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Datasheet for 200-401-Z18

BACE Antibody

Overview

Description:	Anti-BACE (RABBIT) Antibody - 200-401-Z18
Item No.:	200-401-Z18
Size:	100 µg
Applications:	ELISA, IF, IHC, Multiplex, WB
Reactivity:	Human, Mouse
Host Species:	Rabbit

Product Details

Background:	Accumulation of the amyloid-beta (Abeta) plaque in the cerebral cortex is a critical event in the pathogenesis of Alzheimer's disease. Abeta peptide is generated by proteolytic cleavage of the beta-amyloid protein precursor (APP) at beta- and gamma-sites by two proteases. APP is first cleaved by beta-secretase, producing a soluble derivative of the protein and a membrane anchored 99-amino acid carboxy-terminal fragment (C99). The C99 fragment serves as substrate for gamma-secretase to generate the 4 kDa amyloid-beta peptide, which is deposited in the brains of all suffers of Alzheimer's disease. The long-sought beta-secretase was recently identified by several groups independently and designated beta-site APP cleaving enzyme (BACE) and aspartyl protease 2 (Asp2). BACE/Asp2 is a novel transmembrane aspartic protease and colocalizes with APP.
Synonyms:	BACE Antibody, ASP2, BACE, HSPC104, KIAA1149, Beta-secretase 1, Aspartyl protease 2, ASP2
Host Species:	Rabbit
Clonality:	Polyclonal
Format:	IgG

Target Details

Gene Name:	BACE1
Reactivity:	Human, Mouse
Immunogen Type:	Conjugated Peptide

Immunogen:	Anti-BACE antibody was prepared from whole rabbit serum produced by repeated immunizations with a peptide corresponding to 17 amino acids at the C-terminus of human BACE. The immunogen is located within the last 50 amino acids of BACE.
Purity/Specificity:	Anti-BACE Antibody is affinity chromatography purified via peptide column. Cross reactivity with BACE from other sources has not been determined.
Relevant Links:	• UniProtKB - P56817 • GeneID - 23621 • NCBI - AF190725

Application Details

Tested Applications:	ELISA, IF, IHC, Multiplex, WB
Application Note:	Anti-BACE Antibody has been tested for use in Western Blotting, Immunohistochemistry, Immunocytochemistry, and Immunofluorescence. Specific conditions for reactivity should be optimized by the end user. Expect a band at approximately 56 kDa in Western Blots of specific cell lysates and tissues. Positive controls used Human Brain Tissues, NIH3T3, Daudi, and HeLa cells.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
ELISA:	1:10,000
IF:	20µg/mL
IHC:	10µg/mL
WB:	1µg/mL

Formulation

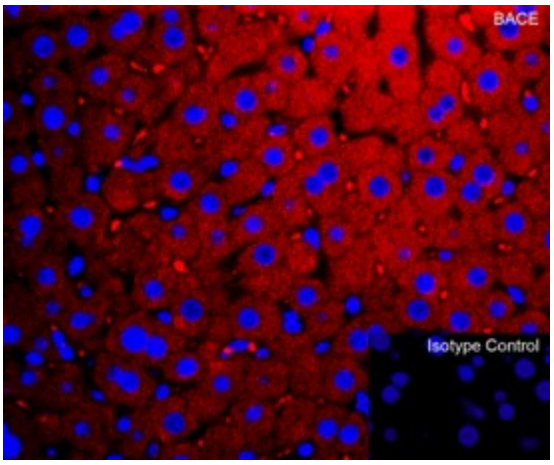
Physical State:	Liquid (sterile filtered)
Concentration:	1.0 mg/mL by UV absorbance at 280 nm
Buffer:	0.01 M Sodium Phosphate, 0.25 M Sodium Chloride, pH 7.2
Preservative:	0.02% (w/v) Sodium Azide
Stabilizer:	None

