Recombinant Mouse Integrin α2β1

Catalog Number: 7828-A2

DESCRIPTION

Source Chinese Hamster Ovary cell line, CHO-derived

N-terminal Sequence Analysis	Tyr27 (Integrin α2) & Gln21 predicted: No results obtained, sequencing might be blocked (Integrin β1)
Structure / Form	Noncovalently-linked heterodimer
Predicted Molecular Mass	130 kDa (Integrin α2) & 86.5 kDa (Integrin β1)

SPECIFICATIONS

SDS-PAGE	120-160 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When bovine collagen-II is coated at 10 µg/mL, Recombinant Mouse Integrin α2β1 binds with an apparent K_D <1nM.
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 200 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.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Integrin α2β1 is one of twelve integrin family adhesion receptors that share the β1 subunit (1-3). It is the non-covalent heterodimer of 160 kDa α2 (CD49b) and 130 kDa β1 (CD29) type I transmembrane glycoprotein subunits. It is one of six very late antigens on activated T cells, designated VLA2 (3). The α2 extracellular domain (ECD) contains an I (inserted) domain which includes the ligand binding site (2, 3). The β1 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 1103 amino acid (aa) mouse α2 extracellular domain (ECD) shares 93% aa sequence identity with rat and 80-81% with human, canine, bovine and equine α2, while the 708 aa mouse β1 ECD shares 98% aa identity with rat and 93-94% with human, bovine, porcine, ovine, canine and feline β1. The I domain-containing β1 integrins (α1β1, α2β1, α10β1 and α11β1) all bind collagens, with α2β1 preferring collagens I-III (4, 5). Platelet α2β1, also called GPIa, cooperates with another adhesion protein, GPVI, to coordinate platelet collagen binding and activation (3, 6, 7). Other α2β1 ligands include laminin, decorin, E-cadherin, and collagen-like regions of collectin molecules such as C1q (4). Adhesion is synergized by crosstalk with syndecan-1 or HGF R/c-Met, and antagonized by crosstalk with integrin α1β1 (8-10). In addition to expression on selected hematopoietic cells, α2β1 is present on a wide variety of non-hematopoietic cells (4). Mice deficient in the α2 subunit have defects in innate immune responses, wound mast cell infiltration and angiogenesis, and platelet responses to collagen (6, 11, 12). In innate immunity, α2β1 binding to C1q initiates the complement cascade and co-stimulates mast cell activation, triggering neutrophil influx (4, 12).

References:

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