

PRODUCT INFORMATION



CD1b Long Isoform Extracellular Ligand-binding Domain (human, recombinant)

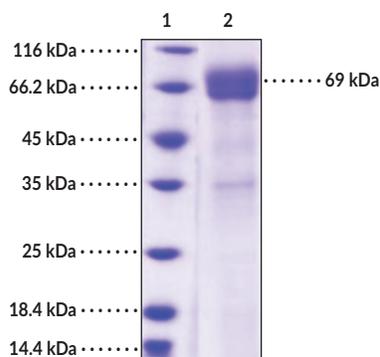
Item No. 32015

Overview and Properties

Synonym:	R1
Source:	Recombinant C-terminal human IgG1 Fc-His-tagged CD1b expressed in HEK293 cells
Amino Acids:	18-303
Uniprot No.:	P29016
Molecular Weight:	58.6 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥88% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/μg, determined by the LAL endotoxin assay
Bioactivity:	See figure for details

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: CD1b Long Isoform Extracellular
Ligand-binding Domain

SDS-PAGE Analysis of CD1b Long Isoform Extracellular Ligand-binding Domain. This protein has a calculated molecular weight of 58.6 kDa. It has an apparent molecular weight of approximately 59 to 69 kDa in SDS-PAGE under reducing conditions due to glycosylation.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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Description

CD1b is a member of the CD1 family of transmembrane glycoproteins and is an MHC class I-like molecule that presents lipid antigens to T cells.¹ Alternative splicing of *CD1B* produces one full-length isoform, CD1b long, and one short isoform.² CD1b long exists as a tetramer where each monomer is composed of a transmembrane CD1 heavy chain that contains three extracellular domains ($\alpha 1$ - $\alpha 3$), which associate with $\beta 2$ -microglobulin to form a lipid-binding groove, as well as a cytoplasmic tail that contains a YXXZ endosomal sorting motif and interacts with the chaperone proteins AP-2 and AP-3 to direct CD1b intracellular trafficking.¹⁻⁴ The CD1b short isoform lacks the endosomal sorting motif and is confined to the cell surface.² CD1b expression is induced in antigen-presenting cells by bacteria or toll-like receptor 2 (TLR2), IL-1 β , or GM-CSF stimulation and functions to present a variety of lipid antigens to T cells.⁵ CD1b is synthesized in the endoplasmic reticulum and is transported to the cell membrane where it expresses self-lipids, such as sphingolipids and phospholipids.^{5,6} It is then internalized and localizes to the late endosome or lysosome where it exchanges self-lipids for pathogen-derived lipids, including mycolates and lipoglycans, prior to being re-expressed on the cell surface for T cell presentation. CD1b protein levels are increased in skin lesions from patients with leprosy, in lung granulomas from patients with tuberculosis, and in postmortem-derived brain lesions from patients with multiple sclerosis.^{5,7} *CD1B* SNPs have been found in patients with prostate cancer.⁸ Cayman's CD1b Long Isoform Extracellular Ligand-binding Domain (human, recombinant) protein is a disulfide-linked homodimer. The reduced monomer, comprised of CD1b Long Isoform Extracellular Ligand-binding Domain (amino acids 18-303) fused to human IgG1 Fc at its C-terminus, consists of 527 amino acids, has a calculated molecular weight of 58.6 kDa, and a predicted N-terminus of Ser18. As a result of glycosylation, the monomer migrates at approximately 59 to 69 kDa by SDS-PAGE under reducing conditions.

References

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3. Briken, V., Jackman, R.M., Dasgupta, S., *et al.* Intracellular trafficking pathway of newly synthesized CD1b molecules. *EMBO J.* **21**(4), 825-834 (2002).
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