

#### DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Integrin $\beta$ 2/CD18 in direct ELISAs and Western blots. In direct ELISAs, no cross-reactivity with recombinant human Integrin $\beta$ 1 or recombinant mouse Integrin $\alpha$ 5 is observed.
<b>Source</b>	Monoclonal Mouse IgG <sub>1</sub> Clone # 212701
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant human Integrin $\beta$ 2/CD18 Gln23-Asn700 Accession # AAA59490
<b>Conjugate</b>	Alexa Fluor 700 Excitation Wavelength: 675-700 nm Emission Wavelength: 723 nm
<b>Formulation</b>	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details.  *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>	0.25-1 $\mu$ g/10 <sup>6</sup> cells	Human peripheral blood mononuclear cells

#### 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

Integrin  $\alpha$  $\beta$ 2, also called CD11c/CD18, p150/95 or complement receptor type 4 (CR4), is one of four  $\beta$ 2 integrins. The non-covalent heterodimer of 150 kDa  $\alpha$ X/CD11c and 95 kDa  $\beta$ 2/CD18 integrin subunits is expressed on macrophages, dendritic cells and hairy cell leukemias, with lower amounts on other myeloid cells and activated B, NK and some cytotoxic T cells (1-7). Like other integrins,  $\alpha$  $\beta$ 2 has multiple activation states (3). In the presence of divalent cations and "inside-out" signaling,  $\alpha$  $\beta$ 2 is fully active and extended. The  $\alpha$ X vWFA or I-domain, which contains the adhesion sites, forms the N-terminal head region with the  $\alpha$ X beta-propeller and the  $\beta$ 2 vWFA domain (1, 8). In the inactive state, the heterodimer flexes in the center at the  $\alpha$ X thigh and calf domains and  $\beta$ 2 I-EGF domains, impeding access to adhesion sites (1). The 1088 aa human  $\alpha$ X/CD11c ECD shares 70-76% aa sequence identity with mouse, rat and canine  $\alpha$ X while the 678 aa human  $\beta$ 2/CD18 ECD shares 81-83% aa sequence identity with mouse, rat, cow, dog, goat, sheep, and pig  $\beta$ 2. Potential  $\alpha$ X isoforms containing 719 and 725 aa (as compared to full-length 1163 aa  $\alpha$ X) lack the vWFA domain and the N-terminus. Active  $\alpha$  $\beta$ 2 shares some adhesion partners with  $\alpha$ M $\beta$ 2/CD11b/CD18, including complement opsonin fragment iC3b, ICAMs, vWF and fibrinogen, and is expressed on many of the same cells (4-11). However,  $\alpha$ M $\beta$ 2 activity is often constitutive, while  $\alpha$  $\beta$ 2 activity requires cell activation (4-7).  $\alpha$  $\beta$ 2 also binds osteopontin, Thy-1, plasminogen, heparin, and proteins with abnormally exposed acidic residues (11-16). The adhesion events are important for proliferation, degranulation, chemotactic migration, and phagocytosis of complement-opsonized particles (5, 6, 9, 11, 12, 16). Mutations of  $\beta$ 2, especially in the vWFA domain, cause leukocyte adhesion deficiency (LAD-1) and susceptibility to bacterial infections (17).

#### References:

1. Corbi, A.L. *et al.* (1987) *EMBO J.* **6**:4023.
2. Kishimoto, T.K. *et al.* (1987) *Cell* **48**:681.
3. Hynes, R.O. (2002) *Cell* **110**:673.
4. Arnaout, M.A. (1990) *Blood* **75**:1037.
5. Postigo, A.A. *et al.* (1991) *J. Exp. Med.* **174**:1313.
6. Beyer, M. *et al.* (2005) *Respir. Res.* **6**:70.
7. Nicolaou, F. *et al.* (2003) *Blood* **101**:4033.
8. Vorup-Jensen, T. *et al.* (2003) *Proc. Natl. Acad. Sci. USA* **100**:1873.
9. Bilisland, C.A.G. *et al.* (1994) *J. Immunol.* **152**:4582.
10. Pendu, R. *et al.* (2006) *Blood* **108**:3746.
11. Sadhu, C. *et al.* (2007) *J. Leukoc. Biol.* **81**:1395.
12. Schack, L. *et al.* (2009) *J. Immunol.* **182**:6943.
13. Choi, J. *et al.* (2005) *Biochem. Biophys. Res. Commun.* **331**:557.
14. Gang, J. *et al.* (2007) *Mol. Cells* **24**:240.
15. Vorup-Jensen, T. *et al.* (2007) *J. Biol. Chem.* **282**:30869.
16. Vorup-Jensen, T. *et al.* (2004) *Proc. Natl. Acad. Sci. USA* **102**:1614.
17. Kishimoto, T.K. *et al.* (1987) *Cell* **50**:193.

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