

AM26285PU-N**Monoclonal Antibody to Beta1 Integrin - Purified**

Quantity:	0.1 mg
Concentration:	0.1 mg/ml
Background:	<p>Beta-1 integrin is a ubiquitously expressed ~89 kDa type I transmembrane protein functioning as receptor when heterodimerized with one alpha subunit. It belongs to the integrin beta chain family consisting of four different genes, encoding multiple β-integrins via alternative splicing. Ligand-recognition depends on the composition of the heterodimer: either collagen, fibronectin, VCAM1, laminin, cytotactin, osteopontin, epiligrin, thrombospondin and CSPG4 can bind to the integrin-complex. Beta-1 integrins recognize the sequence R-G-D in a wide array of ligands. Isoform beta-1B interferes with isoform beta-1A resulting in a dominant negative effect on cell adhesion and migration (in vitro). In case of HIV-1 infection, the interaction with extracellular viral Tat protein seems to enhance angiogenesis in Kaposi's sarcoma lesions. When associated with $\alpha 7$, $\beta 1$-integrin regulates cell adhesion and laminin matrix deposition. BV7 is active on HT-29 colon carcinoma cells and on HCCP-2998 tumor cells. It is involved in promoting endothelial cell motility and angiogenesis. Furthermore, $\beta 1$-integrin plays a mechanistic adhesive role during telophase, and is required for the successful completion of cytokinesis.</p> <p>Upon activation integrins in general, including $\beta 1$-integrin, are known to exhibit global structural rearrangements and exposure of ligand binding sites. $\beta 1$-integrin modulation is of importance in tissue repair and regeneration. In cultured primary hippocampal neurons, astrocytes and tissues, cell surface expression of amyloid beta fibrils (key hallmark of Alzheimer's disease) selectively co-localized with $\beta 1$-integrin. Preincubation of cells with antibodies against $\beta 1$-integrin, as well as $\alpha 1$-integrin, greatly enhanced amyloid beta-induced apoptosis, indicating a protective role for integrins in apoptosis.</p>
Host / Isotype:	Mouse / IgG1
Recommended Isotype Controls:	SM10P (for use in human samples), AM03095PU-N
Clone:	BV7
Immunogen:	Human umbilical vein EC
Format:	State: Liquid 0.2 μ m filtered Ig fraction Purification: Protein G Chromatography Buffer System: PBS Stabilizers: 0.1% BSA
Applications:	Flow Cytometry (1,3): Stains the extracellular domain of beta-1 integrin. HUVEC cells were fixed in 4% paraformaldehyde before staining. Mouse IgG1 isotype was used as negative. The typical starting working dilution is 1/50. Functional Studies (1,2,4,5): Functions as an inhibiting antibody. The antibody was functionally tested by adhesion assay (Ref 1), chemotaxis (Ref 2), patch clamp analysis (Ref 3) and neurotoxicity induced apoptosis (Ref 4). Immunassay.

Immunoprecipitation (1).

Western Blot: The typical starting working dilution is 1/50.

Positive Control: HT-29 colon carcinoma, Endothelial cells.

Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Specificity:

The monoclonal antibody BV7 recognizes Human β 1-integrin.

It does not recognize α 5 β 1 complex and not the cytoplasmic part of the β 1-subunit. BV7 binds to several other tumor cells (MG3 osteosarcoma, A375 melanoma, MHCC-1410 and Lovo colon carcinoma) but does not affect adhesion to endothelial cells.

Species Reactivity:

Tested: Human.

Storage:

Store undiluted at 2-8°C.

Shelf life: one year from despatch.

General Readings:

1. Martìn-Padura I, Bazzoni G, Zanetti A, Bernasconi S, Elices MJ, Mantovani A, et al. A novel mechanism of colon carcinoma cell adhesion to the endothelium triggered by beta 1 integrin chain. *J Biol Chem.* 1994 Feb 25;269(8):6124-32. PubMed PMID: 7509799.
2. Palmieri D, Camardella L, Ulivi V, Guasco G, Manduca P. Trimer carboxyl propeptide of collagen I produced by mature osteoblasts is chemotactic for endothelial cells. *J Biol Chem.* 2000 Oct 20;275(42):32658-63. PubMed PMID: 10924500.
3. Martel V, Vignoud L, Dupé S, Frachet P, Block MR, Albigès-Rizo C. Talin controls the exit of the integrin alpha 5 beta 1 from an early compartment of the secretory pathway. *J Cell Sci.* 2000 Jun;113 (Pt 11):1951-61. PubMed PMID: 10806106.
4. Hofmann G, Bernabei PA, Crociani O, Cherubini A, Guasti L, Pillozzi S, et al. HERG K⁺ channels activation during beta(1) integrin-mediated adhesion to fibronectin induces an up-regulation of alpha(v)beta(3) integrin in the preosteoclastic leukemia cell line FLG 29.1. *J Biol Chem.* 2001 Feb 16;276(7):4923-31. Epub 2000 Nov 15. PubMed PMID: 11080495.
5. Bozzo C, Lombardi G, Santoro C, Canonico PL. Involvement of beta(1) integrin in betaAP-induced apoptosis in human neuroblastoma cells. *Mol Cell Neurosci.* 2004 Jan;25(1):1-8. PubMed PMID: 14962735.

Pictures:

Red: isotype control mouse IgG1. Black: irrelevant mouse IgG1 control. Blue: AM26285PU-N, clone BV7. Beta-1 integrin expression on HUVEC cells. Flow cytometric detection of human β 1-integrin on HUVECs (mAb BV7; Cat# AM26285PU-N). Controls and anti-human β 1-integrin at 0.4 μ g/100000 cells (1 hr 4 °C).

