

Substance P

Cat.No. 459 005; Polyclonal Guinea pig antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For reconstitution add 50 µl H ₂ 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	WB: not tested yet IP: not tested yet ICC: not tested yet IHC: 1 : 500 IHC-P: not tested yet
Immunogen	Synthetic peptide corresponding to AA 58 to 68 from mouse Protachykinin-1 (UniProt Id: P41539)
Reactivity	Reacts with: mouse (P41539), rat (P06767). Other species not tested yet.
Specificity	The antibody is specific for substance P. It shows no cross-reactivity to neurokinin A, neurokinin B, or the unprocessed precursor protein.

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

Background

Substance P (also designated **SP** or **NK-1**) is a highly conserved peptide that was originally discovered in 1931 (1). It is an undecapeptide belonging to the tachykinin neuropeptide family. Mammalian tachykinins include substance P, neurokinin A and neurokinin B, and they all share the same carboxy-terminal amino acid sequence (2,3).

Substance P is generated by post-translational cleavage of the precursor Protachykinin-1 (2,3).

Substance P is widely distributed throughout the central and peripheral nervous system, including the brain, spinal cord, and nerve fibers and endocrine cells of the gastrointestinal tract (3,4).

Substance P exerts its effects by binding to the neurokinin-1 receptor NK-1R (2,3).

It functions in the central and peripheral nervous systems as a neurotransmitter or neuromodulator (5) and is involved in many biological processes, including intestinal smooth muscle contraction, blood pressure regulation, neurogenic inflammation, nociception and pain transmission (2,5). Furthermore, it has gained attention for its role in complex psychiatric processes including stress, anxiety, and depression (2).

Selected General References

An unidentified depressor substance in certain tissue extracts.
V Euler US et al. J Physiol (1931) PubMed:16994201

Substance P and the Neurokinin-1 Receptor: The New CRF.
Schank JR et al. Int Rev Neurobiol (2017) PubMed:29056150

Immunomodulatory properties of substance P: the gastrointestinal system as a model.
Koon HW et al. Ann N Y Acad Sci (2006) PubMed:17192554

Neuroanatomical localisation of Substance P in the CNS and sensory neurons.
Ribeiro-da-Silva A et al. Neuropeptides (2000) PubMed:11049730

Neurotransmitter functions of mammalian tachykinins.
Otsuka M et al. Physiol Rev (1993) PubMed:7682720

Access the online factsheet including applicable protocols at <https://sysy.com/product/459005> 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.