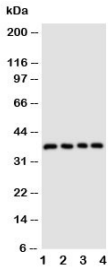
CD1d Antibody / CD1d Molecule (R30948)

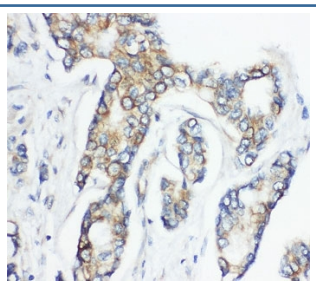
Catalog No.	Formulation	Size
R30948	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2.5% BSA and 0.025% sodium azide/thimerosal
UniProt	P15813
Applications	Western Blot : 0.5-1ug/ml IHC (FFPE) : 0.5-1ug/ml
Limitations	This CD1d antibody is available for research use only.



Western blot testing of CD1d antibody and Lane 1: COLO320; 2: HeLa; 3: HT1080; 4: Jurkat cell lysate



IHC-P: CD1d antibody testing of human breast cancer tissue

Description

CD1d antibody targets CD1d molecule, a non-polymorphic antigen-presenting glycoprotein that belongs to the CD1 family of major histocompatibility complex class I-like molecules. CD1d is a type I transmembrane protein primarily localized to the cell surface and endosomal compartments of antigen-presenting cells, where it plays a specialized role in presenting lipid and glycolipid antigens rather than peptides. CD1d is most prominently expressed by dendritic cells, macrophages, B cells, and certain epithelial cell populations, reflecting its central function in immune surveillance and regulation.

CD1d molecule is best known for its ability to present lipid antigens to invariant natural killer T cells, a unique lymphocyte subset that bridges innate and adaptive immunity. Upon recognition of CD1d-lipid complexes, invariant natural killer T cells rapidly produce large amounts of cytokines, influencing downstream immune responses. A short functional summary is that CD1d controls lipid antigen presentation pathways that shape early immune activation, tolerance, and inflammation through natural killer T cell signaling.

Structurally, CD1d consists of a heavy chain associated with beta-2 microglobulin, forming a stable complex at the cell surface. Unlike classical MHC molecules, the antigen-binding groove of CD1d is hydrophobic, allowing accommodation of lipid tails while exposing polar head groups for T cell receptor recognition. CD1d antibody reagents are commonly used to study protein expression, intracellular trafficking, and surface presentation of CD1d molecule in immune cells and tissue sections.

CD1d expression and localization are tightly regulated through endosomal recycling pathways, which influence the repertoire of lipid antigens presented to natural killer T cells. CD1d traffics between the plasma membrane and endolysosomal compartments, where lipid loading occurs. Alterations in CD1d trafficking or expression can profoundly impact immune homeostasis. CD1d antibody tools are therefore valuable for investigating antigen presentation dynamics, vesicular transport, and immune cell activation mechanisms.

From a disease relevance perspective, CD1d has been implicated in a wide range of immune-mediated conditions. Dysregulated CD1d expression or function has been associated with autoimmune diseases, inflammatory bowel disease, metabolic disorders, and cancer. In tumor biology, CD1d expression on malignant or antigen-presenting cells can influence anti-tumor immunity through modulation of natural killer T cell responses. CD1d antibody reagents are widely applied in research examining immune evasion, tumor immunology, and inflammation-driven pathology.

Developmentally, CD1d expression is observed early in immune cell differentiation and remains relatively stable across maturation stages of antigen-presenting cells. Its restricted polymorphism and conserved structure across species underscore its fundamental role in immune regulation. CD1d antibody products support research applications aimed at characterizing immune cell subsets, evaluating antigen presentation pathways, and exploring lipid-driven immune signaling. CD1d antibodies from NSJ Bioreagents are provided for research use to facilitate studies in immunology, inflammation, and immune-oncology.

Application Notes

The stated application concentrations are suggested starting amounts. Titration of the CD1d antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

Amino acids 76-92 (FSDQQWETLQHIFRVYR-human) were used as the immunogen for this CD1d antibody.

Storage

After reconstitution, the CD1d antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.