

## Datasheet for 600-401-384

## HA Epitope Tag Antibody

### Overview

<b>Description:</b>	Anti-HA Epitope Tag (RABBIT) Antibody - 600-401-384
<b>Item No.:</b>	600-401-384
<b>Size:</b>	100 µg
<b>Applications:</b>	ELISA, IHC, WB, IF, IP, Multiplex
<b>Reactivity:</b>	HA-Tag
<b>Host Species:</b>	Rabbit

### Product Details

<b>Background:</b>	Epitope tags are short peptide sequences that are easily recognized by tag-specific antibodies. Due to their small size, epitope tags do not affect the biochemical properties of the tagged protein. Most often, sequences encoding the epitope tag are included with the target DNA at the time of cloning to produce fusion proteins containing the epitope tag sequence. This allows Anti epitope tag antibodies to serve as universal detection reagents for any tag containing protein produced by recombinant means. This means that anti-epitope tag antibodies are a useful alternative to generating specific antibodies to identify, immunoprecipitate or immunoaffinity purify a recombinant protein. HA tag is frequently incorporated into recombinant proteins for a variety of purposes. An anti-HA antibody can then be used to detect the protein when doing studies with transfected cells.
<b>Synonyms:</b>	rabbit anti-HA epitope tag antibody, rabbit anti-hemagglutinin antibody, rabbit anti-HA tag antibody, anti-epitope
<b>Host Species:</b>	Rabbit
<b>Clonality:</b>	Polyclonal
<b>Format:</b>	IgG

### Target Details

<b>Reactivity:</b>	HA-Tag
<b>Immunogen Type:</b>	Conjugated Peptide

<b>Immunogen:</b>	Anti-HA antibody was purified from whole rabbit serum prepared by repeated immunizations with the epitope tag peptide YPYDVPDYA (114-122) from hemagglutinin influenza conjugated to KLH.
<b>Purity/Specificity:</b>	This affinity purified Anti-HA antibody is directed against the HA motif and is useful in determining its presence in various assays. This polyclonal anti-HA tag antibody detects over-expressed proteins containing the HA epitope tag. To date, this antibody has reacted with all HA-tagged proteins tested. In western blotting of bacterial extracts, the antibody does not cross-react with endogenous proteins.

## Application Details

<b>Tested Applications:</b>	ELISA, IHC, WB
<b>Suggested Applications:</b>	IF, IP, Multiplex (Based on references)
<b>Application Note:</b>	Anti-HA is optimally suited for monitoring the expression of HA-tagged fusion proteins. As such, anti-HA/HA can be used to identify fusion proteins containing the HA epitope. The antibody recognizes the HA epitope tag fused to the amino- or carboxy- termini of targeted proteins, as expressed in many commonly used expression vectors. This antibody has been tested by ELISA, immunohistochemistry, and western blotting against both the immunizing peptide and HA containing recombinant proteins. Although not tested, this antibody is likely functional for immunoprecipitation, immunocytochemistry, and other immunodetection techniques. Affinity purification of the polyclonal antibody results in very low background levels in assays and low cross-reactivity with other cellular proteins.
<b>Assay Dilutions:</b>	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
<b>ChIP:</b>	User Optimized
<b>ELISA:</b>	1:10,000 - 1:100,000
<b>IHC:</b>	1:500 - 1:2,000
<b>IP:</b>	User Optimized
<b>WB:</b>	1:2,000 - 1:10,000

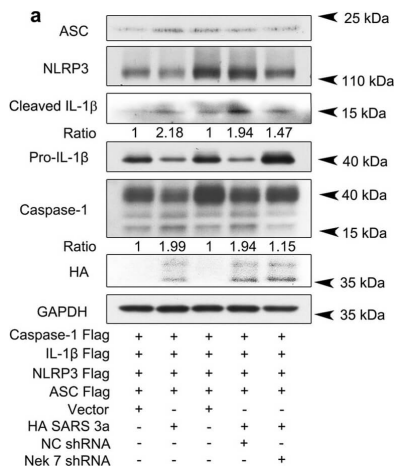
## Formulation

<b>Physical State:</b>	Liquid (sterile filtered)
<b>Concentration:</b>	1.05 mg/mL by UV absorbance at 280 nm
<b>Buffer:</b>	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
<b>Preservative:</b>	0.01% (w/v) Sodium Azide
<b>Stabilizer:</b>	None

