SYSY Antibodies

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

β1-Integrin

Cat.No. 240-0P; control peptide, 100 µg peptide (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg peptide, lyophilized. For **reconstitution** add 100 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Control peptides should be stored at -20°C when still lyophilized! For detailed information, see back of the data sheet.
Immunogen	Synthetic peptide corresponding to AA 96 to 113 from mouse β1-Integrin (UniProt Id: P09055)
Recommended dilution	Optimal concentrations should be determined by the end-user.
Matching antibodies	240 003
Remarks	This control peptide consists of the synthetic peptide (aa 96 - 113 of mouse β1-integrin) that has been used for immunization. It has been tested in preadsorption experiments and blocks efficiently and specifically the corresponding signal in Western blots. The amount of peptide needed for efficient blocking depends on the titer and on the affinity of the antibody to the antigen.

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Background

Integrins are heterodimers consisting of noncovalently associated α and β subunits. More than 20 different integrin receptors composed of 16 different α and 8 different β subunits have been described so far. Most of these receptors bind components of the extracellular matrix like fibronectin, collagen and vitronectin.
Integrins are transmembrane glycoproteins involved in many normal cellular processes (embryogenesis, hemostasis, tissue repair, immune response) but also in abnormal pathological events like metastatic spread of tumor cells. In humans five isoforms of **β1-integrin** have been described (β1A-1D, 1C-2). β1-integrin is also known as **v**ery **l**ate **a**ntigen VLA or CD29.
β3-integrin, also referred to a CD 61, is found with the alpha IIb chain in platelets.

Selected General References

Integrin expression profiling identifies integrin alpha5 and beta1 as prognostic factors in early stage non-small cell lung cancer.
Dingemans AM et al. Mol. Cancer (2010) PubMed:20565758

Loss of beta1 integrin in mouse fibroblasts results in resistance to skin scleroderma in a mouse model.
Liu S et al. Arthritis Rheum. (2009) PubMed:19714619

beta1 integrin maintains integrity of the embryonic neocortical stem cell niche.
Loulier K et al. PLoS Biol. (2009) PubMed:19688041

Caveolin-1-dependent beta1 integrin endocytosis is a critical regulator of fibronectin turnover.
Shi F et al. J. Cell. Sci. (2008) PubMed:18577581

Secreted APP regulates the function of full-length APP in neurite outgrowth through interaction with integrin beta1.
Young-Pearse TL et al. Neural Dev (2008) PubMed:18573216

Beta1 integrin activates Rac1 in Schwann cells to generate radial lamellae during axonal sorting and myelination.
Nodari A et al. J. Cell Biol. (2007) PubMed:17576799

Beta1-integrin signaling mediates premyelinating oligodendrocyte survival but is not required for CNS myelination and remyelination.
Benninger Y et al. J. Neurosci. (2006) PubMed:16855094

OSP/claudin-11 forms a complex with a novel member of the tetraspanin super family and beta1 integrin and regulates proliferation and migration of oligodendrocytes.
Tiwari-Woodruff SK et al. J. Cell Biol. (2001) PubMed:11309411

Nerve growth factor stimulates the accumulation of beta1 integrin at the tips of filopodia in the growth cones of sympathetic neurons.
Grabham PW et al. J. Neurosci. (1997) PubMed:9204928

Altered tyrosine phosphorylation via the very late antigen (VLA)/beta1 integrin stimulation is associated with impaired T-cell signaling through VLA-4 after allogeneic bone marrow transplantation.
Sato T et al. Blood (1997) PubMed:9354695

Signal transduction through the beta1 integrin family surface adhesion molecules VLA-4 and VLA-5 of human B-cell precursors activates CD19 receptor-associated protein-tyrosine kinases.
Xiao J et al. J. Biol. Chem. (1996) PubMed:8631803

Control of beta1 integrin function. Localization of stimulatory epitopes.
Wilkins JA et al. J. Biol. Chem. (1996) PubMed:8621699

Access the online factsheet including applicable protocols at https://sysy.com/product/240-0P or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at **4°C** before reconstitution. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.