Human CD45 Antibody

Monoclonal Mouse IgG_{2A} Clone # 998215

Catalog Number: MAB14302

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human CD45 in direct ELISA.
Source	Monoclonal Mouse IgG_{2A} Clone # 998215
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human CD45 Thr24-Asn575 Accession # P08575
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS.

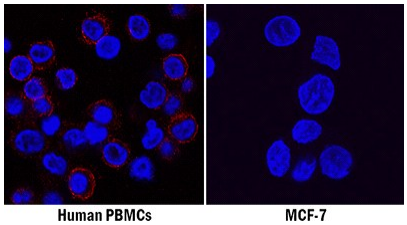
APPLICATIONS

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
Immunocytochemistry	8-25 µg/mL	See Below
Immunohistochemistry	5-25 µg/mL	See Below

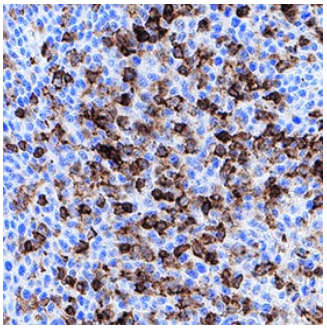
DATA

Immunocytochemistry



CD45 in Human PBMCs and MCF-7 Cell Line. CD45 was detected in immersion fixed human peripheral blood mononuclear cells (positive staining; left panel) and MCF-7 human breast cancer cell line (negative staining; right panel) using Mouse Anti-Human CD45 Monoclonal Antibody (Catalog # MAB14302) at 8 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # NL007) and counterstained with DAPI (blue). Specific staining was localized to cell surfaces. View our protocol for Fluorescent ICC Staining of Non-adherent Cells.

Immunohistochemistry



CD45 in Human Tonsil. CD45 was detected in immersion fixed paraffin-embedded sections of human tonsil using Mouse Anti-Human CD45 Monoclonal Antibody (Catalog # MAB14302) at 15 µg/mL for 1 hour at room temperature followed by incubation with the Anti-Mouse IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC001). Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using Antigen Retrieval Reagent-Basic (Catalog # CTS013). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to cytoplasm in lymphocytes. View our protocol for IHC Staining with VisUCyte HRP Polymer Detection Reagents.

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. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
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 mice, 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 CD45RABC cDNA encodes 1304 amino acids (aa), including a 23 aa signal sequence, a 552 aa extracellular domain containing the splicing region, a cysteine-rich region and two fibronectin type III domains, a 22 aa transmembrane sequence, and a 707 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 32-191. 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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