## Shipping & Handling

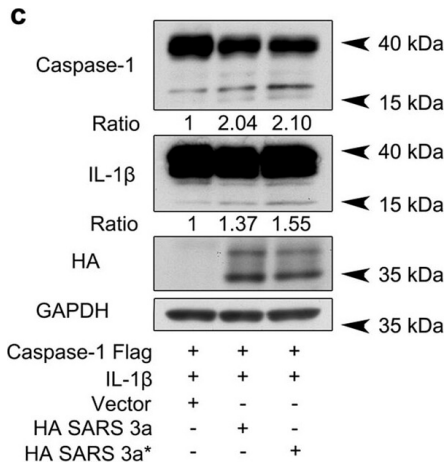
<b>Shipping Condition:</b>	Dry Ice
<b>Storage Condition:</b>	Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.
<b>Expiration:</b>	Expiration date is one (1) year from date of receipt.

## Images



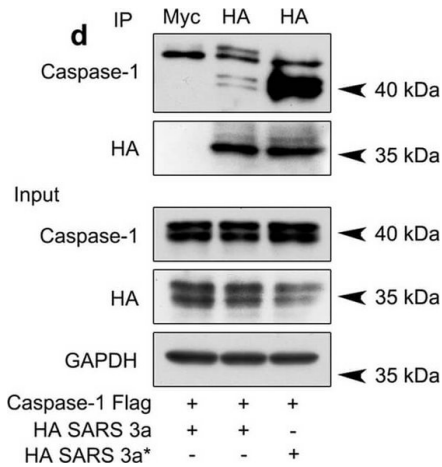
### Western Blot

SARS 3a induces NLRP3 inflammasome activation by multiple mechanisms. A) Immunoblot analysis of the pro- and cleaved forms of caspase-1 and IL-1β after reconstitution of inflammasome in HEK 293T cells transfected with SARS 3a with or without NEK7 shRNA. B) Immunoblot analysis of the pro- and cleaved forms of caspase-1 and IL-1β after reconstitution of inflammasome and transfection with SARS 3a or SARS 3a C133A. C) Immunoblot analysis of the pro- and cleaved forms of caspase-1 and IL-1β after co-transfection with caspase-1, IL-1β, and SARS 3a or SARS 3a C133A. d Immunoprecipitation analysis of interaction between SARS 3a or SARS 3a C133A and caspase-1. All western blot data are representative of two or three independent experiments Figure provided by CiteAb. Source: Cell Death Dis, PMID: 30185776.



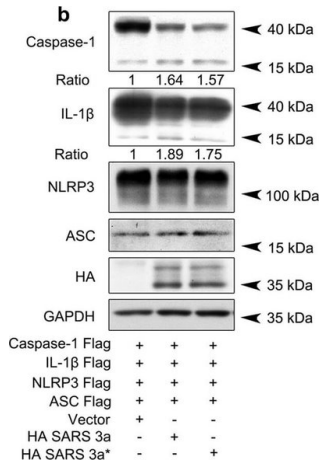
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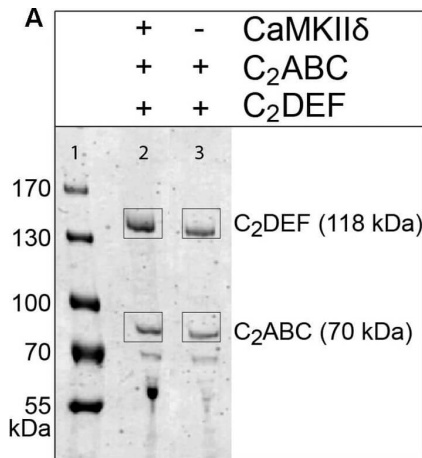
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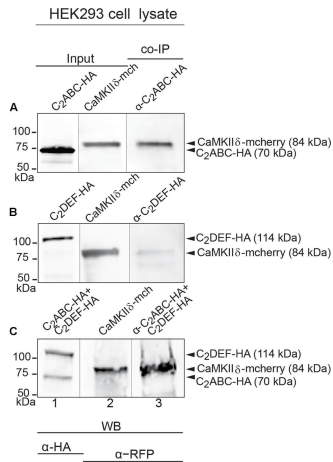
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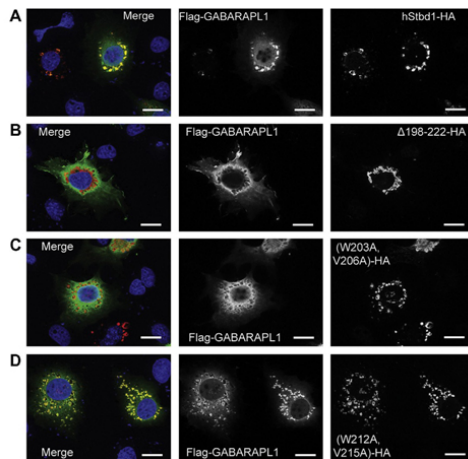
**Western Blot**

