# Recombinant Human Integrin α5ß1 Protein, CF

Catalog Number: 3230-A5B

## DESCRIPTION

**Source**

Chinese Hamster Ovary cell line, CHO-derived human Integrin alpha 5 beta 1 protein

| | |
|---|---|
| Human Integrin α5 (Phe42-Tyr995) Accession # P08648 | Acidic Tail |
| Human Integrin β1 (Gln21-Asp728) Accession # P05556 | Basic Tail |

N-terminus C-terminus

| | |
|---|---|
| **N-terminal Sequence Analysis** | Phe42 (Integrin α5) & No results obtained: Gln21 predicted (Integrin β1) |
| **Predicted Molecular Mass** | 108 kDa (α5 subunit), 82.3 kDa (β1 subunit) |

## SPECIFICATIONS

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|---|---|
| **SDS-PAGE** | 110-140 kDa, under reducing conditions. |
| **Activity** | Measured by its binding ability in a functional ELISA.<br>Recombinant Human Integrin α5β1 (Catalog # 3230-A5B) binds Human Fibronectin (Catalog # 1918-FN) with an $ED_{50}$ of 1.00-12.0 ng/mL. |
| **Endotoxin Level** | <0.20 EU per 1 µg of the protein by the LAL method. |
| **Purity** | >90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining. |
| **Formulation** | Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. |

## PREPARATION AND STORAGE

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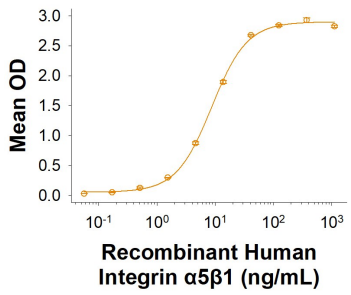
|---|---|
| **Reconstitution** | Reconstitute at 500 µg/mL in PBS. |
| **Shipping** | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. |
| **Stability & Storage** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<br>• 12 months from date of receipt, -20 to -70 °C as supplied.<br>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>• 3 months, -20 to -70 °C under sterile conditions after reconstitution. |

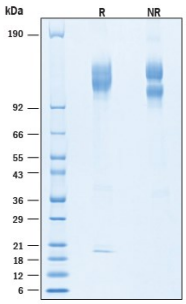
## DATA

**Binding Activity**




**Recombinant Human Integrin α5β1 Protein Binding Activity.** Recombinant Human Integrin α5β1 Protein (Catalog # 3230-A5B) binds Human Fibronectin (Catalog # 1918-FN) with an $ED_{50}$ of 1.00-12.0 ng/mL.

**SDS-PAGE**




**Recombinant Human Integrin α5β1 Protein SDS-PAGE.** 2 µg/lane of Recombinant Human Integrin α5β1 Protein (Catalog # 3230-A5B) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 110-140 kDa, under reducing conditions. .



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## BACKGROUND

Integrin α5/β1, also known as VLA-5, is a widely expressed non-covalent heterodimer of a 160 kDa α5 and a 130 kDa β1 Integrin subunit. α5/β1 functions in cell adhesion, migration, activation, and matrix fibrillogenesis (1, 2). The human Integrin α5/CD49e cDNA encodes a 1049 amino acid (aa) precursor that includes a 41 aa signal sequence, a 954 aa extracellular domain (ECD), a 26 aa transmembrane segment, and a 28 aa cytoplasmic domain. The ECD contains seven FG-GAP repeats and nine internal disulfide bonds (3). Within the ECD, human α5 shares 90% and 46% aa sequence identity with mouse α5 and human α8, respectively, and less than 30% aa sequence identitity with other human α chains. The human Integrin β1/CD29 cDNA encodes a 798 aa precursor that includes a 20 aa signal sequence, a 708 aa ECD, a 23 aa transmembrane segment, and a 47 aa cytoplasmic domain. The ECD contains one vWF-A domain, four Cys-rich repeats, and 29 internal disulfide bonds (3). Five alternate splice forms of the cytoplasmic domain vary by 12 to 48 aa. Within the ECD, human β1 shares 92-96% aa sequence identity with rat, bovine, mouse, and feline β1. It shares 35-45% aa sequence identity with other β chains. α5/β1 binds fibronectin in both RGD-dependent and -independent manners (4, 5). α5/β1 is up-regulated on tumor vasculature and promotes angiogenesis (6, 7). This is accomplished in part by a constitutive association in *cis* of α5/β1 with VEGFR3 and Tie2, a requirement for optimal activation of those receptors (8, 9). α5/β1 interacts with a variety of other proteins, including HER2, uPAR, Galectin-1, CTGF, and thrombin-cleaved Osteopontin (5, 10-13). α5/β1 also functions on some hematopoietic and neuronal stem cells (14, 15).

**References:**

1. Mao, Y. and J.E. Schwarzbauer (2005) Matrix Biol. **24**:389.
2. Gu, J. and N. Taniguchi (2004) Glycoconj. J. 21:**9**.
3. Argraves, W.S. *et al.* (1987) J. Cell Biol. **105**:1183.
4. Takagi, J. *et al.* (2003) EMBO J. **22**:4607.
5. Wei, Y. *et al.* (2005) J. Cell Biol. **168**:501.
6. Parsons-Wingerter, P. *et al.* (2005) Am. J. Pathol. **167**:193.
7. Kim, S. *et al.* (2000) Am. J. Pathol. **156**:1345.
8. Zhang, X. *et al.* (2004) J. Cell. Physiol. **202**:205.
9. Cascone, I. *et al.* (2005) J. Cell Biol. **170**:993.
10. Kuwada, S.K. *et al.* (2005) J. Biol. Chem. **280**:19027.
11. Fischer, C. *et al.* (2005) J. Biol. Chem. **280**:37266.
12. Gao, R. and D.R. Brigstock (2005) Gut **129**:1019
13. Yokosaki, Y. *et al.* (2005) Matrix Biol. **24**:418.
14. Carstanjen, D. *et al.* (2005) Transfusion **45**:1192.
15. Gibson, R.M. *et al.* (2005) Mol. Cell. Neurosci. **28**:588.



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