Technical Data Sheet

# BV421 Mouse Anti-Human CD39

## Product Information

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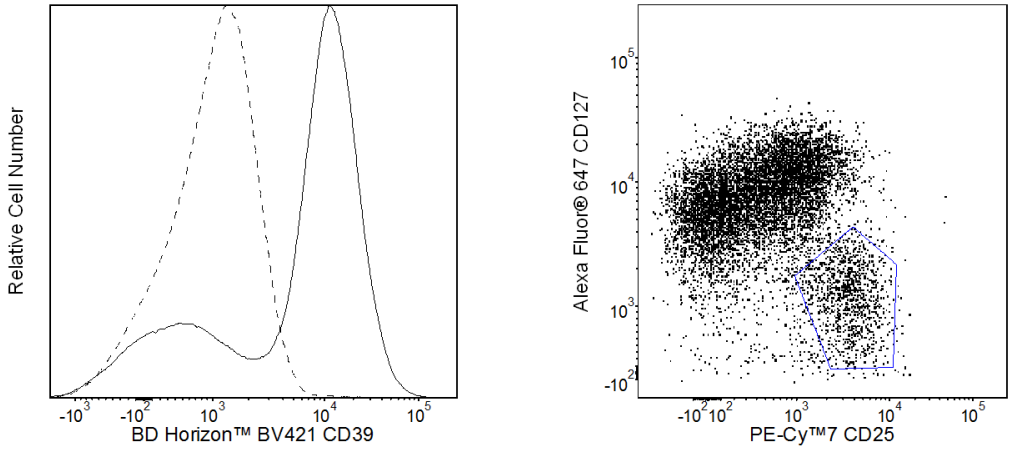
|---|---|
| **Material Number:** | **563679** |
| **Alternate Name:** | ENTPD1; NTPDase-1; Ecto-ATPase 1; Ecto-ATPDase 1 |
| **Size:** | 100 tests |
| **Vol. per Test:** | 5 µl |
| **Clone:** | TU66 (also known as Tü 66, Tü66) |
| **Isotype:** | Mouse IgG2b, κ |
| **Reactivity:** | QC Testing: Human |
| **Workshop:** | IV A54 |
| **Storage Buffer:** | Aqueous buffered solution containing BSA and ≤0.09% sodium azide. |

## Description

The TU66 monoclonal antibody reacts with human CD39 also known as ectonucleoside triphosphate diphosphohydrolase 1 (ENTPD1) an ectoenzyme that degrades ATP to AMP. It is a member of the family of ectonucleoside triphosphate dihydrolases (E-NTPDases) known to be involved in regulation of extracellular nucleotide catabolism, controlling the extracellular nucleoside triphosphate pool (NTP). CD39 is expressed on a subset of T cells, B cells and dendritic cells with weak staining of monocytes and granulocytes. Recently, CD39 has been found to be expressed primarly by immune-suppressive Foxp3(+) regulatory T (Treg) cells in both human and mice. In humans, CD39 is restricted to a subset of Foxp3+ regulatory effector/memory-like T cells. In mice, the enzyme is present on most if not all CD4+CD25+ cells and CD39 expression is driven by Foxp3. It is thought that CD39 allows Treg cells to enter inflamed areas where high levels of ATP are present.

The antibody was conjugated to BD Horizon™ BV421 which is part of the BD Horizon™ Brilliant Violet™ family of dyes. With an Ex Max of 407-nm and Em Max at 421-nm, BD Horizon™ BV421 can be excited by the violet laser and detected in the standard Pacific Blue™ filter set (eg, 450/50-nm filter). BD Horizon™ BV421 conjugates are very bright, often exhibiting a 10 fold improvement in brightness compared to Pacific Blue™ conjugates.




***Multicolor flow cytometric analysis of CD39 expression on peripheral blood CD4+CD25+CD127low T cells.*** *Whole human peripheral blood was stained with FITC Mouse Anti-Human CD4 (Cat. No. 555346/561005/561842), PE-Cy™7 Mouse Anti-Human CD25 (Cat. No. 557741/560920/561405), Alexa Fluor® 647 Mouse Anti-Human CD127 (Cat No. 558598/560905) antibodies, and either BD Horizon™ BV421 Mouse Anti-Human CD39 antibody (Cat. No. 563679; solid line histogram) or BD Horizon™ BV421 Mouse IgG2b, κ Isotype Control (Cat. No. 562748; dashed line histogram) (Left Panel). Erythrocytes were lysed with BD Pharm Lyse™ Lysing Buffer (Cat. No. 555899). The fluorescence histograms 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 LSRFortessa™ Cell Analyzer System.*

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| 877.232.8995 | 800.979.9408 | 32.53.720.550 | 0120.8555.90 | 65.6861.0633 | 55.11.5185.9995 |

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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 Horizon™ BV421 under optimum conditions, and unconjugated antibody and free BD Horizon™ BV421 were removed.

## Application Notes

**Application**

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| Flow cytometry | Routinely Tested |

## Suggested Companion Products

| Catalog Number | Name | Size | Clone |
|---|---|---|---|
| 554656 | Stain Buffer (FBS) | 500 ml | (none) |
| 562748 | BV421 Mouse IgG2b, κ Isotype Control | 50 µg | 27-35 |
| 557741 | PE-Cy™7 Mouse Anti-Human CD25 | 100 tests | M-A251 |
| 560920 | PE-Cy™7 Mouse Anti-Human CD25 | 25 tests | M-A251 |
| 561405 | PE-Cy™7 Mouse Anti-Human CD25 | 50 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 |
| 555899 | Lysing Buffer | 100 ml | (none) |
| 349202 | FACS Lysing Solution | | (none) |
| 555346 | FITC Mouse Anti-Human CD4 | 100 tests | RPA-T4 |
| 561005 | FITC Mouse Anti-Human CD4 | 25 tests | RPA-T4 |
| 561842 | FITC Mouse Anti-Human CD4 | 500 tests | RPA-T4 |

## 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. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
3. An isotype control should be used at the same concentration as the antibody of interest.
4. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.
5. 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.
6. For fluorochrome spectra and suitable instrument settings, please refer to our Multicolor Flow Cytometry web page at www.bdbiosciences.com/colors.
7. Cy is a trademark of Amersham Biosciences Limited.
8. Alexa Fluor® is a registered trademark of Molecular Probes, Inc., Eugene, OR.
9. Pacific Blue™ is a trademark of Molecular Probes, Inc., Eugene, OR.
10. Brilliant Violet™ 421 is a trademark of Sirigen.

## References


Borsellino G, Kleinewietfeld M, Di Mitri D, Sternjak A, Diamantini A, Giometto R, Hopner S, Centonze D, Bernardi G, Dell'acqua ML, Rossini PM, Batt. 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, Dörken B, Gilks WR, et al, ed. *Leucocyte Typing IV.* New York, NY: Oxford University Press; 1989:1-1182. (Clone-specific)

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)

Ziegler A, Uchanska-Ziegler B, Stein H, Hadam M. A mAb A54 (Tü 66) recognizing a novel avtivation antigen. In: Knapp W, Dörken B, Gilks WR, et al, ed. *Leucocyte Typing IV: White Cell Differentiation Antigens.* New York, NY: Oxford University Press; 1989:467-468. (Clone-specific: Immunoprecipitation)



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