SYSY Antibodies

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Zyxin

Cat.No. 307 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. 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. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	**WB**: 1 : 100 up to 1 : 2000 (AP staining) **IP**: yes **ICC**: 1 : 100 **IHC**: not tested yet **IHC-P (FFPE)**: 1 : 200
Clone	164D4
Subtype	IgG1 (κ light chain)
Immunogen	Recombinant protein corresponding to AA 1 to 572 from human Zyxin (UniProt Id: Q15942)
Epitop	AA 352 to 357 from human Zyxin (UniProt Id: Q15942)
Reactivity	Reacts with: human (Q15942), rat, mouse (Q62523), hamster. Other species not tested yet.

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

Background

Zyxin is a LIM domain-containing cytoskeletal protein crucial for mechanotransduction, actin cytoskeleton remodeling, and cell adhesion. Predominantly localized at focal adhesions and actin stress fibers, zyxin serves as a scaffold for proteins involved in signal transduction and mechanical force adaptation. Its N-terminal proline-rich domain enables interactions with SH3 domain-containing proteins, while its C-terminal LIM domains facilitate protein-protein interactions, contributing to cytoskeletal integrity and gene expression regulation (1).
Beyond its general cytoskeletal functions, zyxin plays a pivotal role in vascular biology by maintaining endothelial barrier function and regulating actin dynamics in response to shear stress, thus impacting vascular homeostasis and angiogenesis, as well as a role in inflammatory diseases such as psoriasis and inflammatory bowel disease (2). In brain ischemia, zyxin modulates neurovascular responses, influencing cell survival and tissue recovery following stroke-induced damage. It has been shown to regulate blood-brain barrier integrity and contribute to neuronal cytoskeletal reorganization under ischemic stress (3).
Moreover, zyxin has emerged as a significant player in tumorigenesis, where it exerts context-dependent effects on cancer progression. While it supports tumor cell migration and invasion by modulating actin polymerization and focal adhesion turnover, it also interacts with signaling pathways that can either suppress or promote malignancy, depending on tumor type and the cellular microenvironment (4). Understanding zyxin's dual role in tumor biology provides potential therapeutic insights into targeting cytoskeletal dynamics in cancer treatment.

Selected References for 307 011

mTOR regulates expression of slit diaphragm proteins and cytoskeleton structure in podocytes.
Vollenbröker B, George B, Wolfgart M, Saleem MA, Pavenstädt H, Weide T
American journal of physiology. Renal physiology (2009) 2962: F418-26. . **WB, ICC**

Zyxin mediates actin fiber reorganization in epithelial-mesenchymal transition and contributes to endocardial morphogenesis.
Mori M, Nakagami H, Koibuchi N, Miura K, Takami Y, Koriyama H, Hayashi H, Sabe H, Mochizuki N, Morishita R, Kaneda Y, et al.
Molecular biology of the cell (2009) 2013: 3115-24. . **WB, ICC**

TES is a novel focal adhesion protein with a role in cell spreading.
Coutts AS, MacKenzie E, Griffith E, Black DM
Journal of cell science (2003) 116Pt 5: 897-906. . **WB, ICC**

The conformational state of Tes regulates its zyxin-dependent recruitment to focal adhesions.
Garvalov BK, Higgins TE, Sutherland JD, Zettl M, Scaplehorn N, Köcher T, Piddini E, Griffiths G, Way M
The Journal of cell biology (2003) 1611: 33-9. . **WB, ICC**

Zyxin is not colocalized with vasodilator-stimulated phosphoprotein (VASP) at lamellipodial tips and exhibits different dynamics to vinculin, paxillin, and VASP in focal adhesions.
Rottner K, Krause M, Gimona M, Small JV, Wehland J
Molecular biology of the cell (2001) 1210: 3103-13. . **WB, ICC**

GSK3 and lamellipodin balance lamellipodial protrusions and focal adhesion maturation in mouse neural crest migration.
Dobson L, Barrell WB, Seraj Z, Lynham S, Wu SY, Krause M, Liu KJ
Cell reports (2023) 429: 113030. . **ICC; tested species: mouse**

Regulation of matrix metalloproteinases (MMPs) expression and secretion in MDA-MB-231 breast cancer cells by LIM and SH3 protein 1 (LASP1).
Endres M, Kneitz S, Orth MF, Perera RK, Zernecke A, Butt E
Oncotarget (2016) 739: 64244-64259. . **WB**

Access the online factsheet including applicable protocols at https://sysy.com/product/307011 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.