Technical Data Sheet

BV421 Rat Anti-Mouse CD45RB

Product Information

Material Number: 562849
Alternate Name: Ptprc; CD45R; CD45; LCA; Leukocyte common antigen; Ly-5; Lyt-4
Size: 50 µg
Concentration: 0.2 mg/ml
Clone: 16A
Immunogen: Cloned Mouse TH2 cell lines
Isotype: Rat IgG2a, κ
Reactivity: Mouse
Storage Buffer: Aqueous buffered solution containing BSA and ≤0.09% sodium azide.

Description

The 16A monoclonal antibody specifically recognizes an exon B-dependent epitope of CD45 lycoprotein, which is found at high density on peripheral B cells, T cytotoxic-suppressor cells, a subset of T helper cells, and most thymocytes, and at low density on macrophages and dendritic cells. CD45RB expression appears to decrease as T lymphocytes progress from naive to memory cells. In addition, subpopulations of CD4+ T cells which express high and low levels of CD45RB have different cytokine secretion profiles and mediate distinct immunological functions. CD25+ D4+ regulatory T (Treg) lymphocytes which control intestinal inflammation and autoimmunity express low levels of CD45RB. CD45 is a member of the Protein Tyrosine Phosphatase (PTP) family; its intracellular (COOH-terminal) region contains two PTP catalytic domains, and the extracellular region is highly variable due to alternative splicing of exons (designated A, B, and C, respectively) as well as differing levels of glycosylation. The CD45 isoforms detected in the mouse are cell type-, maturation-, and activation state-specific. The CD45 isoforms play complex roles in T-cell and B-cell antigen receptor signal transduction.

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.

![Flow cytometric analysis of CD45RB expression on mouse thymocytes](image1)

Flow cytometric analysis of CD45RB expression on mouse thymocytes. Mouse thymocytes were stained with either BD Horizon™ BV421 Rat Anti-Mouse CD45RB antibody (Cat. No. 562849, solid line histogram) or BD Horizon™ BV421 Rat IgG2a, κ Isotype Control (Cat. No. 562602, dashed line histogram). The fluorescence histograms were derived from gated events with the forward and side light-scatter characteristics of viable cells. Flow cytometry was performed using a BD™ LSR II Flow Cytometer System.

![Immunohistofluorescent analysis of CD45RB expression by cells within C57BL/6 mouse spleen](image2)

Immunohistofluorescent analysis of CD45RB expression by cells within C57BL/6 mouse spleen (right panel). A mouse spleen cryosection (5 µm) was fixed with BD Cytofix™ Fixation Buffer (Cat. No. 554655), blocked with 5% goat serum and 1% BSA diluted in 1x PBS, and stained with BD Horizon™ BV421 Rat Anti-Mouse CD45RB antibody (Cat. No. 562849, pseudo-colored green) and Alexa Fluor® 647 Rat Anti-Mouse CD3 Molecular Complex antibody (Cat. No. 557869, pseudo-colored red). Images were captured on a standard epifluorescence microscope. Original magnification, 20x.
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

<table>
<thead>
<tr>
<th>Application</th>
<th>Routinely Tested</th>
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<tbody>
<tr>
<td>Flow cytometry</td>
<td>Immunofluorescence</td>
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Recommended Assay Procedure:
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).

Suggested Companion Products

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Name</th>
<th>Size</th>
<th>Clone</th>
</tr>
</thead>
<tbody>
<tr>
<td>554656</td>
<td>Stain Buffer (FBS)</td>
<td>500 mL</td>
<td>(none)</td>
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<tr>
<td>562602</td>
<td>BV421 Rat IgG2a, κ Isotype Control</td>
<td>50 µg</td>
<td>R35-95</td>
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<tr>
<td>555899</td>
<td>Lysing Buffer</td>
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<tr>
<td>554657</td>
<td>Stain Buffer (BSA)</td>
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<tr>
<td>349202</td>
<td>BD FACSTM Lysing Solution</td>
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<tr>
<td>564907</td>
<td>DAPI Solution</td>
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<tr>
<td>563794</td>
<td>Brilliant Stain Buffer</td>
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<tr>
<td>554655</td>
<td>Fixation Buffer</td>
<td>100 mL</td>
<td>(none)</td>
</tr>
<tr>
<td>557869</td>
<td>Alexa Fluor® 647 Rat Anti-Mouse CD3 Molecular Complex</td>
<td>0.1 mg</td>
<td>17A2</td>
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Product Notices
1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
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. 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.
5. For fluorochrome spectra and suitable instrument settings, please refer to our Multicolor Flow Cytometry web page at www.bdbiosciences.com/colors.
6. Pacific Blue™ is a trademark of Molecular Probes, Inc., Eugene, OR.
7. Aqua Fluor® is a registered trademark of Molecular Probes, Inc., Eugene, OR.
8. BD Horizon Brilliant Violet 421 is covered by one or more of the following US patents: 8,158,444; 8,362,193; 8,575,303; 8,354,239.
9. 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.

References