Shipping & Handling

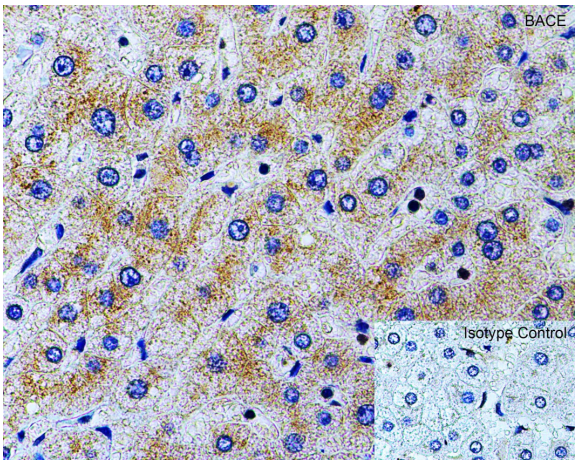
Shipping Condition:	Dry Ice

Storage Condition:	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.
Expiration:	Expiration date is one (1) year from date of receipt.

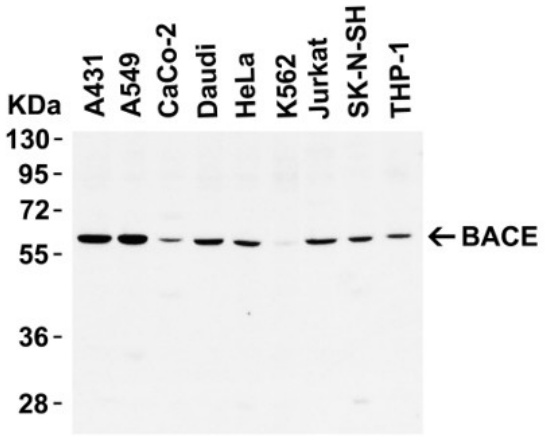
Images



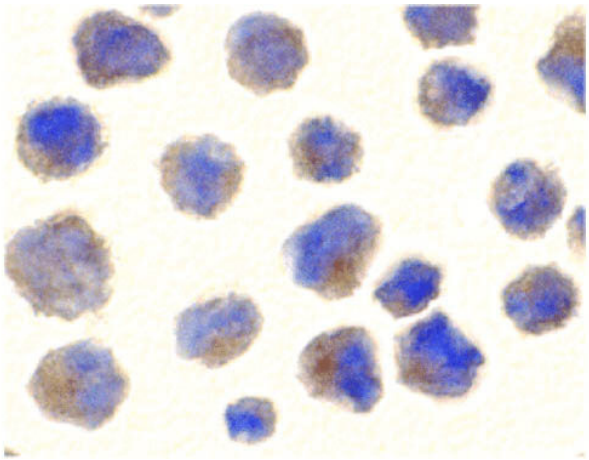
Immunofluorescence Microscopy
Immunofluorescence Validation of BACE in Mouse Liver. Immunofluorescent analysis of 4% paraformaldehyde-fixed mouse liver tissue labeling BACE at 10 µg/mL, followed by goat anti-rabbit IgG secondary antibody at 1/500 dilution (red) and DAPI staining (blue).



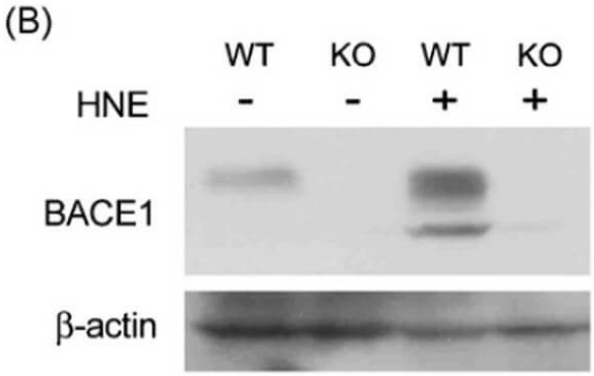
Immunohistochemistry
Immunohistochemistry Validation of BACE in Human Liver. Immunohistochemical analysis of paraffin-embedded human liver tissue using anti-BACE antibody at 2 µg/ml. Tissue was fixed with formaldehyde and blocked with 10% serum for 1 h at RT; antigen retrieval was by heat mediation with a citrate buffer (pH6). Samples were incubated with primary antibody overnight at 4°C. A goat anti-rabbit IgG H&L (HRP) at 1/250 was used as secondary. Counter stained with Hematoxylin.



