

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Dectin-1/CLEC7A in direct ELISAs. In indirect ELISAs, less than 10% cross-reactivity with recombinant human (rh) DLEC and no cross-reactivity with recombinant mouse Dectin-1 or rhDectin-2 is observed.
Source	Monoclonal Mouse IgG _{2B} Clone # 259931
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human Dectin-1/CLEC7A Thr66-Met201 Accession # NP_072092
Endotoxin Level	<0.10 EU per 1 µg of the antibody by the LAL method.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

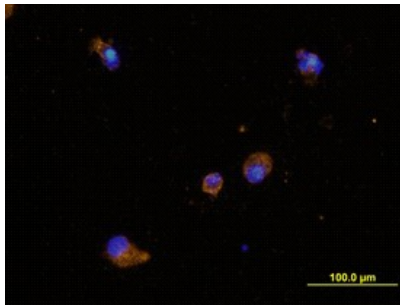
APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Flow Cytometry	2.5 µg/10 ⁶ cells	Human whole blood monocytes
Immunocytochemistry	8-25 µg/mL	See Below
CyTOF-ready	Ready to be labeled using established conjugation methods. No BSA or other carrier proteins that could interfere with conjugation.	
Blockade of Receptor-ligand Interaction	In a functional ELISA, 0.1-0.4 µg/mL of this antibody will block 50% of the binding of 75 ng/mL of biotinylated Laminarin to immobilized Recombinant Human Dectin-1/CLEC7A (Catalog # 1859-DC) coated at 250 ng/mL (100 µL/well). At 3 µg/mL, this antibody will block >90% of the binding.	

DATA

Immunocytochemistry



Dectin-1/CLEC7A in Human Dendritic Cells. Dectin-1/CLEC7A was detected in immersion fixed mature human dendritic cells using Mouse Anti-Human Dectin-1/CLEC7A Monoclonal Antibody (Catalog # MAB1859) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (yellow; Catalog # NL007) and counterstained with DAPI (blue). View our protocol for [Fluorescent ICC Staining of Non-adherent Cells](#).

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Dectin-1, also known as CLEC7A and the β -glucan receptor, is a 33 kDa type II transmembrane C-type lectin that participates in the innate immune response to fungal pathogens. Although Dectin-1 structurally resembles other CLEC molecules, it binds its ligands in a calcium-independent manner (1, 2). Mature human Dectin-1 consists of a short N-terminal ITAM-containing cytoplasmic tail, a transmembrane segment, and a C-terminal stalk with a carbohydrate recognition domain (CRD) in the extracellular domain (3, 4). Alternate splicing generates one major splice form that lacks the stalk region (3-5). This isoform is expressed on the surface of monocytes, macrophages, myeloid DC, neutrophils, eosinophils, B cells, and CD4⁺ T cells (6). The CRD selectively binds β -glucan polymers, a major component of yeast and mycobacterial cell walls (5-7). Yeast β -glucan is accessible to Dectin-1 only during the process of cell budding. Dectin-1 does not recognize the filamentous form of yeast (8). Dectin-1 mediates the phagocytosis of zymosan particles and intact yeast (8-10). In the membrane, Dectin-1 colocalizes with TLR2 in the presence of zymosan, and the two receptors cooperate in ligand recognition and the propagation of proinflammatory signaling (9, 11-13). Dectin-1 also interacts with tetraspanin CD37. This increases its stability on the cell membrane and inhibits ligand-induced signaling (14). Dectin-1 knockout mice show increased susceptibility to pathogenic infection (15-16). The CRD of human Dectin-1 shares 77%, 60%, and 60% amino acid (aa) sequence identity with that of bovine, mouse and rat Dectin-1, respectively. It shares 29%-39% aa sequence identity with the CRD of other subgroup members, including CLEC-1, CLEC-2, CLEC9A, CLEC12B, LOX-1, and MICL.

References:

1. Kanazawa, N. (2007) *J. Dermatol. Sci.* **45**:77.
2. Brown, G.D. (2006) *Nat. Rev. Immunol.* **6**:33.
3. Hernanz-Falcon, P. *et al.* (2001) *Immunogenetics* **53**:288.
4. Yokota, K. *et al.* (2001) *Gene* **272**:51.
5. Willment, J.A. *et al.* (2001) *J. Biol. Chem.* **276**:43818.
6. Willment, J.A. *et al.* (2005) *Eur. J. Immunol.* **35**:1539.
7. Palma, A.S. *et al.* (2006) *J. Biol. Chem.* **281**:5771.
8. Gantner, B.N. *et al.* (2005) *EMBO J.* **24**:1277.
9. Gantner, B.N. *et al.* (2003) *J. Exp. Med.* **197**:1107.
10. Kennedy, A.D. *et al.* (2007) *Eur. J. Immunol.* **37**:467.
11. Brown, G.D. *et al.* (2003) *J. Exp. Med.* **197**:1119.
12. Yadav, M. and J.S. Schorey (2006) *Blood* **108**:3168.
13. Suram, S. *et al.* (2006) *J. Biol. Chem.* **281**:5506.
14. Meyer-Wentrup, F. *et al.* (2007) *J. Immunol.* **178**:154.
15. Saijo, S. *et al.* (2007) *Nat. Immunol.* **8**:39.
16. Taylor, P.R. *et al.* (2007) *Nat. Immunol.* **8**:31.