Recombinant Human Integrin α5β1 Fc Chimera

Catalog Number: 11538-A5

DESCRIPTION

Source

Human embryonic kidney cell, HEK293-derived human Integrin alpha 5 beta 1 protein

Human ITGA5 (Phe42-Tyr995) Accession # P08648.2	IEGR	Human IgG1 (Pro99-Lys330) (with modifications)
Human ITGB1 (Gln21-Asp728) Accession # P05556.2	IEGR	Human IgG1 (Pro99-Lys330) (with modifications)

N-terminus C-terminus

N-terminal Sequence Analysis	Phe 42 (Integrin alpha 5) & Gln21 inferred from enzymatic pyroglutamate treatment revelaing Ser 22 (Integrin beta 1)
Structure / Form	Disulfide-linked heterodimer
Predicted Molecular Mass	131 kDa (Integrin alpha 4) & 105 kDa (Integrin beta 1)

SPECIFICATIONS

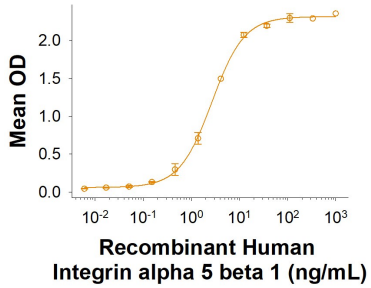
SDS-PAGE	225-370 kDa, under non-reducing conditions
Activity	Measured by its binding ability in a functional ELISA. Recombinant Human Integrin α5β1 Fc Chimera (Catalog # 11538-A5) binds Human Fibronectin (Catalog # 1918-FN) with an ED_{50} of 0.600-9.00 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the 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.** • 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



Recombinant Human Integrin alpha 5 beta 1 Fc Chimera Protein Binding Activity. Recombinant Human Integrin alpha 5 beta 1 Fc Chimera Protein (Catalog # 11538-A5) binds Human Fibronectin (Catalog # 1918-FN) with an ED_{50} of 0.600-9.00 ng/mL.

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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).

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