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Anti-BACE BACE1 Antibody

Catalog Number: A00322

About BACE1

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.

Overview

Product Name	Anti-BACE BACE1 Antibody
Reactive Species	Human, Mouse
Description	Boster Bio Anti-BACE BACE1 Antibody (Catalog # A00322). Tested in ELISA, WB, IHC-P, IF applications. This antibody reacts with Human, Mouse.
Application	ELISA, IF, IHC-P, WB
Clonality	Polyclonal
Formulation	BACE Antibody is supplied in PBS containing 0.02% sodium azide.
Storage Instructions	BACE antibody can be stored at 4°C for three months and -20°C, stable for up to one year. Avoid repeated freeze-thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Host	Rabbit
Uniprot ID	P56817

Technical Details

Immunogen	Anti-BACE antibody was raised against a peptide corresponding to 17 amino acids near the carboxy terminus of human BACE. The immunogen is located within the last 50 amino acids of BACE.
Predicted Reactive Species	Bovine, Guinea Pig, Rat
Isotype	IgG
Form	Liquid
Concentration	1 mg/mL
Purification	BACE Antibody is affinity chromatography purified via peptide column.

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Suggested Dilutions	WB: 1-4 ug/mL IHC-P: 1-2 ug/mL IHC-P/IF: 10-20 ug/mL. Antibody validated: Western Blot in human and mouse samples; Immunohistochemistry in human samples; Immunofluorescence in mouse samples. All other applications and species not yet tested.

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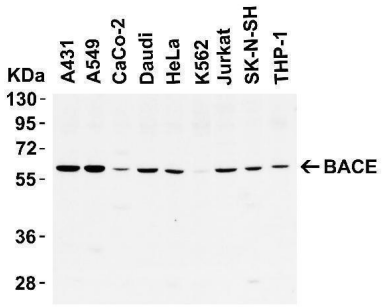
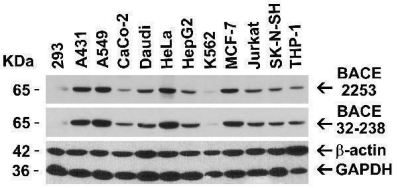
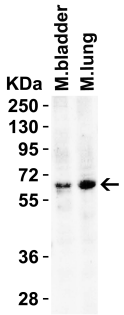
Anti-BACE BACE1 Antibody (A00322) Images



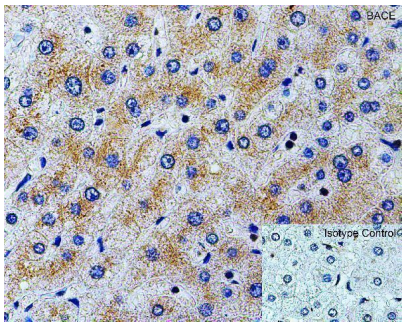
WB Validation in Human Cell Lines Loading: 10 ug of lysate Antibodies: BACE, A00322, 1 u g/mL , 1 h incubation at RT in 5% NFDM/TBST. Secondary: Goat Anti-Rabbit IgG HRP conjugate at 1:10000 dilution.



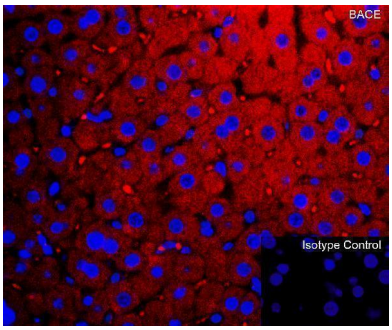
Independent Antibody Validation (IAV) via Protein Expression Profile in Cell Lines Loading: 15 ug of lysates per lane. Antibodies: BACE A00322 (1 ug/mL), BACE 32-238 (1 ug/mL), beta-actin (1 ug/mL), and GAPDH (0.02 ug/mL), 1h incubation at RT in 5% NFDM/TBST. Secondary: Goat anti-rabbit IgG HRP conjugate at 1:10000 dilution.



WB Validation in Mouse Tissues Loading: 15 ug of lysate Antibodies: BACE, A00322, 2 ug/mL , 1 h incubation at RT in 5% NFDM/TBST. Secondary: Goat Anti-Rabbit IgG HRP conjugate at 1:10000 dilution.



Immunohistochemistry Validation of BACE in Human Liver Immunohistochemical analysis of paraffin-embedded human liver tissue using anti-BACE antibody (A00322) at 2 ug/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.