Otoferlin is phosphorylated by CaMKIIδ in vitro. (A) Otoferlin fragments C2ABC (aa 1–616 in NP\_001093865, 70 kDa) and C2DEF (aa 908–1932, 118 kDa), were expressed in E. coli and subjected to an in vitro phosphorylation assay with CaMKIIδ and Ca<sup>2+</sup>/calmodulin. Reactions were stopped after 5 min of incubation and proteins were run on a Coomassie gel. Note the slight shift in mass of the fragments between experiment (lane 2) and control without kinase (lane 3). Coomassie stained bands corresponding to otoferlin C2DEF and C2ABC were cut off the gel and processed for mass spectrometric analysis of otoferlin phosphorylation (Supplementary Figure S2). (B) Three independent experiments as in (A) revealed 10 serine/threonines in otoferlin that were reproducibly phosphorylated by CaMKIIδ. The putative otoferlin domain topology (in mouse isoform 1; NP\_001093865) predicts six C2 domains (C2A to C2F; purple), a coiled-coiled domain (orange), a FerB domain (yellow), and a transmembrane domain (TM) (dark gray). Five of the phosphorylation sites are located in C2 domains. Figure provided by CiteAb. Source: Front Synaptic Neurosci, Figure 6. PMID: 29046633.



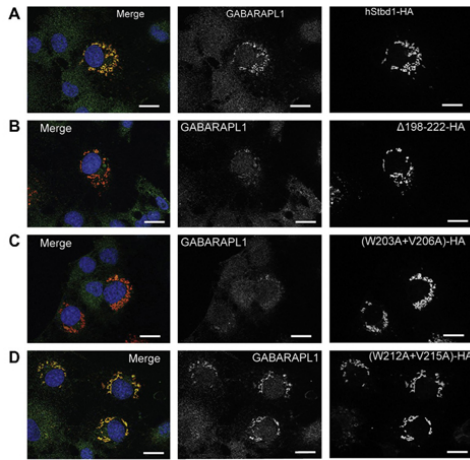
### Western Blot

Immunoprecipitation and western blot show interaction of otoferlin with CaMKIIδ. (A–C) Two HA-tagged mouse otoferlin fragments, C2ABC (aa 1–632 in NP\_001093865; 70 kDa) and C2DEF (aa 933–1920; 114 kDa) were co-transfected with mcherry-tagged mouse CaMKIIδ into HEK293 cells. Transfections were performed either with otoferlin C2ABC and CaMKIIδ (A, Input Lane 1 and 2), otoferlin C2DEF and CaMKIIδ (B, Input Lane 1 and 2) or in the presence of both C2ABC and C2DEF fragments and CaMKIIδ (C, Input Lane 1 and 2). Co-immunoprecipitations of C2ABC-HA and C2DEF-HA were conducted from HEK293 cell lysates using anti-HA antibodies. CaMKIIδ-mcherry was detected in the eluate using an anti-RFP (red fluorescent protein) antibody (A–C, Lane 3), indicating that CaMKIIδ co-precipitated with recombinant otoferlin fragments. Figure provided by CiteAb. Source: Front Synaptic Neurosci, PMID: 29046633.



