Synaptic Systems

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# α Synuclein

**Cat.No. 128 211; 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. For detailed information, see back of the data sheet. |
| Applications | **WB**: 1 : 1000 (AP staining)<br>**IP**: yes<br>**ICC**: 1 : 500<br>**IHC**: 1 : 200<br>**IHC-P/FFPE**: 1 : 500<br>**ELISA**: yes (see remarks) |
| Clone | 354A10D12G4 |
| Subtype | IgG1 (κ light chain) |
| Immunogen | Synthetic peptide corresponding to AA 126 to 140 from human α-Synuclein (UniProt Id: P37840) |
| Epitop | Epitop: AA 126 to 140 from human α-Synuclein (UniProt Id: P37840) |
| Reactivity | Reacts with: human (P37840), rat (P37377), mouse (O55042), mammals. Other species not tested yet. |
| Specificity | Specific for α-synuclein, no cross-reactivity to β- and γ-synuclein. |
| Remarks | **ELISA**: This antibody is suitable as capture antibody for sandwich-ELISA with cat. no. 128 003 as detector antibody. |

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

Access the online factsheet including applicable protocols at https://sysy.com/product/128211 or scan the QR-code.

## Background

**Synuclein** proteins are produced by three genes. They share structural resemblance to apolipoproteins, but are abundant in the neuronal cytosol and present in enriched amounts at presynaptic terminals.
Synucleins have been specifically implicated in three diseases: Alzheimer's (AD), Parkinson's (PD) and breast cancer. In AD, a peptide derived from α-synuclein forms an intrinsic component of plaque amyloid. In PD, an α-synuclein allele is genetically linked to several independent familial cases, and the protein appears to accumulate in Lewy bodies. In breast cancer, increased expression of γ-synuclein correlates with disease progression.
In songbirds, α-synuclein expression is correlated with plasticity in the developing song control system. Although the normal function of synucleins is unknown, a role in synaptic plasticity seems likely.

## Selected References for 128 211

N-terminal acetylation mutants affect alpha-synuclein stability, protein levels and neuronal toxicity.
Vinueza-Gavilanes R, Íñigo-Marco I, Larrea L, Lasa M, Carte B, Santamaría E, Fernández-Irigoyen J, Bugallo R, Aragón T, Aldabe R, Arrasate M, et al.
Neurobiology of disease (2020) : 104781. . **WB, ICC; tested species: human**

Multiplex imaging of human induced pluripotent stem cell-derived neurons with CO-Detection by indEXing (CODEX) technology.
Heinrich L, Zafar F, Morato Torres CA, Singh J, Khan A, Chen MY, Hempel C, Nikulina N, Mulholland J, Braubach O, Schüle B, et al.
Journal of neuroscience methods (2022) : 109653. . **CODEX_PC; tested species: human**

E46K α-synuclein pathological mutation causes cell-autonomous toxicity without altering protein turnover or aggregation.
Íñigo-Marco I, Valencia M, Larrea L, Bugallo R, Martínez-Goikoetxea M, Zuriguel I, Arrasate M
Proceedings of the National Academy of Sciences of the United States of America (2017) 11439: E8274-E8283. . **ICC; tested species: rat**

## Selected General References

Genetics of Parkinson's disease.
Polymeropoulos MH
Annals of the New York Academy of Sciences (2000) 920: 28-32. .

Depression in alpha-synucleinopathies: prevalence, pathophysiology and treatment.
Stefanova N, Seppi K, Scherfler C, Puschban Z, Wenning GK
Journal of neural transmission. Supplementum (2000) 60: 335-43. .

The synucleins: a family of proteins involved in synaptic function, plasticity, neurodegeneration and disease.
Clayton DF, George JM
Trends in neurosciences (1998) 216: 249-54. .

Filamentous nerve cell inclusions in neurodegenerative diseases.
Goedert M, Spillantini MG, Davies SW
Current opinion in neurobiology (1998) 85: 619-32. .

Genetic classification of primary neurodegenerative disease.
Hardy J, Gwinn-Hardy K
Science (New York, N.Y.) (1998) 2825391: 1075-9. .

The synuclein family.
Lavedan C
Genome research (1998) 89: 871-80. .

New developments in understanding the etiology of Parkinson's disease and in its treatment.
Lozano AM, Lang AE, Hutchison WD, Dostrovsky JO
Current opinion in neurobiology (1998) 86: 783-90. .

# 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 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.