

## Technical Data Sheet

## Biotin Rat Anti-Mouse CD5

## Product Information

<b>Material Number:</b>	<b>553018</b>
<b>Alternate Name:</b>	Ly-1
<b>Size:</b>	0.1 mg
<b>Concentration:</b>	0.5 mg/ml
<b>Clone:</b>	53-7.3
<b>Immunogen:</b>	Mouse Thymus / Spleen
<b>Isotype:</b>	Rat (LOU) IgG2a, $\kappa$
<b>Reactivity:</b>	QC Testing: Mouse
<b>Storage Buffer:</b>	Aqueous buffered solution containing $\leq 0.09\%$ sodium azide.

## Description

The 53-7.3 clone has been reported to react with a monomorphic epitope of CD5, a member of the scavenger receptor cysteine-rich protein superfamily and the major ligand of CD72, found on thymocytes, T lymphocytes, thymic NK-T cells, and a subset of B lymphocytes, but not on NK cells or splenic NK-T cells. The level of surface CD5 expression is developmentally regulated in the thymus, starting with low levels on CD4-CD8- thymocytes and increasing as they mature to CD4+CD8+ then CD4+CD8- or CD4-CD8+ thymocytes. Relatively high levels are maintained on peripheral T lymphocytes. The level of CD5 antigen detected on T helper cells has been reported to be somewhat higher than that on T cytotoxic/suppressor and B cells. Few, if any, intestinal intraepithelial lymphocytes bearing the  $\gamma\delta$  T-cell receptor express CD5. Phenotypic, anatomical, functional, developmental, and pathogenic characteristics of peripheral CD5+ B cells suggest that they may represent a distinct lineage, known as B-1 cells. The frequency of these CD5+ B cells has been reported to show strain-dependent variation. An additional population of CD5+ B lymphocytes resides in the thymus, where it matures from intrathymic B-cell progenitors. It has been proposed that CD5 is a costimulatory molecule which mediates interactions of cells in the immune system and negatively regulates signal transduction mediated by the T-cell receptor and B-cell receptor.

This antibody is routinely tested by flow cytometric analysis. Other applications were tested at BD Biosciences Pharmingen during antibody development only or reported in the literature.

## Preparation and Storage

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.

The antibody was conjugated with biotin under optimum conditions, and unreacted biotin was removed.

Store undiluted at 4° C and protected from prolonged exposure to light. Do not freeze.

## Application Notes

## Application

Flow cytometry	Routinely Tested
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## Suggested Companion Products

Catalog Number	Name	Size	Clone
553928	Biotin Rat IgG2a $\kappa$ Isotype Control	0.25 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](http://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.

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## References

- Azzam HS, Grinberg A, Lui K, Shen H, Shores EW, Love PE. CD5 expression is developmentally regulated by T cell receptor (TCR) signals and TCR avidity. *J Exp Med.* 1998; 188(12):2301-2311.(Biology)
- Bendelac A, Rivera MN, Park SH, Roark JH. Mouse CD1-specific NK1 T cells: development, specificity, and function. *Annu Rev Immunol.* 1997; 15:535-562. (Biology)
- Bikah G, Carey J, Ciallella JR, Tarakhovsky A, Bondada S. CD5-mediated negative regulation of antigen receptor-induced growth signals in B-1 B cells. *Science.* 1996; 274(5294):1906-1909.(Biology)
- Bikah G, Lynd FM, Aruffo AA, Ledbetter JA, Bondada S. A role for CD5 in cognate interactions between T cells and B cells, and identification of a novel ligand for CD5. *Int Immunol.* 1998; 10(8):1185-1196.(Biology)
- Cibotti R, Punt JA, Dash KS, Sharrow SO, Singer A. Surface molecules that drive T cell development in vitro in the absence of thymic epithelium and in the absence of lineage-specific signals. *Immunity.* 1997; 6(3):245-255.(Biology)
- Hayakawa K, Hardy RR. Normal, autoimmune, and malignant CD5+ B cells: the Ly-1 B lineage. *Annu Rev Immunol.* 1988; 6:197-218.(Biology)
- Hayakawa K, Hardy RR, Parks DR, Herzenberg LA. The "Ly-1 B" cell subpopulation in normal immunodeficient, and autoimmune mice. *J Exp Med.* 1983; 157(1):202-218.(Biology)
- Kantor AB, Herzenberg LA. Origin of murine B cell lineages. *Annu Rev Immunol.* 1993; 11:501-538.(Biology)
- Lanier LL. Natural killer cell receptor signaling. *Curr Opin Immunol.* 2003; 15:308-314.(Biology)
- Ledbetter JA, Herzenberg LA. Xenogeneic monoclonal antibodies to mouse lymphoid differentiation antigens. *Immunol Rev.* 1979; 47:63-90.(Immunogen: Immunoprecipitation)
- Ledbetter JA, Rouse RV, Micklem HS, Herzenberg LA. T cell subsets defined by expression of Lyt-1,2,3 and Thy-1 antigens. Two-parameter immunofluorescence and cytotoxicity analysis with monoclonal antibodies modifies current views. *J Exp Med.* 1980; 152(2):280-295.(Biology: Cytotoxicity)
- Lefrancois L. Phenotypic complexity of intraepithelial lymphocytes of the small intestine. *J Immunol.* 1991; 147(6):1746-1751.(Biology)
- Luo W, Van de Velde H, von Hoegen I, Parnes JR, Thielemans K. Ly-1 (CD5), a membrane glycoprotein of mouse T lymphocytes and a subset of B cells, is a natural ligand of the B cell surface protein Lyb-2 (CD72). *J Immunol.* 1992; 148(6):1630-1634.(Biology: ELISA)
- Masuda K, Makino Y, Cui J, et al. Phenotypes and invariant alpha beta TCR expression of peripheral V alpha 14+ NK T cells. *J Immunol.* 1997; 158(5):2076-2082. (Biology)
- Mori S, Inaba M, Sugihara A, et al. Presence of B cell progenitors in the thymus. *J Immunol.* 1997; 158(9):4193-4199.(Biology)
- Tarakhovsky A, Kanner SB, Hombach J, et al. A role for CD5 in TCR-mediated signal transduction and thymocyte selection. *Science.* 1995; 269(5223):535-537. (Biology)
- van Ewijk W, van Soest PL, van den Engh GJ. Fluorescence analysis and anatomic distribution of mouse T lymphocyte subsets defined by monoclonal antibodies to the antigens Thy-1, Lyt-1, Lyt-2, and T-200. *J Immunol.* 1981; 127(6):2594-2604.(Biology: Immunohistochemistry)
- Yashiro Y, Tai XG, Toyo-oka K, et al. A fundamental difference in the capacity to induce proliferation of naive T cells between CD28 and other co-stimulatory molecules. *Eur J Immunol.* 1998; 28(3):926-935.(Biology)