# Recombinant Human Integrin alpha 4 beta 7/LPAM 1 Protein, CF

Catalog Number: 11509-A3

## DESCRIPTION

**Source**

Human embryonic kidney cell, HEK293-derived human Integrin alpha 4 beta 7/LPAM-1 protein

| | | |
|---|---|---|
| Human ITGA4 (Tyr34-Gln970,R591L & R878Q) Accession # P13612.3 | IEGR | Human $IgG_1$ (Glu99-Lys330) (with modifications) |
| Human ITGB7 (Glu20-His723) Accession # P26010.1 | IEGR | Human $IgG_1$ (Glu99-Lys330) (with modifications) |

N-terminus C-terminus

| | |
|---|---|
| **N-terminal Sequence Analysis** | Tyr34 (Integrin alpha 4) & Glu20 (Integrin beta 7) |
| **Structure / Form** | Disulfide-linked heterodimer |
| **Predicted Molecular Mass** | 130 kDa (Integrin alpha 4) & 104 kDa (Integrin beta 7) |

## SPECIFICATIONS

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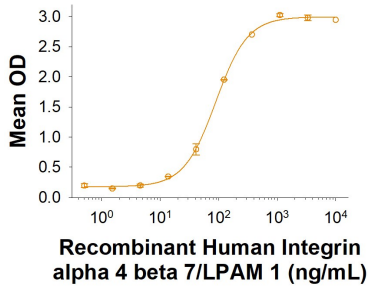
|---|---|
| **SDS-PAGE** | 115-135 kDa (Integrin beta 7) & 140-160 kDa (Integrin alpha 4), under reducing conditions. |
| **Activity** | Measured by its binding ability in a functional ELISA.<br>Recombinant Human Integrin α4β7/LPAM-1 Fc Chimera (Catalog # 11509-A3) binds Recombinant Human MAdCAM-1 Fc Chimera (Catalog # 6056-MC) with an $ED_{50}$ of 30.0-450 ng/mL. |
| **Endotoxin Level** | <0.10 EU per 1 µg of the protein by the LAL method. |
| **Purity** | >95%, 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

| | |
|---|---|
| **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. |

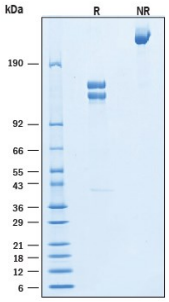
## DATA

**Binding Activity**




**Recombinant Human Integrin alpha 4 beta 7/LPAM-1 Fc Chimera Protein Binding Activity.** Recombinant Human Integrin alpha 4 beta 7/LPAM-1 Fc Chimera Protein (Catalog # 11509-A3) binds Recombinant Human MAdCAM-1 Fc Chimera (Catalog # 6056-MC) with an $ED_{50}$ of 30.0-450 ng/mL.

**SDS-PAGE**




**Recombinant Human Integrin alpha 4 beta 7/LPAM-1 Fc Chimera Protein SDS-PAGE.** 2 µg/lane of Recombinant Human Integrin alpha 4 beta 7/LPAM-1 Fc Chimera Protein (Catalog # 11509-A3) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 115-135 kDa (Integrin beta 7) & 140-160 kDa (Integrin alpha 4), under reducing conditions and 250-280 kDa under non-reducing conditions.



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## BACKGROUND

Integrin α4β7 is an integrin family adhesion receptor that shares subunits with α4β1 (VLA4) and the E-Cadherin receptor, αEβ7 (1). It is a non-covalent heterodimer composed of two type I transmembrane glycoprotein subunits, a 150 kDa α4 (CD49d) subunit and a 130 kDa β7 subunit (2, 3). The α4 extracellular domain (ECD) contains an N-terminal β-propeller structure followed by thigh, calf-1, and calf-2 domains (1). The β7 ECD contains a vWFA domain, which interacts with the α4 β-propeller to form a binding domain. Metal ion binding sites termed MIDAS and LIMBS promote firm adhesion, and another site termed ADMIDAS is a negative regulatory site that promotes rolling (4-6). The human α4 ECD shares 85% amino acid sequence identity with the mouse, rat, and canine α4 ECD. The human β7 ECD shares 88% and 87% amino acid sequence identity with the rat and mouse β7 ECD, respectively. Integrin α4β7 binds the mucosal addressin MAdCAM-1, as well as VCAM-1 and Fibronectin (7). Integrin α4β7, which is critical for homing to intestinal mucosa, is induced during T cell activation in Peyer's patches or mesenteric lymph nodes (8, 9). Its expression requires signals from local dendritic and stromal cells, including secreted retinoic acid (10, 11). The HIV-1 envelope protein gp120 binds to the active form of Integrin α4β7, and this may or may not account for the concentration of HIV-1 virus in the gut-associated lymphoid tissue (GALT) (12-14). Integrin α4β7 may also be involved in lymphocyte trafficking in acute intestinal graft vs. host disease (GVHD) (15).

**References:**

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