Cat. No. 552288, is recommended.

Immunoprecipitation: The mIL4R-M1 antibody is reported to immunoprecipitate mouse CD124 proteins. Please note that this application is not routinely tested at BD Biosciences Pharmingen.

Suggested Companion Products

Catalog Number	Name	Size	Clone
553142	Purified Rat Anti-Mouse CD16/CD32 (Mouse BD Fc Block™)	0.5 mg	2.4G2
553088	FITC Rat Anti-Mouse CD45R/B220	0.5 mg	RA3-6B2
553930	PE Rat IgG2a, κ Isotype Control	0.1 mg	R35-95

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. For fluorochrome spectra and suitable instrument settings, please refer to our Fluorochrome Web Page at www.bdbiosciences.com/colors.
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.

References

Beckmann MP, Schooley KA, Gallis B, et al. Monoclonal antibodies block murine IL-4 receptor function. *J Immunol.* 1990; 144(11):4212-4217. (Clone-specific: Immunoprecipitation, Neutralization)

Chilton PM, Fernandez-Botran R. Production of soluble IL-4 receptors by murine spleen cells is regulated by T cell activation and IL-4. *J Immunol.* 1993; 151(1):5907-5917. (Clone-specific: ELISA)

Feldman GM, Ruhl S, Bickel M, Finbloom DS, Pluznik DH. Regulation of interleukin-4 receptors on murine myeloid progenitor cells by interleukin-6. *Blood.* 1991; 78(7):1678-1684. (Clone-specific: Flow cytometry)

Gessner A, Rollinghoff M. Biologic functions and signaling of the interleukin-4 receptor complexes. *Immunobiology.* 2000; 201(3-4):285-307. (Biology)

Hassuneh MR, Nagarkatti PS, Nagarkatti M. Evidence for the participation of interleukin-2 (IL-2) and IL-4 in the regulation of autonomous growth and tumorigenesis of transformed cells of lymphoid origin. *Blood.* 1997; 89(2):610-620. (Clone-specific: Flow cytometry)

Kubo M, Yamashita M, Abe R, et al. CD28 costimulation accelerates IL-4 receptor sensitivity and IL-4-mediated Th2 differentiation. *J Immunol.* 1999; 63(5):2432-2442. (Clone-specific: Flow cytometry)

Lowenthal JW, Castle BE, Christiansen J, et al. Expression of high affinity receptors for murine interleukin 4 (BSF-1) on hemopoietic and nonhemopoietic cells. *J Immunol.* 1988; 140(2):456-464. (Biology)

Mosley B, Beckmann MP, March CJ, et al. The murine interleukin-4 receptor: molecular cloning and characterization of secreted and membrane bound forms. *Cell.* 1989; 59(2):335-348. (Biology)

Sempowski GD, Beckmann MP, Derdak S, Phipps RP. Subsets of murine lung fibroblasts express membrane-bound and soluble IL-4 receptors. Role of IL-4 in enhancing fibroblast proliferation and collagen synthesis. *J Immunol.* 1994; 152(7):3606-3614. (Clone-specific: Flow cytometry)