PRODUCT INFORMATION

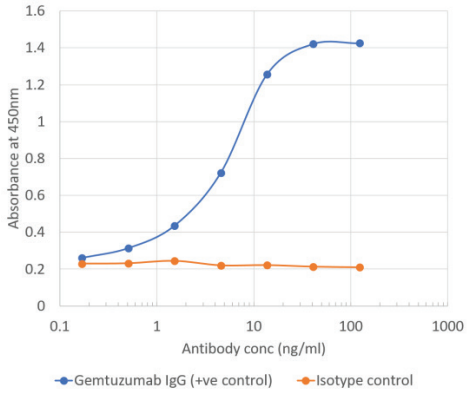
CD33 Chimeric Monoclonal Antibody CD33 Chimeric Monoclonal Antibody (Clone hP67.6 (Gemtuzumab))

Item No. 37159

Overview and Properties

Contents:	This vial contains 200 µg of protein A-affinity purified monoclonal antibody.
Synonyms:	Cluster of Differentiation 33, Myeloid Cell Surface Antigen CD33, Sialic Acid-binding Ig-like Lectin 3, Siglec-3
Immunogen:	Recombinant human CD33
Cross Reactivity:	(+) CD33
Species Reactivity:	(+) Human
Uniprot No.:	P20138
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS with 0.02% ProClin™ 300
Clone:	hP67.6 (Gemtuzumab)
Host:	Chimeric Monoclonal Antibody
Isotype:	IgG4κ
Applications:	Flow cytometry (FC) and Immunofluorescence (IF); The optimal working concentration/dilution should be determined empirically.

Image



Binding curve of CD33 Chimeric Monoclonal Antibody CD33 Chimeric Monoclonal Antibody (Clone hP67.6 (Gemtuzumab)) to a human CD33 ELISA plate coated with human His-tagged CD33 at a concentration of 2 µg/ml. A 3-fold serial dilution from 10,000 to 0.1 ng/ml was performed using CD33 Chimeric Monoclonal Antibody CD33 Chimeric Monoclonal Antibody (Clone hP67.6 (Gemtuzumab)). For detection, a 1:4,000 dilution of HRP-labeled anti-human kappa light chain antibody was used.

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Description

CD33 is a transmembrane receptor and member of the sialic acid-binding immunoglobulin-type (Ig-type) lectin (SIGLEC) family.[1] It is composed of N-terminal extracellular Ig-like variable (IgV) and Ig-like constant 2 (IgC2) domains, as well as intracellular immunoreceptor tyrosine-based inhibitory motif (ITIM) and ITIM-like (ITL) domains. CD33 has two isoforms formed *via* alternative splicing, a full-length form and CD33m, which lacks the IgV-like domain.[2] The full-length form is expressed on myeloid progenitor cells and in microglia while CD33m is found in myeloid cells and lymphocytes.[1,2] CD33 is an inhibitory receptor activated by binding of sialic acid-containing molecules, such as glycolipids and glycoproteins, to the IgV domain, which stimulates phosphorylation of tyrosine in the ITIM domain, leading to recruitment of Src homology 2 domain-containing phosphatases (SHPs) and internalization of the CD33-ligand complex.[3] Signaling downstream of CD33 inhibits phagocytosis and cytokine release from immune cells, as well as regulates immune cell growth and survival. CD33 protein is found on patient-derived acute myeloid leukemia (AML) progenitor cells but not non-cancerous stem cells.[4] A SNP in CD33 is associated with, and considered a risk factor for, Alzheimer's disease.[1] Cayman's CD33 Chimeric Monoclonal Antibody CD33 Chimeric Monoclonal Antibody (Clone hP67.6 (Gemtuzumab)) was produced recombinantly from the original hP67.6 antibody sequence and can be used for flow cytometry (FC) and immunofluorescence (IF) applications. The hP67.6 antibody was generated by humanization of the murine P67.6 clone raised against CD33-transfected FMT9S5 cells of human origin.[5]

References

1. Estus, S., Shaw, B.C., Devanney, N., *et al.* Evaluation of CD33 as a genetic risk factor for Alzheimer's disease. *Acta Neuropathol.* **138(2)**, 187-199 (2019).
2. Pérez-Oliva, A.B., Martínez-Esparza, M., Vicente-Fernández, J.J., *et al.* Epitope mapping, expression and post-translational modifications of two isoforms of CD33 (CD33M and CD33m) on lymphoid and myeloid human cells. *Glycobiology* **21(6)**, 757-770 (2011).
3. Zhao, L. CD33 in Alzheimer's disease - biology, pathogenesis, and therapeutics: A mini-review. *Gerontology* **65(4)**, 323-331 (2109).
4. Laszlo, G.S., Estey, E.H., and Walter, R.B. The past and future of CD33 as therapeutic target in acute myeloid leukemia. *Blood Rev.* **28(4)**, 143-153 (2014).
5. Appelbaum, F.R., Matthews, D.C., Eary, J.F., *et al*. The use of radiolabeled anti-CD33 antibody to augment marrow irradiation prior to marrow transplantation for acute myelogenous leukemia. *Transplantation* **54(5)**, 829-833 (1992).

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