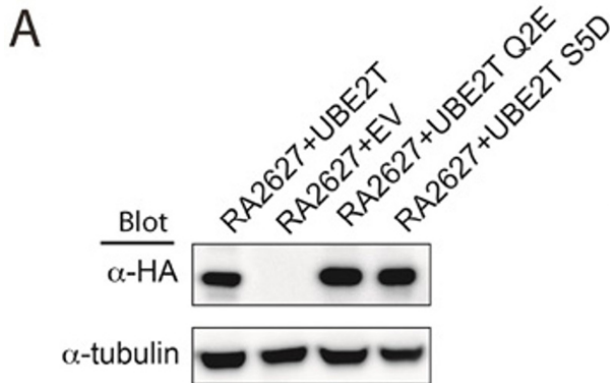
### Immunofluorescence Microscopy

Subcellular localization of GABARAPL1 and Atg8 family interacting motif (AIM) mutants of Stbd1 co-expressed in COS M9 cells. Mutated hStbd1 with a C-terminal HA-tag was co-expressed in COS M9 cells with N-terminal Flag-tagged GABARAPL1 and immunostained with anti-HA antibodies (red) or anti-Flag antibodies (green). (A) Co-localization of hStbd1 and GABARAPL1 (merged in left panel) in cells co-expressing C-terminal HA-tagged full length hStbd1 (right panel) and N-terminal Flag-tagged GABARAPL1 (middle panel). (B) Loss of co-localization (merged in left panel) of Flag-tagged GABARAPL1 (middle panel) with potential AIM deletion mutant of hStbd1, Δ198–222–HA (right panel). (C) Impaired co-localization (merged in left panel) of Flag-tagged GABARAPL1 (middle panel) with double mutation in a potential AIM on hStbd1, (W203A, V206A)-HA (right panel). (D) Unaffected co-localization (merged in left panel) of Flag-tagged GABARAPL1 (middle panel) with double mutation in another potential AIM on hStbd1, (W212A, V215A)-HA (right panel). Nuclei were stained with Hoechst (blue). The scale bar is 20 μm. Fig 3. PMID: 21893048



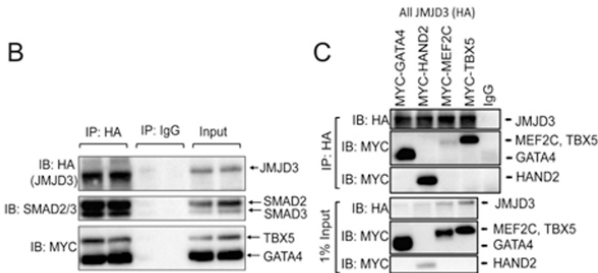
### Immunofluorescence Microscopy

Subcellular localization of endogenous GABARAPL1 and overexpressed Stbd1 with Atg8 family interacting motif (AIM) mutations in COS M9 cells. Overexpressed full length or mutated hStbd1 with a C-terminal HA-tag and endogenous GABARAPL1 in COS M9 cells was immunostained with anti-HA antibodies (red) or anti-GABARAPL1 antibodies (green). (A) Co-localization of hStbd1 and GABARAPL1 (merged in left panel) in cells expressing C-terminal HA-tagged full length hStbd1 (right panel) and endogenous GABARAPL1 (middle panel). (B) Loss of co-localization (merged in left panel) of endogenous GABARAPL1 (middle panel) with potential AIM deletion mutant of hStbd1,  $\Delta 198-222$ -HA (right panel). (C) Impaired co-localization (merged in left panel) of endogenous GABARAPL1 (middle panel) with double mutation in potential AIM on hStbd1, (W203A, V206A)-HA (right panel). (D) Unaffected co-localization (merged in left panel) of endogenous GABARAPL1 (middle panel) with double mutation in another potential AIM on hStbd1, (W212A, V215A)-HA (right panel). Nuclei were stained with Hoechst (blue). The scale bar is 20  $\mu$ m. Fig 4. PMID: 21893048



