

β3-Integrin

Cat.No. 240-3P; control peptide, 100 µg peptide (lyophilized)

Data Sheet

| | |
|----------------------------|---|
| Reconstitution/ Storage | 100 µg peptide, lyophilized. For reconstitution add 100 µl H ₂ O 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 76 to 91 from mouse β3-Integrin (UniProt Id: O54890) |
| Recommended dilution | Optimal concentrations should be determined by the end-user. |
| Matching antibodies | 240 303 |
| Remarks | This control peptide consists of the synthetic peptide (aa 76 - 91 of mouse β3-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 **very late antigen 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, van den Boogaart V, Vosse BA, van Suylen RJ, Griffioen AW, Thijssen VL. *Molecular cancer* (2010) 9: 152. .

Loss of beta1 integrin in mouse fibroblasts results in resistance to skin scleroderma in a mouse model. Liu S, Kapoor M, Denton CP, Abraham DJ, Leask A. *Arthritis and rheumatism* (2009) 609: 2817-21. .

beta1 integrin maintains integrity of the embryonic neocortical stem cell niche. Loulier K, Lathia JD, Marthiens V, Relucio J, Mughal MR, Tang SC, Coksaygan T, Hall PE, Chigurupati S, Patton B, Colognato H, et al. *PLoS biology* (2009) 78: e1000176. .

Caveolin-1-dependent beta1 integrin endocytosis is a critical regulator of fibronectin turnover. Shi F, Sottile J. *Journal of cell science* (2008) 121Pt 14: 2360-71. .

Secreted APP regulates the function of full-length APP in neurite outgrowth through interaction with integrin beta1. Young-Pearse TL, Chen AC, Chang R, Marquez C, Selkoe DJ. *Neural development* (2008) 3: 15. .

Beta1 integrin activates Rac1 in Schwann cells to generate radial lamellae during axonal sorting and myelination. Nodari A, Zamboni D, Quattrini A, Court FA, D'Urso A, Recchia A, Tybulewicz VL, Wrabetz L, Feltri ML. *The Journal of cell biology* (2007) 1776: 1063-75. .

Beta1-integrin signaling mediates premyelinating oligodendrocyte survival but is not required for CNS myelination and remyelination. Benninger Y, Colognato H, Thurnherr T, Franklin RJ, Leone DP, Atanasoski S, Nave KA, Ffrench-Constant C, Suter U, Relvas JB. *The Journal of neuroscience : the official journal of the Society for Neuroscience* (2006) 2629: 7665-73. .

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, Buznikov AG, Vu TQ, Micevych PE, Chen K, Kornblum HI, Bronstein JM. *The Journal of cell biology* (2001) 1532: 295-305. .

Nerve growth factor stimulates the accumulation of beta1 integrin at the tips of filopodia in the growth cones of sympathetic neurons. Grabham PW, Goldberg DJ. *The Journal of neuroscience : the official journal of the Society for Neuroscience* (1997) 1714: 5455-65. .

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, Ohashi Y, Tachibana K, Soiffer RJ, Ritz J, Morimoto C. *Blood* (1997) 9010: 4222-9. .

Access the online factsheet including applicable protocols at <https://sysy.com/product/240-3P> or scan the QR-code.



FAQ - How should I store my antibody?

Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form 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. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C.

Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot a 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.