Technical Data Sheet

BUV737 Mouse Anti-Human CD39

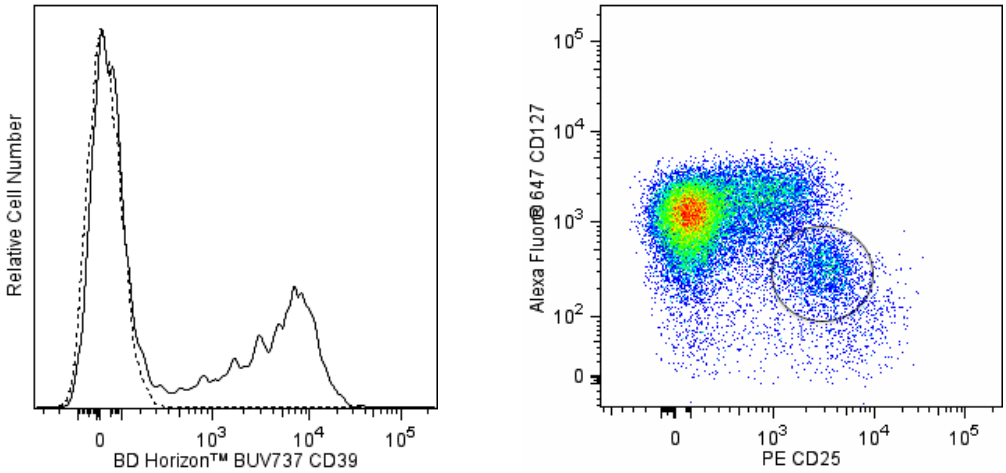
Product Information

Material Number:	**564726**
Alternate Name:	ENTPD1; NTPDase-1; Ecto-ATPase 1; Ecto-ATPDase 1
Size:	100 Tests
Vol. per Test:	5 µl
Clone:	TU66 (also known as Tü 66, Tü66)
Isotype:	Mouse IgG2b, κ
Reactivity:	QC Testing: Human
Workshop:	IV A54
Storage Buffer:	Aqueous buffered solution containing ≤0.09% sodium azide.

Description

The TU66 monoclonal antibody specifically recognizes human CD39 which is also known as Ectonucleoside triphosphate diphosphohydrolase 1 (NTPDase 1), Ecto-ATP diphosphohydrolase 1 (Ecto-ATPDase 1), or Ecto-apyrase. CD39 is an integral membrane glycoprotein with two transmembrane domains, N- and C-terminal cytoplasmic tails, and an extracellular region that contains the NTPDase 1 active site. CD39 is encoded by *ENTPD1* which belongs to the ectoenzyme family. CD39 is variably expressed on activated T cells and B cells, regulatory T cells (Treg), dendritic cells, Langerhans cells, NK cells, monocytes, macrophages, endothelial cells, and granulocytes. CD39 acts on extracellular nucleoside triphosphates and diphosphates including ATP and ADP that are hydrolyzed into AMP. Through cell surface CD73 (Ecto-5'-nucleotidase), regulatory T cells can act on extracellular AMP to generate immunosuppressive adenosine. CD39 is involved in the control of the extracellular pool of phosphorylated nucleosides, the suppression of inflammation and immunity, and the regulation of platelet activation.

The antibody was conjugated to BD Horizon BUV737 which is part of the BD Horizon Brilliant™ Ultraviolet family of dyes. This dye is a tandem fluorochrome with an Ex Max near 350 nm and an Em Max near 737 nm. BD Horizon Brilliant BUV737 can be excited by the ultraviolet laser (355 nm) and detected with a 740/35 nm filter. Due to the excitation of the acceptor dye by the red laser line, there may be significant spillover into red laser detectors with filters in the 700-720 nm range.



Multicolor flow cytometric analysis of CD39 expression on peripheral blood CD4+CD25+CD127low T cells. *Human peripheral blood mononuclear cells were stained with FITC Mouse Anti-Human CD4 (Cat. No. 555346/561005/561842), PE Mouse Anti-Human CD25 (Cat. No. 555432/557138/560989), Alexa Fluor® 647 Anti-Human CD127 (Cat No. 558598/560905) antibodies, and either BD Horizon™ BUV737 Mouse IgG2b, κ Isotype Control (Cat. No. 564429; dashed line histogram) or BD Horizon BUV737 Mouse Anti-Human CD39 antibody (Cat. No. 564726; solid line histogram). The fluorescence histogram showing CD39 (or Ig Isotype control staining) (Left Panel) were derived from CD4+CD25+CD127low gated events (ie, cells with a Regulatory T cell immunophenotype; Right Panel) with the forward and side light-scatter characteristics of viable lymphocytes. Flow cytometric analysis was performed using a BD™ LSR II Flow Cytometer System.*

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 Horizon BUV737 under optimum conditions, and unconjugated antibody and free BD Horizon BUV737 were removed.

