Mouse CD45 Biotinylated Antibody

Monoclonal Rat IgG_{2B} Clone # 30-F11

Catalog Number: BAM114

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse CD45. Detects both alloantigens and all isoforms of CD45.
Source	Monoclonal Rat IgG_{2B} Clone # 30-F11
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse thymus or spleen
Endotoxin Level	<0.10 EU per 1 µg of the antibody by the LAL method.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

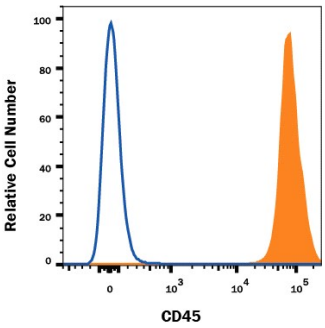
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Flow Cytometry	0.25 µg/10^6 cells	See Below
Immunohistochemistry	8-25 µg/mL	See Below
Complement-dependent Cytotoxicity	Ledbetter, J.A. and L.A. Herzenberg (1979) Immunol. Rev. **47**:63.	
Immunoprecipitation	Ledbetter, J.A. and L.A. Herzenberg (1979) Immunol. Rev. **47**:63.	

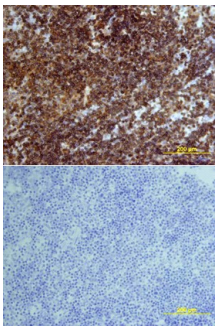
DATA

Flow Cytometry



Detection of CD45 in Mouse Splenocytes by Flow Cytometry. Mouse splenocytes were stained with Rat Anti-Mouse CD45 Biotinylated Monoclonal Antibody (Catalog # BAM114, filled histogram) or isotype control antibody (Catalog # IC013B, open histogram), followed by Streptavidin-Allophycocyanin (Catalog # F0050). View our protocol for Staining Membrane-associated Proteins.

Immunohistochemistry



CD45 in Mouse Thymus. CD45 was detected in perfusion fixed frozen sections of mouse thymus using Rat Anti-Mouse CD45 Biotinylated Monoclonal Antibody (Catalog # BAM114) at 25 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Rat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS017) and counterstained with hematoxylin (blue). Lower panel shows a lack of labeling if primary antibodies are omitted and tissue is stained only with secondary antibody followed by incubation with detection reagents. View our protocol for Chromogenic IHC Staining of Frozen Tissue Sections.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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BACKGROUND

CD45, previously called LCA (leukocyte common antigen), T200, or Ly5 in mouse, is member C of the class 1 (receptor-like) protein tyrosine phosphatase family (PTPRC) (1, 2). It is a variably glycosylated 180-220 kDa transmembrane protein that is abundantly expressed on all nucleated cells of hematopoietic origin (1-3). CD45 has several isoforms, expressed according to cell type, developmental stage and antigenic exposure (1-5). The longest form, CD45RABC (called B220 in mouse), is expressed on B lymphocytes (5). The mouse CD45RABC cDNA encodes 1291 amino acids (aa), including a 23 aa signal sequence, a 541 aa extracellular domain containing the splicing region, a cysteine-rich region and two fibronectin type III domains, a 22 aa transmembrane sequence, and a 705 aa cytoplasmic domain that contains two phosphatase domains, D1 and D2. Only D1 has phosphatase activity. CD45R0 is the shortest form, lacking exons 4, 5 and 6 which encode aa 30-169. It is expressed on memory cells, while intermediate sizes are expressed on other T cells (3, 4, 6). CD45 has been best studied in T cells, where it determines T cell receptor signaling thresholds (3, 6-8). CD45 is moved into or out of the immunological synapse (IS) membrane microdomain depending on the relative influence of interaction with the extracellular galectin lattice or the intracellular actin cytoskeleton (9, 10). Galectin interaction can be fine-tuned by varying usage of the heavily O-glycosylated spliced regions and sialylation of N-linked carbohydrates (4, 9). Within the IS, CD45 dephosphorylates and negatively regulates the src family kinase, LCK (8-10). In other leukocytes, CD45 influences differentiation and links immunoreceptor signaling with cytokine secretion and cell survival, partially overlapping in function with DEP-1/CD148 (11-14). CD45 deletion causes in severe immunodeficiency, while point mutations may be associated with autoimmune disorders (6, 7).

References:

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