

Technical Data Sheet

FITC Rat Anti-Mouse Ly-6A/E

Product Information

Material Number:	553335
Alternate Name:	Sca-1
Size:	0.5 mg
Concentration:	0.5 mg/ml
Clone:	E13-161.7
Immunogen:	BALB/c mouse-derived "pre-T" cell hybridoma
Isotype:	Rat (WI) IgG2a, κ
Reactivity:	QC Testing: Mouse
Storage Buffer:	Aqueous buffered solution containing $\leq 0.09\%$ sodium azide.

Description

The E13-161.7 antibody reacts with Ly-6A.2 and Ly-6E.1, which are allelic members of the Ly-6 multigene family. Sca1 (Ly-6A/E), a phosphatidylinositol-anchored protein of about 18 kDa, is expressed on the multipotent hematopoietic stem cell (HSC) in mice with both Ly-6 haplotypes. Sca-1+ HSC are found in the adult bone marrow and fetal liver, but not in the early embryo yolk sac or intraembryonic hematopoietic sites, and can be mobilized to the peripheral blood and spleen in the adult. In mice expressing the Ly-6.2 haplotype (e.g., AKR, C57BL, C57BR, C57L, C58, DBA/2, PL, SJL, SWR, 129), Ly-6A/E is also expressed on distinct subpopulations of bone marrow and peripheral B lymphocytes, myeloid cells, and thymic and peripheral T lymphocytes, on the earliest intrathymic T-cell precursor population, and in several non-hematopoietic tissues. Strains with the Ly-6.1 haplotype (e.g., A, BALB/c, CBA, C3H/He, DBA/1, NZB) have few Ly-6A/E+ resting peripheral lymphocytes, whereas activation of T cells from mice of both Ly-6 haplotypes leads to strong expression of the Sca-1 antigen. Studies with the D7 antibody (Cat. No. 557403) have demonstrated that Ly-6A/E may be involved in the regulation of B and T lymphocyte responses, and it appears to be required for T-cell receptor-mediated T-cell activation. Purified E13-161.7 mAb can block binding of FITC-conjugated D7 antibody (anti-Ly-6A/E, Cat. No. 557405) to mouse splenocytes, but purified mAb D7 (Cat. No. 557403) is unable to block binding of FITC-conjugated E13-161.7 antibody (Cat. No. 553335). Anti-Ly-6A/E (Sca-1) mAb may be used in combination with the Mouse Lineage Panel (Cat. No. 559971) to identify HSC.

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 FITC under optimum conditions, and unreacted FITC was removed.

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

Application Notes

Application

Flow cytometry	Routinely Tested
----------------	------------------

Suggested Companion Products

Catalog Number	Name	Size	Clone
559971	Mouse Lineage Panel	1000 tests	(none)
553929	FITC Rat IgG2a, κ Isotype Control	0.25 mg	R35-95
557405	FITC Rat Anti-Mouse Ly-6A/E	0.1 mg	D7
557403	Purified Rat Anti-Mouse Ly-6A/E	0.1 mg	D7

Product Notices

- Since applications vary, each investigator should titrate the reagent to obtain optimal results.
- Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.
- 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.

BD Biosciences

bdbiosciences.com

United States	Canada	Europe	Japan	Asia Pacific	Latin America/Caribbean
877.232.8995	888.259.0187	32.53.720.550	0120.8555.90	65.6861.0633	55.11.5185.9995

For country-specific contact information, visit bdbiosciences.com/how_to_order/

Conditions: The information disclosed herein is not to be construed as a recommendation to use the above product in violation of any patents. BD Biosciences will not be held responsible for patent infringement or other violations that may occur with the use of our products. Purchase does not include or carry any right to resell or transfer this product either as a stand-alone product or as a component of another product. Any use of this product other than the permitted use without the express written authorization of Becton Dickinson and Company is strictly prohibited.

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Not for resale.

BD, BD Logo and all other trademarks are the property of Becton, Dickinson and Company. ©2006 BD