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Application Notes

Application

Flow cytometry	Routinely Tested

Recommended Assay Procedure:

BD™ CompBeads can be used as surrogates to assess fluorescence spillover (Compensation). When fluorochrome conjugated antibodies are bound to BD CompBeads, they have spectral properties very similar to cells. However, for some fluorochromes there can be small differences in spectral emissions compared to cells, resulting in spillover values that differ when compared to biological controls. It is strongly recommended that when using a reagent for the first time, users compare the spillover on cells and BD CompBead to ensure that BD CompBeads are appropriate for your specific cellular application.

For optimal and reproducible results, BD Horizon Brilliant Stain Buffer should be used anytime two or more BD Horizon Brilliant dyes are used in the same experiment. Fluorescent dye interactions may cause staining artifacts which may affect data interpretation. The BD Horizon Brilliant Stain Buffer was designed to minimize these interactions. More information can be found in the Technical Data Sheet of the BD Horizon Brilliant Stain Buffer (Cat. No. 563794/566349) or the BD Horizon Brilliant Stain Buffer Plus (Cat. No. 566385).

Note: When using high concentrations of antibody, background binding of this dye to erythroid cell subsets (mature erythrocytes and precursors) has been observed. For researchers studying these cell populations, or in cases where light scatter gating does not adequately exclude these cells from the analysis, this background may be an important factor to consider when selecting reagents for panel(s).

Suggested Companion Products

Catalog Number	Name	Size	Clone
563794	Brilliant Stain Buffer	100 Tests	(none)
555346	FITC Mouse Anti-Human CD4	100 Tests	RPA-T4
561005	FITC Mouse Anti-Human CD4	25 Tests	RPA-T4
555432	PE Mouse Anti-Human CD25	100 Tests	M-A251
557138	PE Mouse Anti-Human CD25	50 Tests	M-A251
560989	PE Mouse Anti-Human CD25	25 Tests	M-A251
558598	Alexa Fluor® 647 Mouse anti-Human CD127	100 Tests	HIL-7R-M21
560905	Alexa Fluor® 647 Mouse Anti-Human CD127	25 Tests	HIL-7R-M21
564429	BUV737 Mouse IgG2b, κ Isotype Control	50 µg	27-35
554656	Stain Buffer (FBS)	500 mL	(none)
554657	Stain Buffer (BSA)	500 mL	(none)
566349	Brilliant Stain Buffer	1000 Tests	(none)
566385	Brilliant Stain Buffer Plus	1000 Tests	(none)

Product Notices

1. This reagent has been pre-diluted for use at the recommended Volume per Test. We typically use 1 × 10^6 cells in a 100-µl experimental sample (a test).
2. An isotype control should be used at the same concentration as the antibody of interest.
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. For fluorochrome spectra and suitable instrument settings, please refer to our Multicolor Flow Cytometry web page at www.bdbiosciences.com/colors.
5. Please refer to http://regdocs.bd.com to access safety data sheets (SDS).
6. BD Horizon Brilliant Stain Buffer is covered by one or more of the following US patents: 8,110,673; 8,158,444; 8,575,303; 8,354,239.
7. BD Horizon Brilliant Ultraviolet 737 is covered by one or more of the following US patents: 8,110,673; 8,158,444; 8,227,187; 8,575,303; 8,354,239.
8. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.

References

Ziegler A, Uchanska-Ziegler B, Stein H, Hadam M. A mAb A54 (Tü 66) recognizing a novel avtivation antigen. In: Knapp W. W. Knapp .. et al., ed. *Leucocyte typing IV : white cell differentiation antigens.* Oxford New York: Oxford University Press; 1989:467-468. (Clone-specific: Immunoprecipitation)

Borsellino G, Kleinewietfeld M, Di Mitri D, et al. Expression of ectonucleotidase CD39 by Foxp3+ Treg cells: hydrolysis of extracellular ATP and immune suppression. *Blood.* 2007; (Biology)

Duensing S, Kirshner H, Atzpodien J. CD39 as a novel marker of in vivo immune activation. *Blood.* 1994; 83(12):3826-3827. (Biology)

Knapp W. W. Knapp .. et al., ed. *Leucocyte typing IV : white cell differentiation antigens.* Oxford New York: Oxford University Press; 1989:1-1182. (Clone-specific: Flow cytometry)

Stein H, Lennert K, Mason DY, Liangru S, Ziegler A. Immature sinus histiocytes. Their identification as a novel B-cell population. *Am J Pathol.* 1984; 117(1):44-52. (Clone-specific: Immunohistochemistry)