

Human Integrin $\alpha 6 \beta 1$ Heterodimer Alexa Fluor® 488-conjugated Antibody

Recombinant Monoclonal Rabbit IgG Clone # 2548B

Catalog Number: FAB7809G

100 µg

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Integrin $\alpha 6 \beta 1$ in direct ELISAs. In direct ELISA, less than 1% of cross reactivity with recombinant human (rh) Integrin $\beta 1$ and recombinant mouse (rm) Integrin $\alpha 6$ is observed. In direct ELISA, no cross-reactivity with rhIntegrin $\alpha 3$, $\beta 2$, $\beta 3$, $\beta 5$, $\beta 6$, $\beta 7$, and rmIntegrin $\beta 1$ is observed.
Source	Recombinant Monoclonal Rabbit IgG Clone # 2548B
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Chinese Hamster Ovary cell line, CHO-derived Human Integrin $\alpha 6 \beta 1$ heterodimer Phe24-Ser1012(Integrin alpha 6) and Gln21-Asp728 (Integrin beta1) Accession # NP_000201
Conjugate	Alexa Fluor 488 Excitation Wavelength: 488 nm Emission Wavelength: 515-545 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. *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
Flow Cytometry	0.25-1 µg/10 ⁶ cells	Human PBMC

PREPARATION AND STORAGE

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

BACKGROUND

Integrin $\alpha 6 \beta 1$, also called platelet glycoprotein GPIIb-IIIa, is a laminin binding integrin that is expressed on T cells, monocytes, endothelial cells, stem cells, and platelets (1-9). The non-covalent heterodimer is composed of ~150 kDa $\alpha 6$ /CD49f and 130 kDa $\beta 1$ /CD29 type I transmembrane glycoprotein subunits (2). While $\alpha 6$ pairs only with $\beta 1$ or $\beta 4$, twelve integrins share the $\beta 1$ subunit (1-5). The $\alpha 6$ subunit is cleaved into extracellular heavy and transmembrane light chains (3). Alternative splicing in the human $\alpha 6$ extracellular domain (ECD) at amino acid (aa) 216 creates X1 (ubiquitous), X2 and X1X2 isoforms, while splicing at a mouse or human cytoplasmic site creates A and B isoforms (10, 11). These forms do not appear to alter the binding specificity (4, 10, 11). The $\beta 1$ ECD contains a vWFA domain, which participates in binding. Each subunit then has a transmembrane sequence and a short cytoplasmic tail. The dimer is folded when it is least active. Divalent cations and intracellular (inside-out) signaling convert it to its most active, extended and open conformation (1, 2). The human $\alpha 6$ (X1) heavy chain shares 94-95% aa identity with mouse, rat, bovine, and canine $\alpha 6$, and the human $\beta 1$ ECD shares 92-96% aa sequence identity with rat, bovine, mouse, and feline $\beta 1$. $\alpha 6 \beta 1$ shows broad specificity for adhesion to laminin isoforms (4, 10). Its expression on human and mouse pluripotent stem cells is important for attachment, expansion, and self-renewal on LN-511 (laminin $\alpha 5 \beta 1 \gamma 1$) (6, 7). The secreted protein Netrin-4 and the laminin $\gamma 1$ subunit form an adhesion-activating complex with $\alpha 6 \beta 1$ on mouse neural stem cells and human lymphatic endothelial cells that promotes lymphangiogenesis (8, 9). $\alpha 6 \beta 1$ up-regulation on cancers such as prostate, glioma, and hepatoma is reported to enhance tumorigenicity, motility, invasion and metastasis (12-14). $\alpha 6 \beta 1$ cleavage via uPA (urokinase-type plasminogen activator) facilitates tumorigenicity in prostate cancers, and interaction of hepatoma $\alpha 6 \beta 1$ with EMMPRIN/CD147 may also enhance tumorigenicity by inducing uPA and other metalloproteinases (12, 13).

References:

1. Takada, Y. *et al.* (2007) *Genome Biol.* **8**:215.
2. Luo, B-H. *et al.* (2007) *Annu. Rev. Immunol.* **25**:619.
3. Tamura, R.N. *et al.* (1990) *J. Cell Biol.* **111**:1593.
4. Nishiuchi, R. *et al.* (2006) *Matrix Biol.* **25**:189.
5. Sonnenberg, A. and C.J.T. Linders (1990) *J. Cell Science* **96**:207.
6. Rodin, S. *et al.* (2010) *Nat. Biotech.* **28**:611.
7. Domogatskaya A. *et al.* (2008) *Stem Cells* **26**:2800.
8. Staquicini, F.I. *et al.* (2009) *Proc. Natl. Acad. Sci. USA* **106**:2903.
9. Larrieu-Lahargue, F. *et al.* (2011) *Circ. Res.* **109**:770.
10. Delwel, G. O. *et al.* (1995) *Cell Adhes. Commun.* **3**:143.
11. Hogervorst, F. *et al.* (1993) *J. Cell Biol.* **121**:179.
12. Sroka, I.C. *et al.* (2011) *Mol. Cancer Res.* **9**:1319.
13. Dai, J.Y. *et al.* (2009) *BMC Cancer* **9**:337.
14. Delamarre, E. *et al.* (2009) *Am. J. Pathol.* **175**:844.

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