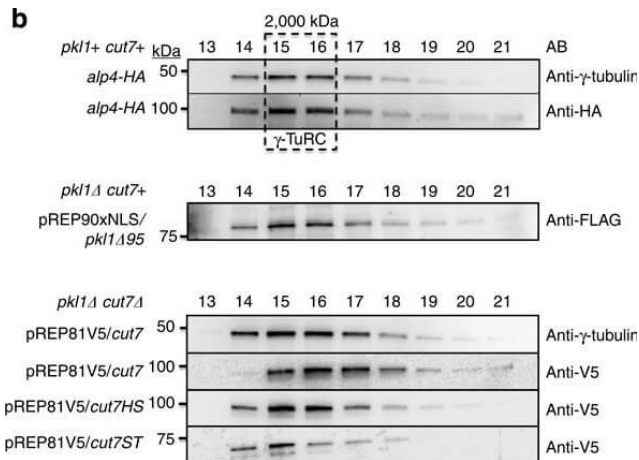
### Western Blot

hUBE2T-deficient RA2627 cells expressing hUBE2T S5D phosphomimetic are defective for FANCD2 and FANCI monoubiquitination. (A) Anti-HA western blot of hUBE2T deficient transformed and immortalized RA2627 E6/E7/hTERT fibroblasts expressing the indicated protein. Figure 7. PMID: 28162934



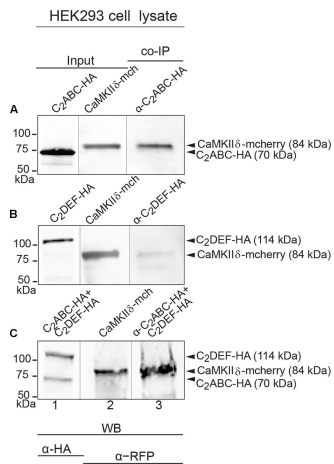
### Western Blot

B) Co-IPs using nuclear lysates harvested from HEK293T cells transfected with MYC-GHMT and HA-JMJD3. Following Co-IP with anti-HA, proteins were resolved by SDS-PAGE and immunoblotted for MYC, HA, and SMAD2/3. C) Co-IPs using nuclear lysates harvested from HEK293T cells transfected with HA-JMJD3 and individual MYC-G, -H, -M, or -T transcription factors. Following Co-IP with anti-HA (C), proteins were resolved by SDS-PAGE and immunoblotted for HA. Fig 2. PMID: 33359755