BD

BD Biosciences

References

- Aihara Y, Buhring HJ, Aihara M, Klein J. An attempt to produce "pre-T" cell hybridomas and to identify their antigens. *Eur J Immunol.* 1986; 16(11):1391-1399. (Immunogen)
- Auerbach R, Huang H, Lu L. Hematopoietic stem cells in the mouse embryonic yolk sac. *Stem Cells.* 1996; 14(3):269-280.(Biology)
- Codias EK, Malek TR. Regulation of B lymphocyte responses to IL-4 and IFN-gamma by activation through Ly-6A/E molecules. *J Immunol.* 1990; 144(6):2197-2204.(Biology)
- Codias EK, Rutter JE, Fleming TJ, Malek TR. Down-regulation of IL-2 production by activation of T cells through Ly-6A/E. *J Immunol.* 1990; 145(5):1407-1414. (Biology)
- Flood PM, Dougherty JP, Ron Y. Inhibition of Ly-6A antigen expression prevents T cell activation. *J Exp Med.* 1990; 172(1):115-120.(Biology)
- Ivanov V, Fleming TJ, Malek TR. Regulation of nuclear factor-kappa B and activator protein-1 activities after stimulation of T cells via glycosylphosphatidylinositol-anchored Ly-6A/E. *J Immunol.* 1994; 153(6):2394-2406.(Biology)
- Jurecic R, Van NT, Belmont JW. Enrichment and functional characterization of Sca-1+WGA+, Lin-WGA+, Lin-Sca-1+, and Lin-Sca-1+WGA+ bone marrow cells from mice with an Ly-6a haplotype. *Blood.* 1993; 82(9):2673-2683.(Biology)
- Kawamoto H, Ohmura K, Katsura Y. Direct evidence for the commitment of hematopoietic stem cells to T, B and myeloid lineages in murine fetal liver. *Int Immunol.* 1997; 9(7):1011-1019.(Biology)
- Malek TR, Ortega G, Chan C, Krocze RA, Shevach EM. Role of Ly-6 in lymphocyte activation. II. Induction of T cell activation by monoclonal anti-Ly-6 antibodies. *J Exp Med.* 1986; 164(3):709-722.(Biology)
- Marcos MA, Morales-Alcelay S, Godin IE, Dieterlen-Lievre F, Copin SG, Gaspar ML. Antigenic phenotype and gene expression pattern of lymphohematopoietic progenitors during early mouse ontogeny. *J Immunol.* 1997; 158(6):2627-2637.(Biology)
- Morrison SJ, Hemmati HD, Wandycz AM, Weissman IL. The purification and characterization of fetal liver hematopoietic stem cells. *Proc Natl Acad Sci U S A.* 1995; 92(22):10302-10306.(Biology)
- Morrison SJ, Wandycz AM, Hemmati HD, Wright DE, Weissman IL. Identification of a lineage of multipotent hematopoietic progenitors. *Development.* 1997; 124(10):1929-1939.(Biology)
- Morrison SJ, Weissman IL. The long-term repopulating subset of hematopoietic stem cells is deterministic and isolatable by phenotype. *Immunity.* 1994; 1(8):661-673.(Biology)
- Morrison SJ, Wright DE, Weissman IL. Cyclophosphamide/granulocyte colony-stimulating factor induces hematopoietic stem cells to proliferate prior to mobilization. *Proc Natl Acad Sci U S A.* 1997; 94(5):1908-1913.(Biology)
- Osawa M, Nakamura K, Nishi N, et al. In vivo self-renewal of c-Kit+ Sca-1+ Lin(low/-) hemopoietic stem cells. *J Immunol.* 1996; 156(9):3207-3214.(Biology)
- Rock KL, Reiser H, Bamezai A, McGrew J, Benacerraf B. The LY-6 locus: a multigene family encoding phosphatidylinositol-anchored membrane proteins concerned with T-cell activation. *Immunol Rev.* 1989; 111:195-224.(Biology)
- Spangrude GJ, Aihara Y, Weissman IL, Klein J. The stem cell antigens Sca-1 and Sca-2 subdivide thymic and peripheral T lymphocytes into unique subsets. *J Immunol.* 1988; 141(11):3697-3707.(Biology)
- Spangrude GJ, Brooks DM. Mouse strain variability in the expression of the hematopoietic stem cell antigen Ly-6A/E by bone marrow cells. *Blood.* 1993; 82(11):3327-3332.(Biology)
- Spangrude GJ, Heimfeld S, Weissman IL. Purification and characterization of mouse hematopoietic stem cells. *Science.* 1988; 241(4861):58-62.(Biology)
- Spangrude GJ, Klein J, Heimfeld S, Aihara Y, Weissman IL. Two monoclonal antibodies identify thymic-repopulating cells in mouse bone marrow. *J Immunol.* 1989; 142(2):425-430.(Biology)
- van de Rijn M, Heimfeld S, Spangrude GJ, Weissman IL. Mouse hematopoietic stem-cell antigen Sca-1 is a member of the Ly-6 antigen family. *Proc Natl Acad Sci U S A.* 1989; 86(12):4634-4638.(Biology)
- Wu L, Antica M, Johnson GR, Scollay R, Shortman K. Developmental potential of the earliest precursor cells from the adult mouse thymus. *J Exp Med.* 1991; 174(6):1617-1627.(Biology)
- Yamamoto Y, Yasumizu R, Amou Y, et al. Characterization of peripheral blood stem cells in mice. *Blood.* 1996; 88(2):445-454.(Biology)