

## DESCRIPTION

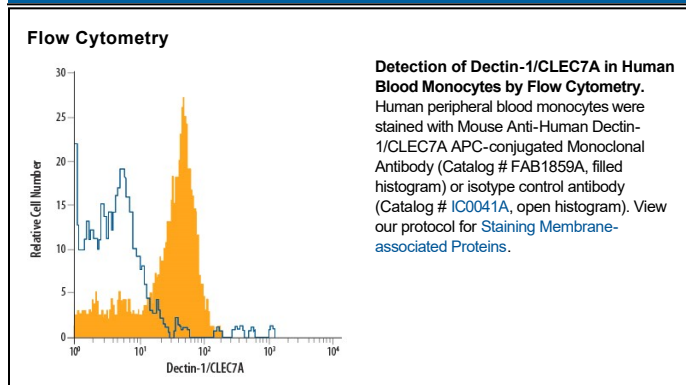
|                           |                                                                                                                                                                                                                                                                                                                        |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b> | Human                                                                                                                                                                                                                                                                                                                  |
| <b>Specificity</b>        | 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.                                                                                                 |
| <b>Source</b>             | Monoclonal Mouse IgG <sub>2B</sub> Clone # 259931                                                                                                                                                                                                                                                                      |
| <b>Purification</b>       | Protein A or G purified from hybridoma culture supernatant                                                                                                                                                                                                                                                             |
| <b>Immunogen</b>          | Mouse myeloma cell line NS0-derived recombinant human Dectin-1/CLEC7A Thr66-Met201<br>Accession # NP_072092                                                                                                                                                                                                            |
| <b>Conjugate</b>          | Allophycocyanin<br>Excitation Wavelength: 620-650 nm<br>Emission Wavelength: 660-670 nm                                                                                                                                                                                                                                |
| <b>Formulation</b>        | Supplied in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details.<br><br>*Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |

## 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    |
|-----------------------|----------------------------------|-----------|
| <b>Flow Cytometry</b> | 10 $\mu$ L/10 <sup>6</sup> cells | See Below |

## DATA



## PREPARATION AND STORAGE

|                                |                                                                                                                                                    |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Shipping</b>                | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.                                  |
| <b>Stability &amp; Storage</b> | <b>Protect from light. Do not freeze.</b> <ul style="list-style-type: none"> <li>12 months from date of receipt, 2 to 8 °C as supplied.</li> </ul> |

**BACKGROUND**

Dectin-1, also known as CLEC7A and the  $\beta$ -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<sup>+</sup> T cells (6). The CRD selectively binds  $\beta$ -glucan polymers, a major component of yeast and mycobacterial cell walls (5-7). Yeast  $\beta$ -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.