Technical Data Sheet

BV711 Mouse Anti-Rat CD90/Mouse CD90.1

Product	Inform	ation
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563772
Rat Thy-1; Mouse Thy-1.1
50 µg
0.2 mg/ml
OX-7 (also known as OX7)
Rat Thymocyte Thy-1 Antigen
Mouse (BALB/c) IgG1, κ
QC Testing: Rat
Fested in Development: Mouse
Reported Reactivity: Rabbit, Guinea Pig
Aqueous buffered solution containing BSA and ≤0.09% sodium azide.

Description

CD90 (Thy-1) is a GPI-anchored membrane glycoprotein of the Ig superfamily which is involved in signal transduction. The OX-7 monoclonal antibody specifically binds to rat CD90 reported to be expressed by hematopoietic stem cells, early myeloid and erythroid cells, immature B lymphocytes in the bone marrow and peripheral lymphoid organs, thymocytes, recent thymic emigrants (a subset of CD45RCperipheral T lymphocytes), neurons, glomerular mesangial cells, endothelium at inflammatory sites, mast cells, and dendritic cells. Rat dendritic epidermal T cells (DEC) have been reported to be CD90 (Thy-1) negative, unlike those of the mouse.

The OX-7 clone has been reported to crossreact with the mouse CD90.1 (Thy-1.1) alloantigen of the AKR/J and PL strains, but not CD90.2 (Thy-1.2) found on many mouse strains. In the mouse, CD90 is found on thymocytes, most peripheral T lymphocytes, some intraepithelial T lymphocytes (IEL, DEC), hematopoietic stem cells, and neurons, but not B lymphocytes. In addition, there is evidence that CD90 mediates adhesion of mouse thymocytes to mouse thymic stroma. The OX-7 clone has also been reported to crossreact with rabbit and guinea pig thymus, brain, and intestine.

The antibody was conjugated to BD Horizon[™] BV711 which is part of the BD Horizon[™] Brilliant Violet[™] family of dyes. This dye is a tandem fluorochrome of BD Horizon[™] BV421 with an Ex Max of 405-nm and an acceptor dye with an Em Max at 711-nm. BD Horizon[™] BV711 can be excited by the violet laser and detected in a filter used to detect CyTM5.5 / Alexa Fluor® 700-like dyes (eg, 712/20-nm filter). Due to the excitation and emission characteristics of the acceptor dye, there may be moderate spillover into the Alexa Fluor® 700 and PerCP-CyTM5.5 detectors. However, the spillover can be corrected through compensation as with any other dye combination.



Two-color flow cytometric analysis of CD90 expression on rat splenocytes. Lewis rat splenic leucocytes were stained with BD Horizon™ BV711 Mouse Anti-Rat CD90 (Cat. No. 563772) and FITC Rat Anti-Mouse CD3 (Cat. No. 554832/559975) antibodies. A two-color flow cytometric dot plot showing the correlated expression of CD90 versus CD3 was derived from gated events with the forward and side light-scatter characteristics of viable leucocytes. Flow cytometric analysis was performed using a BD™ LSR II Flow Cytometry System.

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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 HorizonTM BV711 under optimum conditions, and unconjugated antibody and free BD HorizonTM

BV711 were removed.

Application Notes

Application				
Flow cytometry	Routinely Tested			
Suggested Compa	nion Products			
Catalog Number Name		Size	Clone	
554656	Stain Buffer (FBS)	500 ml	(none)	
563044	BV711 Mouse IgG1, k Isotype Control	50 µg	X40	
554832	FITC Mouse Anti-Rat CD3	0.5 mg	G4 18	

0.1 mg

100 ml

G4.18

(none)

Product Notices

559975

555899

- 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.

FITC Mouse Anti-Rat CD3

Lysing Buffer

- 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.
- 4. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
- 5. Species testing during development may have been performed with a different format of the same clone. Selected applications have been tested for cross-reactivity.
- 6. Alexa Fluor® is a registered trademark of Molecular Probes, Inc., Eugene, OR.
- 7. Cy is a trademark of Amersham Biosciences Limited.
- 8. Brilliant Violet[™] 711 is a trademark of Sirigen.
- 9. For fluorochrome spectra and suitable instrument settings, please refer to our Multicolor Flow Cytometry web page at www.bdbiosciences.com/colors.
- 10. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.

