PRODUCT INFORMATION

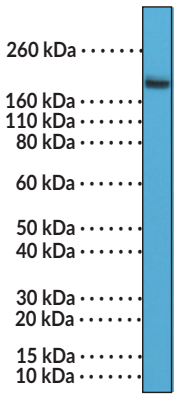
CD45 (C-Term) Rabbit Monoclonal Antibody (Clone RM291)

Item No. 32236

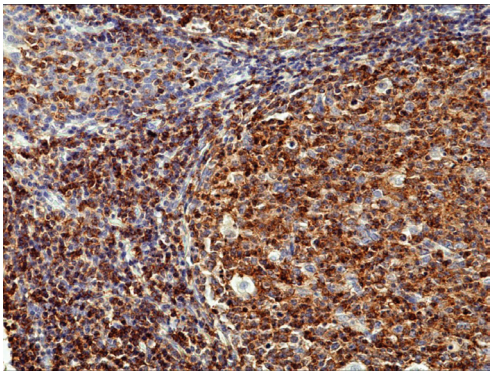
Overview and Properties

Contents:	This vial contains 100 µl of protein A-affinity purified monoclonal antibody.
Synonyms:	LCA, Leukocyte Common Antigen, Ly-5, PTPRC
Immunogen:	Peptide from the C-terminal region of human CD45
Cross Reactivity:	(+) CD45
Species Reactivity:	(+) Human
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS, with 50% glycerol, 1% BSA, and 0.09% sodium azide
Clone:	RM291
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution is 1:100-1:200 for IHC and 1:1,000-1:2,000 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



WB of Jurkat cell lysates using CD45 (C-Term) Rabbit Monoclonal Antibody (Clone RM291) at a dilution of 1:2,000.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human tonsil tissue using CD45 (C-Term) Rabbit Monoclonal Antibody (Clone RM291) at a 1:400 dilution.

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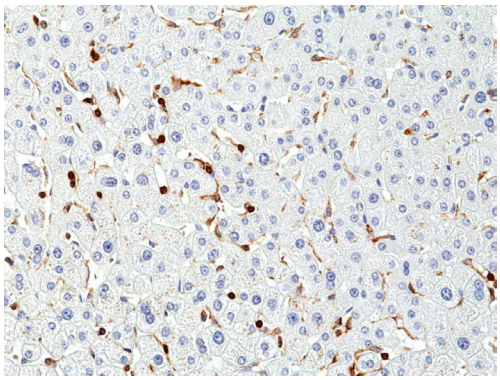

Immunohistochemical staining of formalin-fixed and paraffin-embedded human liver tissue using CD45 (C-Term) Rabbit Monoclonal Antibody (Clone RM291) at a 1:400 dilution.

Description

CD45 is a type I transmembrane glycoprotein that is encoded by the PTPRC gene in humans and is abundantly expressed on nucleated hematopoietic cells.[1] It contains an extracellular region that binds to glycoproteins and exists in various isoforms in a cell type-, differentiation state-, and activation state-dependent manner.[1,2] CD45 also contains two highly conserved cytoplasmic protein tyrosine phosphatase domains that regulate intracellular signaling.[1] CD45 functions as a negative or positive regulator of antigen receptor signaling in T and B cells through dephosphorylation of Src family kinases in a cell type- and differentiation state-dependent manner.[2] It also dephosphorylates JAK kinases, inhibiting cytokine and chemokine signaling in leukocytes. Mutations in PTPRC are associated with severe combined immunodeficiency (SCID) in mice and humans.[3-5] The number of CD45+ cells is increased in postmortem brain from patients with Alzheimer's disease.[6] Increased levels of the CD45 isoform CD45RO have been found on CD19+ lamina propria B cells isolated from patients with Crohn's disease.[2] Fluorescently labeled versions of CD45 have commonly been used in flow cytometry as a pan leukocyte marker and to identify certain subsets of hematopoietic stem cells (HSCs).[7] Cayman's CD45 Monoclonal Antibody (Clone RM291) can be used for immunohistochemistry (IHC) and Western blot (WB) applications.

References

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3. Hermiston, M.L., Xu, Z., and Weiss, A. CD45: A critical regulator of signaling thresholds in immune cells. *Annu. Rev. Immunol.* **21(1)**, 107-137 (2003).
4. Kung, C., Pingel, J.T., Heikinheimo, M., *et al.* Mutations in the tyrosine phosphatase CD45 gene in a child with severe combined immunodeficiency disease. *Nat. Med.* **6(3)**, 343-345 (2000).
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7. McKinney-Freeman, S.L., Naveiras, O., Yates, F., *et al.* Surface antigen phenotypes of hematopoietic stem cells from embryos and murine embryonic stem cells. *Blood* **114(2)**, 268-278 (2009).

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