

**TMP21 Antibody**  
Catalog # ASC10484

**Specification**

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**TMP21 Antibody - Product Information**

Application	WB, IHC
Primary Accession	<a href="#">P49755</a>
Other Accession	<a href="#">AAD31941</a> , <a href="#">4885697</a>
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Application Notes	TMP21 antibody can be used for detection of TMP21 by Western blot at 0.5 - 2 µg/mL. Antibody can also be used for immunohistochemistry starting at 5 µg/mL.

**TMP21 Antibody - Additional Information**

Gene ID **10972**

**Other Names**

TMP21 Antibody: p23, TMP21, S31I125, Tmp-21-I, S31III125, P24(DELTA), Transmembrane emp24 domain-containing protein 10, 21 kDa transmembrane-trafficking protein, transmembrane emp24-like trafficking protein 10 (yeast)

**Target/Specificity**

TMED10;

**Reconstitution & Storage**

TMP21 antibody can be stored at 4°C for three months and -20°C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.

**Precautions**

TMP21 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

**TMP21 Antibody - Protein Information**

Name TMED10 ([HGNC:16998](#))

Synonyms TMP21

**Function**

Cargo receptor involved in protein vesicular trafficking and quality control in the endoplasmic reticulum (ER) and Golgi (PubMed: [10052452](http://www.uniprot.org/citations/10052452) target="\_blank">10052452</a>, PubMed: [11726511](http://www.uniprot.org/citations/11726511) target="\_blank">11726511</a>, PubMed: [16641999](http://www.uniprot.org/citations/16641999) target="\_blank">16641999</a>)

target="\_blank">16641999</a>, PubMed:<a href="http://www.uniprot.org/citations/17288597" target="\_blank">17288597</a>, PubMed:<a href="http://www.uniprot.org/citations/19296914" target="\_blank">19296914</a>, PubMed:<a href="http://www.uniprot.org/citations/20427317" target="\_blank">20427317</a>, PubMed:<a href="http://www.uniprot.org/citations/21219331" target="\_blank">21219331</a>, PubMed:<a href="http://www.uniprot.org/citations/27569046" target="\_blank">27569046</a>). The p24 protein family is a group of transmembrane proteins that bind coat protein complex I/COPI and coat protein complex II/COPII involved in vesicular trafficking between the membranes (PubMed:<a href="http://www.uniprot.org/citations/10052452" target="\_blank">10052452</a>). Acts at the luminal side for incorporation of secretory cargo molecules into transport vesicles and involved in vesicle coat formation at the cytoplasmic side (PubMed:<a href="http://www.uniprot.org/citations/20427317" target="\_blank">20427317</a>, PubMed:<a href="http://www.uniprot.org/citations/27569046" target="\_blank">27569046</a>). Mainly functions in the early secretory pathway and cycles between the ER, ER-Golgi intermediate compartment (ERGIC) and Golgi, mediating cargo transport through COPI and COPII-coated vesicles (PubMed:<a href="http://www.uniprot.org/citations/10052452" target="\_blank">10052452</a>, PubMed:<a href="http://www.uniprot.org/citations/10852829" target="\_blank">10852829</a>, PubMed:<a href="http://www.uniprot.org/citations/12237308" target="\_blank">12237308</a>). In COPII vesicle-mediated anterograde transport, involved in the transport of GPI-anchored proteins by acting together with TMED2 as their cargo receptor; the function specifically implies SEC24C and SEC24D of the COPII vesicle coat and lipid raft-like microdomains of the ER (PubMed:<a href="http://www.uniprot.org/citations/20427317" target="\_blank">20427317</a>, PubMed:<a href="http://www.uniprot.org/citations/27569046" target="\_blank">27569046</a>). Recognizes GPI anchors structural remodeled in the ER by the GPI inositol-deacylase/PGAP1 and the metallophosphoesterase MPPE1/PGAP5 (By similarity). In COPI vesicle-mediated retrograde transport, involved in the biogenesis of COPI vesicles and vesicle coat recruitment (PubMed:<a href="http://www.uniprot.org/citations/11726511" target="\_blank">11726511</a>). Involved in trafficking of amyloid beta A4 protein and soluble APP-beta release (independent from the modulation of gamma-secretase activity) (PubMed:<a href="http://www.uniprot.org/citations/17288597" target="\_blank">17288597</a>). Involved in the KDELR2-mediated retrograde transport of the toxin A subunit (CTX-A- K63) together with COPI and the COOH terminus of KDELR2 (By similarity). On Golgi membranes, acts as a primary receptor for ARF1-GDP, a GTP-binding protein involved in COPI-vesicle formation (PubMed:<a href="http://www.uniprot.org/citations/11726511" target="\_blank">11726511</a>). Increases coatomer-dependent GTPase-activating activity of ARFGAP2 which mediates the hydrolysis of ARF1-bound GTP and therefore modulates protein trafficking from the Golgi apparatus (PubMed:<a href="http://www.uniprot.org/citations/19296914" target="\_blank">19296914</a>). Involved in the exocytic trafficking of G protein-coupled receptors F2LR1/PAR2 (trypsin and trypsin-like enzyme receptor), OPRM1 (opioid receptor) and P2RY4 (UTD and UDP receptor) from the Golgi to the plasma membrane, thus contributing to receptor resensitization (PubMed:<a href="http://www.uniprot.org/citations/21219331" target="\_blank">21219331</a>). In addition to its cargo receptor activity, may also act as a protein channel after oligomerization, facilitating the post-translational entry of leaderless cytoplasmic cargo into the ERGIC (PubMed:<a href="http://www.uniprot.org/citations/32272059" target="\_blank">32272059</a>). Involved in the translocation into ERGIC, the vesicle entry and the secretion of leaderless cargos (lacking the secretion signal sequence), including the mature form of interleukin 1/IL-1 family members, the alpha-crystallin B chain HSPB5, the carbohydrate-binding proteins galectin-1/LGALS1 and galectin-3/LGALS3, the microtubule-associated protein Tau/MAPT, and the annexin A1/ANXA1; the translocation process is dependent on cargo protein unfolding and enhanced by chaperones HSP90AB1 and HSP90B1/GRP9 (PubMed:<a href="http://www.uniprot.org/citations/32272059" target="\_blank">32272059</a>). Could also associates with the presenilin-dependent gamma-secretase complex in order to regulate gamma-cleavages of the amyloid beta A4 protein to yield amyloid-beta 40/Abeta40 (PubMed:<a href="http://www.uniprot.org/citations/16641999" target="\_blank">16641999</a>).

