

# CD1A (HI149): sc-19636

## BACKGROUND

The CD1 multigene family encodes five forms of the CD1 T-cell surface glycoprotein in human, designated CD1A, 1B, 1C, 1D and 1E. CD1, a type 1 membrane protein, has structural similarity to the MHC class I antigen and has been shown to present lipid antigens for recognition by T lymphocytes. CD1 antigens are associated with  $\beta$ -2-Microglobulin and expressed on cortical thymocytes, Langerhans cells, a B cell subset and some dendritic cells. Specifically, CD1A is a marker for Langerhans cell histiocytosis (LCH) and is found on interdigitating cells. Adaptor-protein complexes and CD1-associated chaperones control CD1 trafficking, and the development and activation of CD1-restricted T cells. Constitutive endocytosis of CD1B molecules and the differential sorting of MHC class II from lysosomes separate peptide- and lipid antigen-presenting molecules during dendritic cell maturation. CD1B is also expressed in interdigitating cells. The human CD1 genes are all closely linked in a cluster mapping at chromosome 1q23.1.

## REFERENCES

- Martin, L.H., et al. 1987. Structure and expression of the human thymocyte antigens CD1a, CD1b, and CD1c. Proc. Natl. Acad. Sci. USA 84: 9189-9193.
- Arufo, A. and Seed, B. 1989. Expression of cDNA clones encoding the thymocyte antigens CD1A, B, C demonstrates a hierarchy of exclusion in fibroblasts. J. Immunol. 143: 1723-1730.
- Longley, J., et al. 1989. Molecular cloning of CD1A (T6), a human epidermal dendritic cell marker related to class I MHC molecules. J. Invest. Dermatol. 92: 628-631.
- Sotzik, F., et al. 1993. Surface antigens of human thymocyte populations defined by CD3, CD4 and CD8 expression: CD1A is expressed by mature thymocytes but not peripheral T cells. Immunol. Lett. 36: 101-106.
- Porcelli, S.A. 1995. The CD1 family: a third lineage of antigen-presenting molecules. Adv. Immunol. 59: 1-18.
- Melian, A., et al. 1996. Antigen presentation by CD1 and MHC-encoded class I-like molecules. Curr. Opin. Immunol. 8: 82-88.
- Storkus, W.J., et al. 1996. Class I-like CD1A-C do not protect target cells from NK-mediated cytotoxicity. Cell. Immunol. 167: 154-156.

## CHROMOSOMAL LOCATION

Genetic locus: CD1A (human) mapping to 1q23.1.

## SOURCE

CD1A (HI149) is a mouse monoclonal antibody raised against human thymocytes.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CD1A (HI149) is available conjugated to either phycoerythrin (sc-19636 PE), fluorescein (sc-19636 FITC) or Alexa Fluor<sup>®</sup> 488 (sc-19636 AF488) or Alexa Fluor<sup>®</sup> 647 (sc-19636 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM.

## APPLICATIONS

CD1A (HI149) is recommended for detection of CD1A of human origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells).

Suitable for use as control antibody for CD1A siRNA (h): sc-42744, CD1A shRNA Plasmid (h): sc-42744-SH and CD1A shRNA (h) Lentiviral Particles: sc-42744-V.

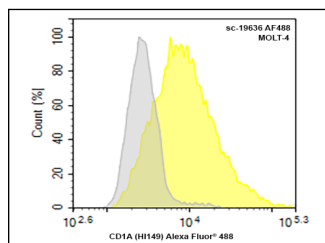
Molecular Weight of CD1A: 49 kDa.

## RECOMMENDED SUPPORT REAGENTS

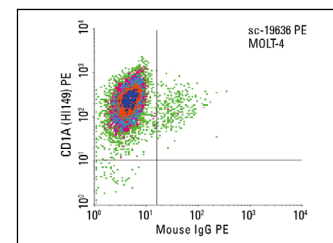
To ensure optimal results, the following support reagents are recommended:

1) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



CD1A (HI149) Alexa Fluor<sup>®</sup> 488: sc-19636 AF488. FCM analysis of MOLT-4 cells. Gray histogram represents the isotype control, normal mouse IgG<sub>1</sub>: sc-3890.



CD1A (HI149) PE: sc-19636 PE. FCM analysis of MOLT-4 cells. Quadrant markers were set based on the isotype control, normal mouse IgG<sub>1</sub>-PE: sc-2866.

## SELECT PRODUCT CITATIONS

- Bühligen, J., et al. 2010. Lysophosphatidylcholine-mediated functional inactivation of syndecan-4 results in decreased adhesion and motility of dendritic cells. J. Cell. Physiol. 225: 905-914.
- Landsverk, O.J., et al. 2012. Differential regulation of MHC II and invariant chain expression during maturation of monocyte-derived dendritic cells. J. Leukoc. Biol. 91: 729-737.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

Alexa Fluor<sup>®</sup> is a trademark of Molecular Probes, Inc., Oregon, USA



See **CD1A (O10): sc-18885** for CD1A antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor<sup>®</sup> 488, 546, 594, 647, 680 and 790.