

#### DESCRIPTION

<b>Species Reactivity</b>	Mouse
<b>Specificity</b>	Detects mouse Integrin $\alpha$ 10 in direct ELISAs. In direct ELISAs, no cross-reactivity with recombinant mouse Integrin $\alpha$ 2 $\beta$ 1 was observed.
<b>Source</b>	Monoclonal Rat IgG <sub>2A</sub> Clone # 885501
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Chinese hamster ovary cell line CHO-derived recombinant mouse Integrin $\alpha$ 10 $\beta$ 1 Phe23-Thr1119 (Integrin $\alpha$ 10) and Gln21-Asp728 (Integrin $\beta$ 1) Accession # NP_001289400.1 (Integrin $\alpha$ 10) and P09055 (Integrin $\beta$ 1)
<b>Conjugate</b>	Alexa Fluor 488 Excitation Wavelength: 488 nm Emission Wavelength: 515-545 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	C2C12 mouse myoblast cell line

#### 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> ● 12 months from date of receipt, 2 to 8 °C as supplied.

#### BACKGROUND

Integrin  $\alpha$ 10 $\beta$ 1 is one of twelve integrin family adhesion receptors that share the  $\beta$ 1 subunit (1-3). The non-covalent heterodimer of 160 kDa  $\alpha$ 11 and 130 kDa  $\beta$ 1/CD29 type I transmembrane glycoprotein subunits is expressed mainly on chondrocytes within cartilage, but also in fibrous connective tissues such as heart valves and ligaments (3, 4). The  $\alpha$ 10 extracellular domain (ECD) contains an I (inserted) domain which includes the ligand binding site (2, 3, 5). 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 1100 amino acid (aa) mouse  $\alpha$ 10 extracellular domain (ECD) shares 96% aa sequence identity with rat and 88-89% with human, rabbit, porcine, canine and bovine  $\alpha$ 10, while the 708 aa mouse  $\beta$ 1 ECD shares 98% aa identity with rat and 93-94% with human, bovine, porcine, ovine, canine and feline  $\beta$ 1. A potential mouse  $\alpha$ 10 splice variant diverges at aa 1039 and is terminated prematurely. If translated, this variant would result in a secreted protein (6). I domain-containing  $\beta$ 1 integrins  $\alpha$ 1 $\beta$ 1,  $\alpha$ 2 $\beta$ 1,  $\alpha$ 10 $\beta$ 1 and  $\alpha$ 11 $\beta$ 1 all bind collagens; all but  $\alpha$ 11 $\beta$ 1 also bind laminins (5, 7, 8). During cartilage differentiation,  $\alpha$ 10 $\beta$ 1 is thought to be the main integrin binding type II and IX cartilage collagens (3-5, 7-10). However, deletion of mouse  $\alpha$ 10 causes a mild phenotype including slightly shortened bones and narrowed hypertrophic zones, indicating that another collagen-binding integrin, likely  $\alpha$ 2 $\beta$ 1, may compensate for  $\alpha$ 10 $\beta$ 1 functions (11). Migration of melanoma cells has been noted to correlate with  $\alpha$ 10 $\beta$ 1 expression (12).

#### References:

1. Takada, Y. *et al.* (2007) *Genome Biol.* **8**:215.
2. Luo, B-H. *et al.* (2007) *Annu. Rev. Immunol.* **25**:619.
3. Camper, L. *et al.* (1998) *J. Biol. Chem.* **273**:20383.
4. Camper, L. *et al.* (2001) *Cell Tiss. Res.* **306**:107.
5. Tulla, M. *et al.* (2001) *J. Biol. Chem.* **276**:48206.
6. Bengtsson, T. *et al.* (2001) *Matrix Biol.* **20**:565.
7. McCall-Culbreath, K.D. and M.M. Zutter (2008) *Curr. Drug Targets* **9**:139.
8. Popova, S.N. *et al.* (2007) *Acta Physiol.* **190**:179.
9. Varas, L. *et al.* (2007) *Stem Cells Dev.* **16**:965.
10. Gigout, A. *et al.* (2008) *J. Biol. Chem.* **283**:31522.
11. Bengtsson, T. *et al.* (2004) *J. Cell Sci.* **118**:939.
12. Wenke, A.K. *et al.* (2007) *Cell Oncol.* **29**:373.

**PRODUCT SPECIFIC NOTICES**

This product is provided under an agreement between Life Technologies Corporation and R&D Systems, Inc, and the manufacture, use, sale or import of this product is subject to one or more US patents and corresponding non-US equivalents, owned by Life Technologies Corporation and its affiliates. The purchase of this product conveys to the buyer the non-transferable right to use the purchased amount of the product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). The sale of this product is expressly conditioned on the buyer not using the product or its components (1) in manufacturing; (2) to provide a service, information, or data to an unaffiliated third party for payment; (3) for therapeutic, diagnostic or prophylactic purposes; (4) to resell, sell, or otherwise transfer this product or its components to any third party, or for any other commercial purpose. Life Technologies Corporation will not assert a claim against the buyer of the infringement of the above patents based on the manufacture, use or sale of a commercial product developed in research by the buyer in which this product or its components was employed, provided that neither this product nor any of its components was used in the manufacture of such product. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, Cell Analysis Business Unit, Business Development, 29851 Willow Creek Road, Eugene, OR 97402, Tel: (541) 465-8300. Fax: (541) 335-0354.