

## Nestin

**Cat.No. 312 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)**

### Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. For <b>reconstitution</b> add 100 µl H <sub>2</sub> O 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	<b>WB:</b> 1 : 1000 (AP staining) <b>IP:</b> yes <b>ICC:</b> 1 : 500 <b>IHC:</b> 1 : 500 <b>IHC-P:</b> not recommended
Clone	JP63
Subtype	IgG1 (κ light chain)
Immunogen	Recombinant protein corresponding to AA 1 to 1618 from human Nestin (UniProt Id: P48681)
Reactivity	Reacts with: human (P48681). Other species not tested yet.

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

## Background

Nestin is a type VI intermediate filament and is expressed in early embryonic neuroepithelial stem cells during CNS development (1). The protein is downregulated and replaced by other tissue specific intermediate filaments during differentiation (2). Antibodies against Nestin can be employed as predominant markers for stem and progenitor cells in the mammalian CNS. During neuroinflammation and ischemia, Nestin is upregulated in different CNS cell types (2). Expression has also been reported for proliferative endothelial cells of various tissues like newly formed blood vessels in brain (3), glomeruli of kidney (4) and skin (5). Moreover, Nestin has garnered significant attention in oncology, as its re-expression is associated with various cancers, including glioblastomas and melanomas (6).

## Selected References for 312 011

Regulation of synaptic connectivity in schizophrenia spectrum by mutual neuron-microglia interaction. Breitmeyer R, Vogel S, Heider J, Hartmann SM, Wüst R, Keller AL, Binner A, Fitzgerald JC, Fallgatter AJ, Volkmer H Communications biology (2023) 61: 472. . **ICC; tested species: human**

A novel method for culturing stellate astrocytes reveals spatially distinct Ca<sup>2+</sup> signaling and vesicle recycling in astrocytic processes.

Wolfe AC, Ahmed S, Awasthi A, Stahlberg MA, Rajput A, Magruder DS, Bonn S, Dean C The Journal of general physiology (2017) 149: 149-170. . **WB; tested species: rat**

NDRG2 as a marker protein for brain astrocytes.

Flügge G, Araya-Callis C, Garea-Rodriguez E, Stadelmann-Nessler C, Fuchs E Cell and tissue research (2014) 357: 31-41. . **IHC; tested species: marmoset**

## Selected General References

Stem cells in the central nervous system.

McKay R et al. Science (1997) PubMed:9082987

Molecular imaging of nestin in neuroinflammatory conditions reveals marked signal induction in activated microglia. Krishnasamy S et al. J Neuroinflammation (2017) PubMed:28253906

Tumor Evolution of Glioma-Intrinsic Gene Expression Subtypes Associates with Immunological Changes in the Microenvironment.

Wang Q et al. Cancer Cell (2017) PubMed:28697342

The neural stem/progenitor cell marker nestin is expressed in proliferative endothelial cells, but not in mature vasculature. Suzuki S et al. J Histochem Cytochem (2010) PubMed:20421592

Expression of nestin in the podocytes of normal and diseased human kidneys.

Su W et al. Am. J. Physiol. Regul. Integr. Comp. Physiol. (2007) PubMed:17255215

Patterns of nestin expression in human skin.

Wang Y et al. Cell Biol Int (2006) PubMed:16275024

Access the online factsheet including applicable protocols at <https://sysy.com/product/312011> 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 at 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.