

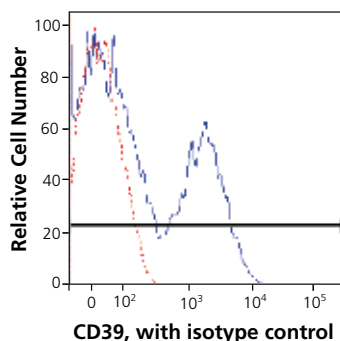
# Human CD39 (clone TÜ66) Monoclonal Antibody

## For enhanced characterization of Tregs

### Features

Available as PE and APC conjugates

Tested in combination with key human Treg markers  
CD4, CD25, and CD127



**Analysis of human CD39 expression in whole blood.** Whole blood samples were stained at room temperature in the dark for 20 minutes with FITC CD4 clone RPA-T4 (Cat. No. 555346), PE-Cy™7 CD25 clone M-A251 (Cat. No. 557741), PE CD127 clone hIL-7R-M21 (Cat. No. 557938), and APC CD39 clone TÜ66 (Cat. No. 560239). The cells were then lysed and washed twice in 1% FBS wash buffer, and samples were run on a BD FACSCanto™ system.

The BD Pharmingen™-brand anti-human CD39 (clone TÜ66) monoclonal antibody is a recently identified marker for human regulatory T cells (Tregs) and is available in PE and APC formats for use in flow cytometry. TÜ66 recognizes ENTPD1, an ectoenzyme that belongs to the family of ectonucleoside triphosphate diphosphohydrolases (E-NTPDases). The members of this family are involved in extracellular nucleotide catabolism, controlling the extracellular nucleoside triphosphate pool (NTPs).<sup>1</sup>

### A new marker for Treg research

Previously considered to be localized primarily on B cells, dendritic cells, and certain subsets of T cells, CD39 was recently shown to be co-expressed with FoxP3 CD4<sup>+</sup> Tregs in both humans and mice.<sup>2</sup> This discovery is adding to the growing list of cell surface markers such as CD25, CD45RA, HLA-DR, and CD127, which are important in the identification and functional characterization of CD4<sup>+</sup> Tregs.

### CD39 and extracellular ATP

Extracellular ATP and its metabolites are potent regulatory molecules modulating a broad range of cell and organ functions. Cellular ATP release is an indicator of tissue destruction and a “danger signal” that activates the immune response. CD39 hydrolyzes extracellular ATP (or other triphosphates) into its respective nucleosides such as AMP. Extracellular nucleoside monophosphates are, in turn, rapidly degraded to nucleosides (eg, adenosine) by soluble or membrane bound ecto-5'-nucleotidases (CD73). Pericellular adenosine then mediates anti-inflammatory T cell responses. Co-expression of CD39 and CD73 is thought to be one of the key mechanisms of immunosuppression mediated by Tregs.<sup>3,4</sup>

Visit [bdbiosciences.com/treg](http://bdbiosciences.com/treg) for more information.

# Human CD39 Monoclonal Antibody

## References

1. Mizumoto N, Kumamoto T, Robson SC, et al. CD39 is the dominant Langerhans cell-associated ecto-NTPDase: modulatory roles in inflammation and immune responsiveness. *Nat Med.* 2002;8:358-365.
2. Borsellino G, Kleinewietfeld M, Di Mitri D, et al. Expression of ectonucleotidase CD39 by Foxp3<sup>+</sup> Treg cells: hydrolysis of extracellular ATP and immune suppression. *Blood.* 2007;110(4):1225-1232.
3. Deaglio S, Dwyer KM, Gao W, et al. Adenosine generation catalyzed by CD39 and CD73 expressed on regulatory T cells mediates immune suppression. *J Exp Med.* 2007;204(6):1257-1265.
4. Airas L, Hellman J, Salmi M, et al. CD73 is involved in lymphocyte binding to the endothelium: characterization of lymphocyte-vascular adhesion protein 2 identifies it as CD73. *J Exp Med.* 1995;182:1603-1608.

## Ordering Information

Description	Clone	Isotype	Format	Quantity	Cat. No.
BD Pharmingen Mouse Anti-Human CD39	TÜ66	Mouse IgG <sub>2b</sub> , κ	PE	100 Tests	555464
			APC	100 Tests	560239

## Related Human Reagents

Description	Clone	Isotype	Format	Quantity	Cat. No.
CD45RA	HI100	Mouse IgG <sub>2b</sub> , κ	FITC	100 Tests	555488
			PE	100 Tests	555489
			APC	100 Tests	550855
			PE-Cy <sup>TM</sup> 5	100 Tests	555490
CD73	AD2	Mouse IgG <sub>1</sub> , κ	Purified	0.1 mg	550256
			PE	100 Tests	550257
CD127	hIL-7R-M21	Mouse IgG <sub>1</sub> , κ	Biotin	100 Tests	558633
			Alexa Fluor® 647	100 Tests	558598
			PE	100 Tests	557938
HLA-DR	G46-6 (L243)	Mouse IgG <sub>2b</sub> , κ	FITC	100 Tests	555811
			PE	100 Tests	555812
			PE-Cy <sup>TM</sup> 5	100 Tests	555813
	L243	Mouse IgG <sub>2b</sub> , κ	PE-Cy <sup>TM</sup> 7	100 Tests	335795
			APC-Cy <sup>TM</sup> 7	100 Tests	335796
			PerCP-Cy5.5	100 Tests	339194
FoxP3	259D/C7	Mouse IgG <sub>1</sub>	PE	100 Tests	560046
			Alexa Fluor® 488	100 Tests	560047
			Alexa Fluor® 647	100 Tests	560045
FoxP3 Staining Kit - Alexa Fluor® 488	259D/C7, RPA-T4, M-A251	Mouse IgG <sub>1</sub> , Mouse IgG <sub>1</sub> , κ, Mouse IgG <sub>1</sub> , κ	Alexa Fluor® 488, APC, PE	100 tests	560131
FoxP3 Staining Kit - Alexa Fluor® 647	M-A251, 259D/C7, RPA-T4	Mouse IgG <sub>1</sub> , κ, Mouse IgG <sub>1</sub> , κ, Mouse IgG <sub>1</sub> , κ	PE, Alexa Fluor® 647, FITC	100 tests	560132
FoxP3 Staining Kit - PE	259D/C7, RPA-T4, M-A251	Mouse IgG <sub>1</sub> , Mouse IgG <sub>1</sub> , κ, Mouse IgG <sub>1</sub> , κ	PE, FITC, APC	100 tests	560133
Human FoxP3 Buffer Set				100 Tests	560098
Human Regulatory T Cell Cocktail contains CD4 FITC (SK3), CD25 PE-Cy7 (2A3), and CD127 Alexa Fluor® 647 (hIL-7R-M21)	SK3, 2A3, hIL-7R-M21	Mouse IgG <sub>1</sub> , κ, Mouse IgG <sub>1</sub> , κ, Mouse IgG <sub>1</sub> , κ	FITC, PE-Cy <sup>TM</sup> 7, Alexa Fluor® 64	50 tests	560249

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