Recombinant Human Integrin αVβ6

Catalog Number: 3817-AV

DESCRIPTION

Source

Chinese Hamster Ovary cell line, CHO-derived human Integrin alpha V beta 6 protein

Human Integrin αV (Phe31-Val992) Accession # NP_002201.1	His-Pro	GGGSGGGS	Acidic Tail
Human Integrin β6 (Gly22-Asn707) Accession # P18564	His-His-Pro	GGGSGGGS	Basic Tail

N-terminus C-terminus

N-terminal Sequence Analysis	Phe31 (αV subunit) & Gly22 (β6 subunit)
Structure / Form	Noncovalently-linked heterodimer
Predicted Molecular Mass	110.5 kDa (αV subunit), 78.6 kDa (β6 subunit)

SPECIFICATIONS

SDS-PAGE	118-144 kDa and 93-113 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. Immobilized Recombinant Human Integrin αVβ6 at 2.0 µg/mL can bind Recombinant Human LAP TGF-β1 (Catalog # 246-LP) with an apparent K_d <0.1 nM.
Endotoxin Level	<1.0 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 Tris, NaCl and $CaCl_2$. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile 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.

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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 962 aa human αV ECD (4), which is cleaved at aa 890 but remains associated, shares 92-95% aa sequence identity with mouse and bovine αV, while the 685 aa human β6 ECD (5) shares 90-93% aa sequence identity with mouse, rat, bovine, ovine, and porcine β6. Each subunit has a transmembrane sequence and a short cytoplasmic tail connected to the cytoskeleton. The β6 C-terminal 11 amino acid (aa) cytoplasmic sequence transduces a signal, enhancing proliferation and inducing MMP-9 expression (6). Either “inside-out” signaling or Mg^{2+} or Mn^{2+} 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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