Recombinant Rat Integrin αVβ6

Catalog Number: 9668-AV

DESCRIPTION

Source Chinese Hamster Ovary cell line, CHO-derived

N-terminal Sequence Analysis Phe31 (Integrin αV) & Gly22 (Integrin β6)

Structure / Form Noncovalently-linked heterodimer

Predicted Molecular Mass 115 kDa (Integrin αV) & 83 kDa (Integrin β6)

SPECIFICATIONS

SDS-PAGE 106-153 kDa, reducing conditions

Activity Measured by its binding ability in a functional ELISA.
When Recombinant Rat Integrin αVβ6 is immobilized at 2 µg/mL (100 µL/well), the concentration of Recombinant Human LAP (TGF-β1) (Catalog # 246-LP) that produces 50% of the optimal binding response is approximately 0.5-3 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 Tris, NaCl and $CaCl_2$. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 500 µg/mL in Water.

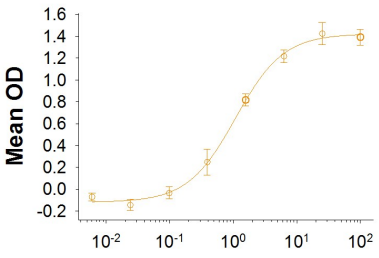
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

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.

DATA

Binding Activity



Immobilized Recombinant Rat Integrin αVβ6 (Catalog # 9668-AV) at 2.0 µg/mL can bind Recombinant Human LAP (TGF-β1) (Catalog # 246-LP) with an ED_{50} of 0.5-3 ng/mL.

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BACKGROUND

Integrin αVβ6 is one of five αV integrins and the sole β6 integrin (1, 2). The non-covalent heterodimer of 170 kDa αV/CD51 and 95 kDa β6 integrin subunits is expressed exclusively on subsets of epithelial cells, especially during development, after injury or inflammation, or on many carcinomas (2-5). The ligand interaction site of αVβ6 is in the N-terminal head region formed by an interaction of the β6 vWFA domain with the αV beta-propeller structure (2). The αV subunit contains domains termed thigh, calf, and calf-2 with a divalent cation-binding site found at a position equivalent to the "knee". The 958 amino acid (aa) rat αV ECD, which is cleaved at aa 886 but remains associated, shares 93% and 98% aa sequence identity with human and mouse αV, while the 687 aa rat β6 ECD shares 90% and 96% aa sequence identity with human and mouse β6, respectively. Each subunit has a transmembrane sequence and a short cytoplasmic tail connected to the cytoskeleton. The β6 C-terminal 11 aa cytoplasmic sequence transduces a signal, enhancing proliferation and inducing MMP-9 expression (6). Either "inside-out" signaling or $Mg2^+$ or $Mn2^+$ binding unfolds and activates the integrin (1). Active αVβ6 binds matrix proteins fibronectin and tenascin C (2). It also binds the TGF-β latency-associated peptide (LAP) and activates TGF-β1 or TGF-β3 from large latent complexes (7). This activation requires interaction with LTBP-1 and fibronectin, and is enhanced by PAR-1 (8, 9). Deletion of β6 ablates tonic inhibition of alveolar macrophages by TGF-β, inhibits intestinal regulatory T cell production, and predisposes mice to inflammatory reactions in the skin, lungs, and intestines where irritations and microbial challenges are frequent (10-12). High αVβ6 expression in carcinomas may contribute to progression through its effects on TGF-β and MMP activity (3). The foot-and-mouth disease virus and several other viruses can use αVβ6 as a receptor, and soluble αVβ6 may block virus infectivity *in vitro* (13, 14).

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