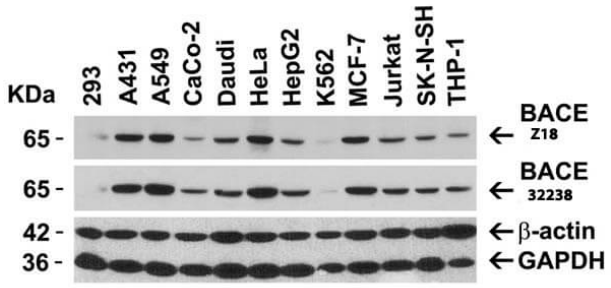
Western Blot
WB Validation in Human Cell Lines. Loading: 10 µg of lysate Antibodies: BACE, 1 µg/mL , 1 h incubation at RT in 5% NFDM/TBST. Secondary: Goat Anti-Rabbit IgG HRP conjugate at 1:10000 dilution.



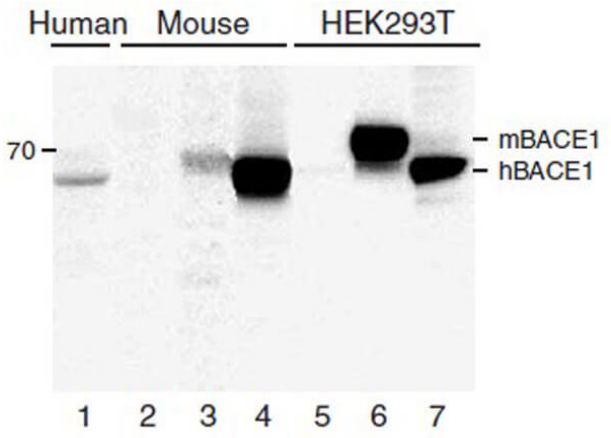
Immunocytochemistry
Immunocytochemistry of BACE antibody. Cells: 3T3 cells. Fixation: formaldehyde and blocked with 10% serum for 1 h at RT. Antigen retrieval: heat mediation with a citrate buffer (pH6). Primary antibody: BACE antibody at 10 µg/mL overnight at 2-8°C. Secondary antibody: Peroxidase goat anti-rabbit secondary antibody at 1:250 for 45 min at RT. Localization: BACE is localized in the cell membrane, endoplasmic reticulum, Golgi apparatus, endosome, and the cell surface. Counter stained with Hematoxylin.



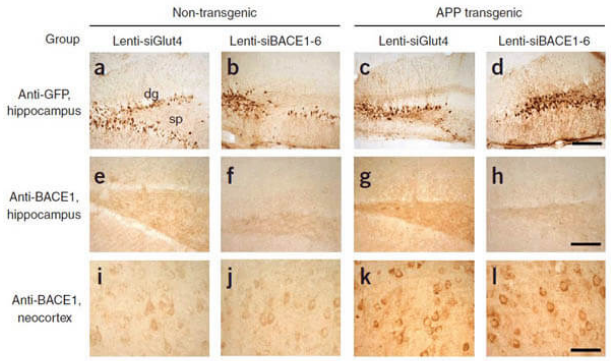
Western Blot
Western Blot of Anti-BACE Antibody. Wildtype and BACE −/− MEFs were exposed to HNE (15_M) for 2 hr. BACE1 levels were examined by Western blot with anti-BACE antibodies. (Jo et al., 2010)



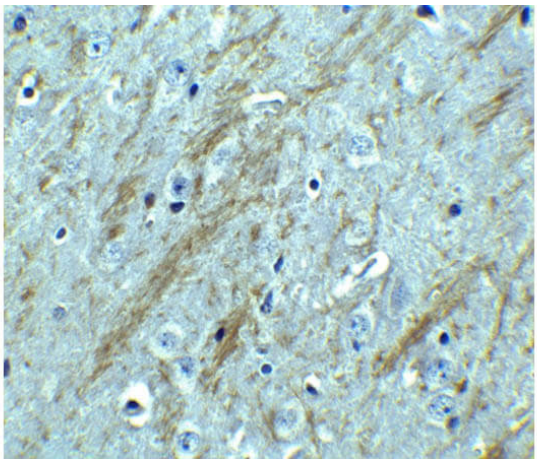
Western Blot
Western Blot of Anti-BACE Antibody. Loading: 15 µg of lysates per lane. Primary Antibodies: Anti-BACE 200-401-Z18 (1µg/mL), BACE (1µg/mL), beta-actin (1µg/mL), and GAPDH (0.02µg/mL), for 1hr at RT in 5% NFDM/TBST. Secondary Antibody: Goat anti-rabbit IgG HRP conjugate at 1:10,000.