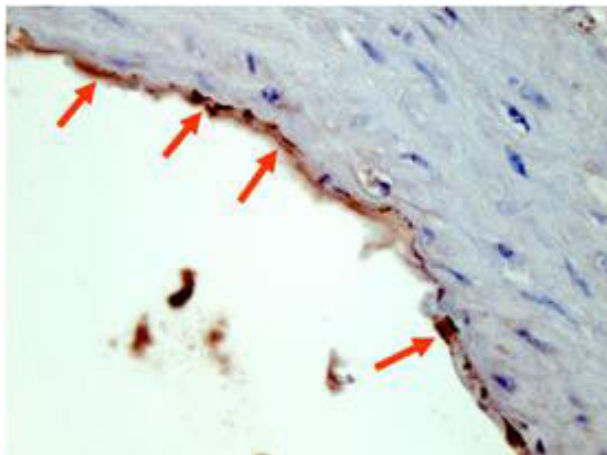
### Western Blot

Kinesin-5 Cut7 binds the  $\gamma$ -TuRC MTOC. (a) Kinesin-5 and kinesin-14 constructs used in Fast Protein Liquid Chromatography. V5-tagged Cut7 and two truncation constructs were used, in addition to one FLAG-Pk11 truncated construct that retains full Pk11 activity. Cut7 constructs are V5-tagged full-length Cut7 (aa 1–1,085), Cut7-Head-Stalk (Cut7HS, aa 1–888) and Cut7-Stalk-Tail (Cut7-ST, aa 443–1,085). (b) Western blot profiles of whole-cell extracts fractionated by Sepharose 6 using FPLC. (c) Western blots of Cut7 constructs immunoprecipitated from whole-cell extracts using anti-V5 magnetic beads with empty strain negative controls. (d) Cartoon diagram of 6-His tagged Pk11 Tail peptide co-immunoprecipitation assay using magnetic beads with His affinity and FPLC fraction 15. (e) Pk11 Tail peptide co-immunoprecipitation of  $\gamma$ -TuRC core subunits and V5-Cut7ST using a short Pk11 Tail peptide (PyT). Mutated peptide PyM has significantly reduced interaction with the fission yeast  $\gamma$ -TuRC. The anti-HA antibody detects the HA-tagged  $\gamma$ -TuRC protein Alp4. Figure provided by CiteAb. Source: Nat Commun, PMID: 25348260.



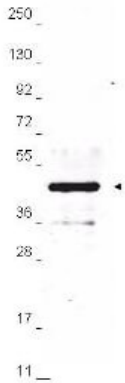
### Western Blot

Immunoprecipitation and western blot show interaction of otoferlin with CaMKII $\delta$ . (A–C) Two HA-tagged mouse otoferlin fragments, C2ABC (aa 1–632 in NP\_001093865; 70 kDa) and C2DEF (aa 933–1920; 114 kDa) were co-transfected with mcherry-tagged mouse CaMKII $\delta$  into HEK293 cells. Transfections were performed either with otoferlin C2ABC and CaMKII $\delta$  (A, Input Lane 1 and 2), otoferlin C2DEF and CaMKII $\delta$  (B, Input Lane 1 and 2) or in the presence of both C2ABC and C2DEF fragments and CaMKII $\delta$  (C, Input Lane 1 and 2). Co-immunoprecipitations of C2ABC-HA and C2DEF-HA were conducted from HEK293 cell lysates using anti-HA antibodies. CaMKII $\delta$ -mcherry was detected in the eluate using an anti-RFP (red fluorescent protein) antibody (A–C, Lane 3), indicating that CaMKII $\delta$  co-precipitated with recombinant otoferlin fragments. Figure provided by CiteAb. Source: Front Synaptic Neurosci, PMID: 29046633.



### Immunohistochemistry

Rockland's Affinity Purified anti-HA epitope tag polyclonal antibody detects HA tagged recombinant proteins by IHC on formalin fixed paraffin embedded tissue. Arrowheads point to expression of HA tagged proteins in endothelial cells of mouse aorta. Sections of 4  $\mu$ m were prepared from representative paraffin blocks. Sections were then deparaffinized and rehydrated with xylene and alcohol. Citrate buffer antigen retrieval was performed for 30 min in a boiling jar. Anti-HA was diluted in blocking buffer at 1:2,000 and reacted at 4° C overnight followed by signal detection using horseradish peroxidase with DAB as the chromogenic substrate. Tissue was counterstained with Mayer's hematoxylin. Personal Communication, Behzad Yeganeh, U. Manitoba, Winnipeg, Canada.



### Western Blot

Anti-HA epitope tag polyclonal antibody detects HA-tagged recombinant proteins by western blot. Polyclonal Rabbit anti-HA epitope tag, at a 1:2,000 dilution, was used to detect 1.0 µg of 12-Epitope Tag Protein Marker Lysate (p/n MB-301-0100) containing the HA epitope tag. A 4-20% gradient gel was used to resolve the protein by SDS-PAGE. The lysate was transferred to nitrocellulose using standard methods. After blocking, the membrane was probed with Rockland's anti-HA tag antibody for 1 h at room temperature followed by washes and reaction with a 1:20,000 dilution of IRDye® 800 conjugated Gt-a-Rabbit IgG (H&L) MX10 (code 611-132-122) for 30 min at room temperature. LICOR's Odyssey® Infrared Imaging System was used to scan and process the image. Other detection systems will yield similar results.

## References

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