References

Bañuls MP, Alvarez A, Ferrero I, Zapata A, Ardavin C. Cell-surface marker analysis of rat thymic dendritic cells. *Immunology*. 1993; 79(2):298-304. (Clone-specific: Flow cytometry)

Campbell DG, Gagnon J, Reid KB, Williams AF. Rat brain Thy-1 glycoprotein. The amino acid sequence, disulphide bonds and an unusual hydrophobic region. *Biochem J*. 1981; 195(1):15-30. (Clone-specific: Immunoaffinity chromatography)

Chen-Woan M, Delaney CP, Fournier V, et al. In vitro characterization of rat bone marrow-derived dendritic cells and their precursors. *J Leukoc Biol.* 1996; 59(2):196-207. (Clone-specific: Cell separation, Functional assay, Immunocytochemistry (cytospins))

Crook K and Hunt SV. Enrichment of early fetal-liver hemopoietic stem cells of the rat using monoclonal antibodies against the transferrin receptor, Thy-1, and MRC-OX82. Dev Immunol. 1996; 4:235-246. (Clone-specific: Flow cytometry, Fluorescence activated cell sorting)

Dráberová L, Amoui M, and Dráber P. Thy-1-mediated activation of rat mast cells: the role of Thy-1 membrane microdomains. *Immunology*. 1996; 87(1):141-148. (Clone-specific: Activation, Western blot)

Garnett D, Barclay AN, Carmo AM, Beyers AD. The association of the protein tyrosine kinases p56lck and p60fyn with the glycosyl phosphatidylinositol-anchored proteins Thy-1 and CD48 in rat thymocytes is dependent on the state of cellular activation. *Eur J Immunol.* 1993; 23(10):2540-2544. (Clone-specific: Immunoprecipitation)

Hermans MH, Opstelten D. In situ visualization of hemopoietic cell subsets and stromal elements in rat and mouse bone marrow by immunostaining of frozen sections. J Histochem Cytochem. 1991; 39(12):1627-1634. (Clone-specific: Immunoprecipitation)

Hosseinzadeh H, Goldschneider I. Recent thymic emigrants in the rat express a unique antigenic phenotype and undergo post-thymic maturation in peripheral lymphoid tissues. J Immunol. 1993; 150(5):1670-1679. (Clone-specific: Flow cytometry)

Ishizu A, Ishikura H, Nakamaru Y et al. Thy-1 induced on rat endothelium regulates vascular permeability at sites of inflammation. Int Immunol. 1995; 7:1939-1947. (Clone-specific: Immunoprecipitation)

Kawachi H, Orikasa M, Matsui K, et al. Epitope-specific induction of mesangial lesions with proteinuria by a MoAb against mesangial cell surface antigen. *Clin Exp Immunol.* 1992; 88(3):399-404. (Clone-specific: Immunofluorescence, Western blot)

Liu L, Zhang M, Jenkins C, MacPherson GG. Dendritic cell heterogeneity in vivo: two functionally different dendritic cell populations in rat intestinal lymph can be distinguished by CD4 expression. J Immunol. 1998; 161(3):1146-1155. (Clone-specific: Flow cytometry)

Mason DW, Williams AF. The kinetics of antibody binding to membrane antigens in solution and at the cell surface. *Biochem J.* 1980; 187(1):1-20. (Immunogen: Flow cytometry, Radioimmunoassay)

Nakashima I, Zhang YH, Rahman SM, et al. Evidence of synergy between Thy-1 and CD3/TCR complex in signal delivery to murine thymocytes for cell death. J Immunol. 1991; 147(4):1153-1162. (Clone-specific: Activation, Calcium Flux, Functional assay)

Paul LC, Rennke HG, Milford EL, and Carpenter CB. Thy-1.1 in glomeruli of rat kidneys. Kidney Int. 1984; 25:771-777. (Clone-specific: Electron microscopy, Immunohistochemistry)

Payer E, Elbe A, Stingl G. Circulating CD3+/T cell receptor V gamma 3+ fetal murine thymocytes home to the skin and give rise to proliferating dendritic epidermal T cells. J Immunol. 1991; 146(8):2536-2543. (Clone-specific: Flow cytometry)

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