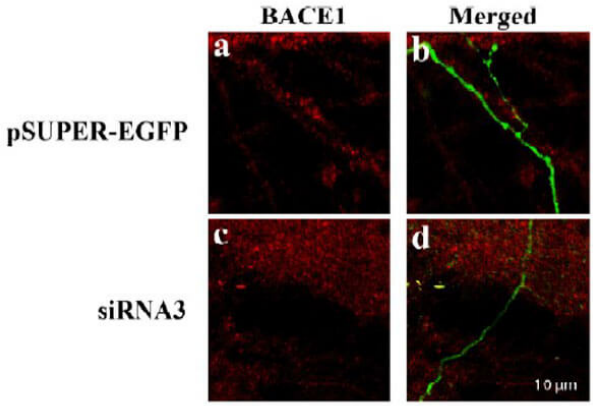
Western Blot
Western Blot of Anti-BACE Antibody. Lanes 1–4 are frontal cortex homogenates from human and mouse brains. Lane 1 is from a neurologically unimpaired aged human control case, lane 2 from a BACE1-deficient mouse, lane 3 from a nontransgenic mouse and lane 4 from hBACE1 transgenic mouse. Lanes 5–7 are lysates from HEK293T cells transfected with a plasmid vector expressing eGFP, mBACE1 and hBACE1, respectively. BACE1 antibody recognized both the mouse and human forms of BACE1. (Singer et al., 2005).



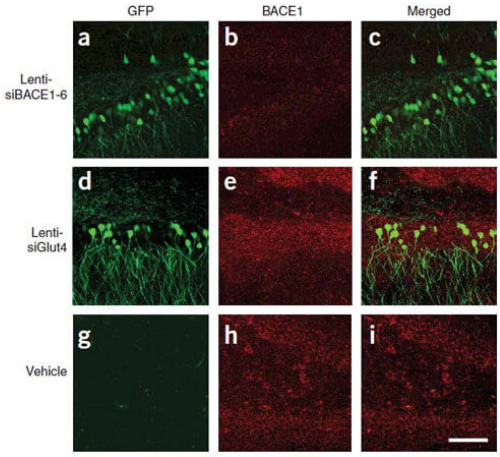
Immunohistochemistry
Immunohistochemistry of Rabbit Anti-BACE Antibody. Characterization of the effects of lenti-siBACE1-6 expression in the brains of APP transgenic mice. (a–d) Anti-eGFP immunoreactivity in the hippocampus (the injection site) shows comparable and consistent expression of lenti-siRNA constructs in the dentate gyrus (dg) and stratus polymorphus (sp). (e) Anti-BACE1 immunoreactivity in the hippocampus of nontransgenic mice treated with lenti-siGlut4. (f) Reduced BACE1 immunostaining in the hippocampus of nontransgenic mice treated with lenti-siBACE1-6 vector. (g) Intense BACE1 immunoreactivity in the hippocampus of APP transgenic mice treated with lenti-siGlut4. (h) Reduced BACE1 expression in APP transgenic mice treated with lenti-siBACE1-6 vector. (i,j) Anti-BACE1 reacted with pyramidal cell bodies in the neocortex, which was not injected. (Singer et al., 2005).



