SYSY Antibodies

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# Otoferlin

**Cat.No. 178 003; Polyclonal rabbit 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 $H_2O$ 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<br>**IP**: not tested yet<br>**ICC**: not tested yet<br>**IHC**: external data (see remarks)<br>**IHC-P (FFPE)**: not tested yet<br>**iDISCO**: external data (see remarks) |
| Immunogen | Synthetic peptide corresponding to AA 181 to 196 from mouse Otoferlin (UniProt Id: Q9ESF1-1) |
| Reactivity | Reacts with: mouse (Q9ESF1).<br>Other species not tested yet.<br><br>Antigen identical in rat. |
| Specificity | K.O. validated PubMed: 37248244 |
| Remarks | **IHC**: This antibody has been successfully applied and published for this method by customers (see application-specific references and gallery). It has not been validated using our standard protocols.<br>**iDISCO**: This antibody has been successfully applied and published for this method by customers (see application-specific references). |

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

## Background

**Otoferlin** is a transmembrane protein with six C2 domains which locates to synaptic vesicles. It belongs to the family of ferlin C2 proteins which are implicated in membrane-membrane fusion events.
Otoferlin is expressed in hair cells of the inner ear and in some brain regions. Hair cell ribbon synapses lack the candidate neuronal calcium sensors synaptotagmin 1, synaptotagmin 2 and synaptotagmin 3 and other proteins typical for conventional synapses like synaptophysin.
By analogy of $Ca^{2+}$ binding, SNARE-binding and because of some aspects of the physiological phenotype of otoferlin-deficient hair cells, otoferlin is suggested to take the role of a $Ca^{2+}$ sensor of exocytosis in hair cells. Mutations in the otoferlin gene are associated with the recessive prelingual deafness DFNB9.

## Selected References for 178 003

Overloaded Adeno-Associated Virus as a Novel Gene Therapeutic Tool for Otoferlin-Related Deafness.
Rankovic V, Vogl C, Dörje NM, Bahader I, Duque-Afonso CJ, Thirumalai A, Weber T, Kusch K, Strenzke N, Moser T
Frontiers in molecular neuroscience (2020) 13: 600051. . **IHC, IDISCO; tested species: mouse**

Charting the nanotopography of inner hair cell synapses using MINFLUX nanoscopy.
Kapoor R, Kim H, Garlick E, Lima MADRBF, Esch K, Ruhwedel T, Möbius W, Wolf F, Moser T
Science advances (2025) 1145: eady4344. . **IHC; tested species: mouse**

Cochlear transcript diversity and its role in auditory functions implied by an otoferlin short isoform.
Liu H, Liu H, Wang L, Song L, Jiang G, Lu Q, Yang T, Peng H, Cai R, Zhao X, Zhao T, et al.
Nature communications (2023) 141: 3085. . **IHC; KO verified; tested species: mouse**

Proteomic analysis reveals the composition of glutamatergic organelles of auditory inner hair cell.
Cepeda AP, Ninov M, Neef J, Parfentev I, Kusch K, Reisinger E, Jahn R, Moser T, Urlaub H
Molecular & cellular proteomics : MCP (2023) : 100704. . **IHC; tested species: mouse**

A new probe for super-resolution imaging of membranes elucidates trafficking pathways.
Revelo NH, Kamin D, Truckenbrodt S, Wong AB, Reuter-Jessen K, Reisinger E, Moser T, Rizzoli SO
The Journal of cell biology (2014) 2054: 591-606. . **IHC; tested species: mouse**

## Selected General References

Differential expression of otoferlin in brain, vestibular system, immature and mature cochlea of the rat.
Schug N et al. Eur. J. Neurosci. (2006) PubMed:17229086

Otoferlin, defective in a human deafness form, is essential for exocytosis at the auditory ribbon synapse.
Roux I et al. Cell (2006) PubMed:17055430

Auditory neuropathy in patients carrying mutations in the otoferlin gene (OTOF).
Rodríguez-Ballesteros M et al. Hum. Mutat. (2003) PubMed:14635104

Substitutions in the conserved C2C domain of otoferlin cause DFNB9, a form of nonsyndromic autosomal recessive deafness.
Mirghomizadeh F et al. Neurobiol. Dis. (2002) PubMed:12127154

A mutation in OTOF, encoding otoferlin, a FER-1-like protein, causes DFNB9, a nonsyndromic form of deafness.
Yasunaga S et al. Nat. Genet. (1999) PubMed:10192385

Access the online factsheet including applicable protocols at https://sysy.com/product/178003 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.