Immunofluorescence Validation of BACE in Mouse Liver Immunofluorescent analysis of 4% paraformaldehyde-fixed mouse liver tissue labeling BACE with A00322 at 10 ug/mL, followed by goat anti-rabbit IgG secondary antibody at 1/500 dilution (red) and DAPI staining (blue).

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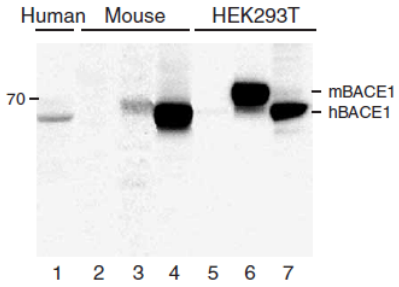
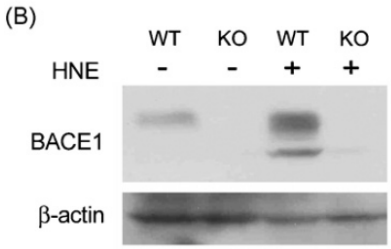
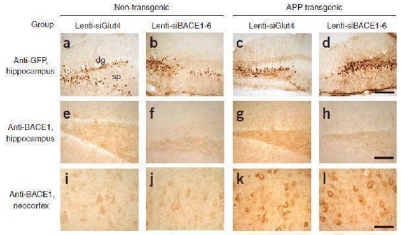


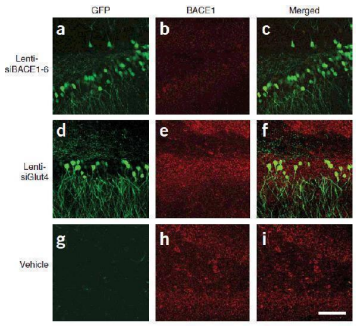
KO and Overexpression Validation of BACE in Human and Mouse Brain and 293 Cells. (Singer et al., 2005) Western blot analysis of the BACE1 (A00322) antibody's ability to recognize human and murine BACE1. The BACE1 antibody recognized both the mouse and human forms of BACE1. Lanes 1–4 are frontal cortex 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.



KO Validation of BACE in MEF Cells (Jo et al., 2010) Wildtype and BACE ?/? MEFs were exposed to HNE (15_M) for 2 h. BACE1 levels were examined by Western blot with anti-BACE antibodies (A00322).



KD Validation of BACE in Mouse Brain (Singer et al., 2005) 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,



KD Validation of BACE in Mouse Brain (Singer et al., 2005) Immunolabeling patterns of BACE1 expression and the lenti-siRNA distribution. Sections from APP transgenic mice treated with the eGFPtagged 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..

KD Validation of BACE in DRG (Hyun, 2007) Decreased BACE1 expression in DRG following siRNA3 transfection. DRG neurons were transfected with 1 ug siRNA3 plasmid

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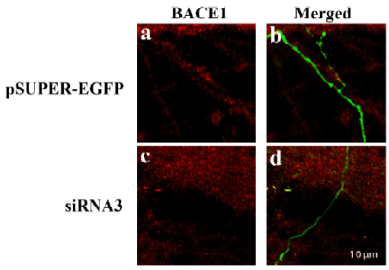

and incubated for 48 hours in 37°°C. DRG neurons were stained for BACE1 us?ing the Anti-BACE antibody (ProSci). (a,b) Neurons transfected with the control plas?mid pSUPER-EGFP (green) did not display any changes in BACE1 expression (red). (c,d) DRG neurons transfected with siR?NA3 displayed reduced BACE1 expression in the axon.

3 Publications Citing This Product

1. PubMed ID: -, Ou Qiao,Xinyu Zhang,Yi Zhang et al.Cerebralcare Granule® enhances memantine hydrochloride efficacy in APP/PS1 mice by ameliorating amyloid pathology and cognitive functions,08 April 2021,PREPRINT (Version 1) available at Research Square [https://doi.org/10.21203/rs.3.rs-366097/v1]

2. PubMed ID: 32427716, Wu J,Qu JQ,Zhou YJ,Zhou YJ,Li YY,Huang NQ,Deng CM,Luo Y.Icariin improves cognitive deficits by reducing the deposition of beta-amyloid peptide and inhibition of neurons apoptosis in SAMP8 mice.Neuroreport.2020 Jun 7;31(9):663-671.doi:10.1097/WNR.0000000000000

3. PubMed ID: 26136993, Expression of ?-site APP-cleaving enzyme 1 in the hippocampal tissue of an insulin-resistant rat model of Alzheimer's disease

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