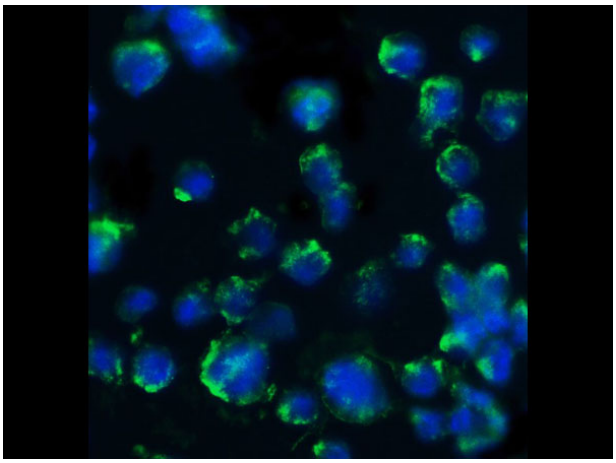
Immunohistochemistry
Immunohistochemistry of Rabbit anti-BACE Anitbody. Tissue: Mouse Brain. Fixation: Formaldehyde blocked with 10% serum for 1hr at RT. Antigen retrieval: heat mediation with citrate buffer pH6. Primary Antibody: Anti-BACE at 2.5µg/mL overnight at 2-8°C. Secondary Antibody: goat anti-Rabbit IgG HRP at 1:250. Counterstain: hematoxylin.



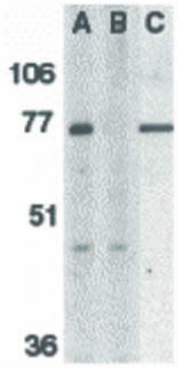
Immunofluorescence Microscopy
Immunofluorescence of Anti-BACE Antibody. Decreased BACE1 expression in DRG following siRNA3 transfection. DRG neurons were transfected with 1 µg siRNA3 plasmid and incubated for 48 hours in 37°C. DRG neurons were stained for BACE1 using the Anti-BACE antibody. (a,b) Neurons transfected with the control plasmid pSUPER-EGFP (green) did not display any changes in BACE1 expression (red). (c,d) DRG neurons transfected with siRNA3 displayed reduced BACE1 expression in the axon. (Hyun, 2007).



Immunofluorescence Microscopy
Immunofluorescence of Anti-BACE Antibody. Immunolabeling patterns of BACE1 expression and the lenti-siRNA distribution. Sections from APP transgenic mice treated with the eGFP-tagged lenti siRNA vectors (green) were co-immunolabeled with an antibody against BACE1 (red) and imaged with the LSCM. All sections are from the hippocampus of treated mice. (a–c) Lenti-siBACE1-6–treated mice. Areas within the hippocampus expressing the eGFP-tagged vector have reduced BACE1 immunolabeling. (d–f) Mice treated with the eGFP-tagged control lenti-siGlut4 show unchanged expression of BACE1 in the hippocampus. (g–i) Mice treated with a saline vehicle show unchanged expression of BACE1 in the hippocampus. (Singer et al., 2005).



Immunofluorescence Microscopy
Immunofluorescence of Rabbit Anti-BACE Antibody. Cells: NIH/3T3 Cells. Fixation: 4% Paraformaldehyde. Primary Antibody: Anti-BACE at 20µg/mL. Secondary Antibody: Goat anti-Rabbit at 1:500. Staining: DAPI. Cytosol and membrane staining.



Western Blot
Western Blot of BACE antibody. Lane 1: Human brain tissue lysate. Lane 2: Human brain tissue lysate with the presence of blocking peptide. Lane3: Mouse 3T3 cell lysate. Load: 35 µg per lane. Primary antibody: BACE antibody at 1 µg/mL for overnight at 4°C. Secondary antibody: Peroxidase rabbit secondary antibody at 1:10,000 for 45 min at RT. Block: 5% BLOTTO overnight at 4°C. Predicted/Observed size: 55.7 kDa, 76 kDa for BACE. Other band(s): BACE splice variants and isoforms.

References

- Pérez-González R et al. A pleiotropic role for exosomes loaded with the amyloid β precursor protein carboxyl-terminal fragments in the brain of Down syndrome patients. *Neurobiology of Aging* (2019)
- Gong B et al. SCFFbx2-E3-ligase-mediated degradation of BACE1 attenuates Alzheimer's disease amyloidosis and improves synaptic function. *Aging Cell* (2010)

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