SYSY Antibodies

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# VGluT1 sdAb (SLC17A7)

**Cat.No. N1602-AF488-L; Single Domain camelid antibody, 200 µl FluoTag-X2**

## Data Sheet

| | |
|---|---|
| Reconstitution/ Storage | 200 µl purified antibody, lyophilized from PBS, fluorescence-labeled with Alexa 488. Albumin was added for stabilization. For reconstitution refer to the NanoTag reconstitution and storage instructions.<br>Reconstitute immediately upon receipt! Avoid bright light when working with the antibody to minimize photo bleeching of the fluorescent dye.<br>For detailed information, see back of the data sheet. |
| Applications | **ICC**: 1 : 500 |
| Label | Alexa 488, two fluorophores coupled to one FluoTag |
| Clone | Nb9 |
| Immunogen | Recombinant protein corresponding to AA 58 to 515 from rat VGLUT1 (UniProt Id: Q62634) |
| Reactivity | Reacts with: mouse (Q3TXX4), rat (Q62634).<br>Other species not tested yet. |
| Specificity | Specific for VGluT1. No significant cross-reaction with VGluT2 or VGluT3 |

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

## Background

The **v**esicular **glu**tamate **t**ransporter **1 VGLUT 1**, also referred to as **BNPI** and **SLC17A7**, was originally identified as a brain specific phosphate transporter. Like the related VGLUT 2, VGLUT 1 is both necessary and sufficient for uptake and storage of glutamate and thus comprises the sole determinant for a glutamatergic phenotype. Both VGLUTs are different from the plasma membrane transporters in that they are driven by a proton electrochemical gradient across the vesicle membrane.
VGLUT 1 and VGLUT 2 show complementary expression patterns. Together, they are currently the best markers for glutamatergic nerve terminals and glutamatergic synapses.

Unlabeled variants and several modifications of sdAbs like biotin, fluorophore or DBCO conjugation are available.

In **FluoTag®-X2** two fluorophore molecules are site-specifically coupled to each FluoTag molecule. Therefore, the reagent simultaneously targets two fluorophores to the protein of interest, which ensures up to two-fold („2X“)-brighter signals. Owing to the small size of the FluoTags, the distance between the target epitope and each fluorophore is ~ 3 nm.
In comparison to detection systems using conventional antibodies, FluoTag-X can thus improve the localization accuracy by 10-15 nm. Both features - superior brightness and precise fluorophore placement - render the FluoTag-X products excellent tools for all microscopy techniques.

## Selected References for N1602-AF488-L

A synaptic molecular dependency network in knockdown of autism- and schizophrenia-associated genes revealed by multiplexed imaging.
Falkovich R, Danielson EW, Perez de Arce K, Wamhoff EC, Strother J, Lapteva AP, Sheng M, Cottrell JR, Bathe M
Cell reports (2023) 425: 112430. . **ICC; tested species: rat**

## Selected General References

Identification of a vesicular glutamate transporter that defines a glutamatergic phenotype in neurons.
Takamori S et al. Nature (2000) PubMed:11001057

Uptake of glutamate into synaptic vesicles by an inorganic phosphate transporter.
Bellocchio EE et al. Science (2000) PubMed:10938000

The localization of the brain-specific inorganic phosphate transporter suggests a specific presynaptic role in glutamatergic transmission.
Bellocchio EE et al. J. Neurosci. (1998) PubMed:9786972

Cloning and expression of a cDNA encoding a brain-specific Na(+)-dependent inorganic phosphate cotransporter.
Ni B et al. Proc. Natl. Acad. Sci. U.S.A. (1994) PubMed:8202535

Access the online factsheet including applicable protocols at https://sysy.com/product/N1602-AF488-L 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.