### Cellular Location

Endoplasmic reticulum membrane; Single-pass type I membrane protein. Endoplasmic

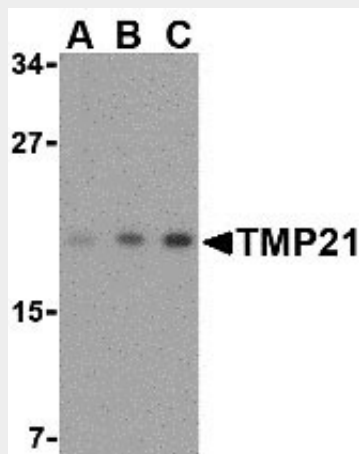
reticulum-Golgi intermediate compartment membrane; Single-pass type I membrane protein. Golgi apparatus membrane; Single-pass type I membrane protein. Golgi apparatus, cis-Golgi network membrane; Single-pass type I membrane protein. Golgi apparatus, trans-Golgi network membrane {ECO:0000250|UniProtKB:Q63584}; Single-pass type I membrane protein. Cytoplasmic vesicle, secretory vesicle membrane; Single-pass type I membrane protein. Cell membrane {ECO:0000250|UniProtKB:Q63584}; Single-pass type I membrane protein. Melanosome  
Note=Identified by mass spectrometry in melanosome fractions from stage I to stage IV.

### TMP21 Antibody - Protocols

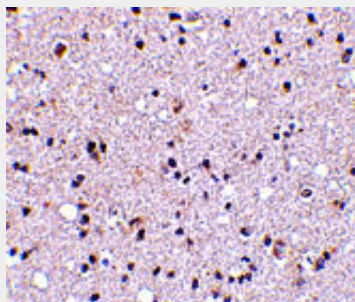
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

### TMP21 Antibody - Images



Western blot analysis of TMP21 in mouse brain tissue lysate with TMP21 antibody at (A) 0.5, (B) 1 and (C) 2 µg/mL.



Immunohistochemistry of TMP21 in human brain tissue with TMP21 antibody at 5 µg/mL.

### TMP21 Antibody - Background

TMP21 Antibody: TMP21 is a ubiquitously expressed protein that is involved in vesicular targeting and protein transport. More recent experiments have shown that it is also a component in the presenilin complex and modulates the gamma-secretase but not the epsilon-secretase cleavage activity of the amyloid precursor protein. The presenilin complex is composed of the proteins APH1, nicastrin, and PEN2 in addition to presenilin-1. Together, these proteins cleave the amyloid precursor protein at what is known as the gamma- and epsilon-sites and can lead to the accumulation of the Abeta cleavage product that is associated with Alzheimer's disease. Co-immunoprecipitation experiments using antibodies against these proteins also yielded TMP21 indicating that TMP21 may play a role in the regulation of this complex. Suppression of TMP21 expression by siRNA in transfected cells caused increased gamma-secretase activity but not epsilon-secretase activity, and increased Abeta; production, demonstrating that TMP21 can modulate gamma-secretase activity.

### **TMP21 Antibody - References**

- Blunt R, Feick P, Puype M, et al. Tmp21 and p24A, two type I proteins enriched in pancreatic microsomal membranes, are members of a protein family involved in vesicular trafficking. *J. Biol. Chem.* 1996; 271:17183-9.
- Chen F, Hasegawa H, Schmitt-Ulms G, et al. TMP21 is a presenilin complex component that modulates  $\gamma$ -secretase but not  $\epsilon$ -secretase activity. *Nature* 2006; 440:1208-12.
- Periz G and Fortini ME. Functional reconstitution of  $\gamma$ -secretase through coordinated expression of presenilin, nicastrin, aph-1, and pen-2. *J. Neurosci. Res.* 2004; 77:309-22.
- Selkoe DJ. The cell biology of  $\beta$ -amyloid precursor protein and presenilin in Alzheimer's disease. *Trends Cell Biol.* 1998; 8:447-53.