SYSY Antibodies

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VE-Cadherin

Cat.No. 553 004; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For **reconstitution** add 100 µl H_2O, then aliquot and store at -20°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 : 500 **IP**: not tested yet **ICC**: 1 : 500 (see remarks) **IHC**: not tested yet **IHC-P (FFPE)**: 1 : 1000
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus region of mouse VE-Cadherin (UniProt Id: P55284)
Reactivity	Reacts with: mouse (P55284)). Weaker signal: human (P33151), rat (F1M7E5). Other species not tested yet.
Remarks	**ICC**: Methanol fixation is recommended.

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

Background

VE-Cadherin (Vascular Endothelial Cadherin, CDH5) is an endothelial-specific transmembrane adhesion protein of the Cadherin superfamily that is essential for the formation and maintenance of adherens junctions between endothelial cells (1–3). It is expressed predominantly in vascular endothelial cells, where it mediates calcium-dependent homophilic cell-cell adhesion and helps preserve vascular integrity, barrier function, and endothelial survival (1–4). As a junctional protein, VE-Cadherin interacts through its cytoplasmic domain with Catenins such as β-Catenin, p120-Catenin, and plakoglobin, thereby linking endothelial junctions to the actin cytoskeleton and intracellular signaling pathways (3,5). Through these structural and signaling functions, VE-Cadherin plays a central role in regulating junction stability, vascular permeability, and endothelial homeostasis (1,2,8,9). VE-Cadherin carries multiple N and O glycosylation sites that modulate its folding, surface expression, and interaction with Catenins.
In vascular tissues, VE-Cadherin is closely associated with the control of endothelial barrier function, angiogenesis, and inflammatory responses (1,2,6,8). Disruption of VE-Cadherin-mediated adhesion leads to increased vascular permeability and contributes to edema, leukocyte transmigration, and vessel destabilization during inflammation and disease (1,2,6). VE-Cadherin is also required for proper vascular morphogenesis and endothelial cell survival during development, highlighting its essential role in blood vessel formation and remodeling (4,7). Because of its endothelial-restricted expression and its importance in vascular biology, VE-Cadherin is widely used as a marker of endothelial cells and as a key mediator of vascular dysfunction in disorders such as inflammation, tumor angiogenesis, and other diseases associated with impaired vessel stability (1,2,7–9).

Selected General References

The role of adherens junctions and VE-cadherin in the control of vascular permeability.
Dejana E et al. J Cell Sci (2008) PubMed:18565824

Molecular Mechanisms Regulating Vascular Endothelial Permeability.
Wakasugi R et al. Int J Mol Sci (2024) PubMed:38928121

VE-Cadherin in Cancer-Associated Angiogenesis: A Deceptive Strategy of Blood Vessel Formation.
Delgado-Bellido D et al. Int J Mol Sci (2023) PubMed:37298296

VE-cadherin N-glycosylation modified by N-acetylglucosaminyltransferase V regulates VE-cadherin-β-catenin interaction and monocyte adhesion.
Zhang L et al. Exp Physiol (2021) PubMed:34117813

VE-cadherin and endothelial adherens junctions: active guardians of vascular integrity.
Giannotta M et al. Dev Cell (2013) PubMed:24044891

The role of VE-cadherin in vascular morphogenesis and permeability control.
Dejana E et al. Prog Mol Biol Transl Sci (2013) PubMed:23481193

VE-cadherin: the major endothelial adhesion molecule controlling cellular junctions and blood vessel formation.
Vestweber D et al. Arterioscler Thromb Vasc Biol (2008) PubMed:18162609

Endothelial adherens and tight junctions in vascular homeostasis, inflammation and angiogenesis.
Wallez Y et al. Biochim Biophys Acta (2008) PubMed:17961505

Targeted deficiency or cytosolic truncation of the VE-cadherin gene in mice impairs VEGF-mediated endothelial survival and angiogenesis.
Carmeliet P et al. Cell (1999) PubMed:10428027

Access the online factsheet including applicable protocols at https://sysy.com/product/553004 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.