

Rabbit anti-Human, Mouse BACE Polyclonal Antibody | anti-BACE1 antibody

BACE Antibody

CATALOG #	HOST	REACTIVITY	APPLICATIONS
AAA10918	Rabbit	Human, Mouse	ELISA, Immunocytochemistry, Immunofluorescence, Immunohistochemistry, Western Blot

PRODUCT SYNONYMS

BACE; Polyclonal Antibody; BACE Antibody; ASP2; HSPC104; KIAA1149; Beta-secretase 1; Aspartyl protease 2; beta-site APP-cleaving enzyme 1; anti-BACE1 antibody

PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human, Mouse
Clonality	Polyclonal
Isotype	IgG
Purity/Purification	BACE Antibody is affinity chromatography purified via peptide column.
Form/Format	Liquid; BACE Antibody is supplied in PBS containing 0.02% sodium azide.
Concentration	1 mg/mL (varies by lot)
Sequence Length	2526
Applicable Applications for anti-BACE1 antibody	ELISA, ICC (Immunocytochemistry), IF (Immunofluorescence), IHC (Immunohistochemistry), WB (Western Blot)
Application Notes	WB: 1 ug/mL IHC-P: 2.5 ug/mL ICC: 10 ug/mL IF: 20 ug/mL. Antibody validated: Western Blot in human and mouse samples; Immunohistochemistry, Immunocytochemistry and Immunofluorescence in mouse samples. All other applications and species not yet tested.
Conjugate	Unconjugated
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.
Positive Control	1) - Human Brain Tissue Lysate 2)- 3T3/NIH Cell Lysate
User Note	Optimal dilutions for each application to be determined by the researcher.

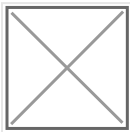
Validation	Independent Antibody Validation in Cell lines (Figure 2) shows similar BACE expression profile in human cell lines detected by two independent anti-BACE antibodies that recognize different epitopes, AAA10918 against C-terminus domain and 32-238 against recombinant fragment protein. BACE proteins are detected in all the tested cell lines except K562 at different expression levels by the two independent antibodies. KO validation (Figure 6,9): Anti-BACE antibody (AAA10918) specificity was further verified by BACE KO mice (figure6) and KO cell line (figure9). BACE signal was not detected in BACE KO mice and KO cell line. KD validation (Figure 7,8,10): Anti-BACE antibody (AAA10918) specificity was verified by BACE specific siRNA knockdown. BACE signal in mouse brain injected with BACE siRNAs and DRG transfected with BACE siRNAs was disrupted in comparison with control. Overexpression validation (Figure 6): Anti-BACE antibody (AAA10918) detected high expression levels of BACE in 293 cells transfected with hBACE or mBACE (figure6) as compared to eGFP transfected cells.
Isoforms	Human BACE has 6 isoforms, including isoform A (501aa, 55.8kD), isoform B (476aa, 52.9kD), isoform C (457aa, 51.1kD), isoform D (432aa, 48.2kD), isoform 5 (401aa, 45kD) and isoform 6 (376aa, 42.2kD). This antibody detects all human isoforms. Mouse BACE has only 1 isoform (501aa, 55.7kD). Rat BACE has only one isoform identified so far (501aa, 55.8kD).
Preparation and Storage	BACE antibody can be stored at 4 degree C for three months and -20 degree 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.

IMAGES



IF (Immunofluorescence)

Figure 10 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 and incubated for 48 hours in 37°˚C. DRG neurons were stained for BACE1 us-ing the Anti-BACE antibody (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.



IF (Immunofluorescence)

Figure 8 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..



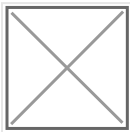
WB (Western Blot)

Figure 6 KO and Overexpression Validation of BACE in Human and Mouse Brain and 293 Cells. (Singer et al., 2005)Western blot analysis of the BACE1 (AAA10918) 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.



WB (Western Blot)

Figure 9 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 (AAA10918).



IHC (Immunohistochemistry)

Figure 7 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,



ICC (Immunocytochemistry)

Figure 5 Immunocytochemistry Validation of BACE in 3T3/NIH CellsImmunohistochemical analysis of 3T3/NIH cells using anti-BACE antibody (AAA10918) at 10 μg/ml. Cells 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.

ADDITIONAL INFORMATION

Related Product Information for anti-BACE1 antibody	BACE Antibody: 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.
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NCBI AND UNIPROT INFORMATION

NCBI GI #	6118538
NCBI GeneID	23621
UniProt Accession #	P56817; Q9BYB9; Q9BYC0; Q9BYC1; Q9UJT5; Q9ULS1; A0M8W7; B0YIU9; E9PE65; H7BXJ9
Molecular Weight	Predicted: 55kD Observed: 65kD (Post-modification: 4 N-linked glycosylation)
NCBI Official Full Name	Homo sapiens beta-site APP cleaving enzyme (BACE) mRNA, complete cds
NCBI Official Synonym Full Names	beta-site APP-cleaving enzyme 1
NCBI Official Symbol	BACE1
NCBI Official Synonym Symbols	ASP2; BACE; HSPC104
NCBI Protein Information	beta-secretase 1; asp 2; memapsin-2; APP beta-secretase; aspartyl protease 2; beta-site APP cleaving enzyme 1; beta-secretase 1 precursor variant 1; transmembrane aspartic proteinase Asp2; membrane-associated aspartic protease 2; beta-site amyloid beta A4 precursor protein-cleaving enzyme
UniProt Protein Name	Beta-secretase 1
UniProt Gene Name	BACE1
UniProt Synonym Gene Names	BACE; KIAA1149; ASP2; Asp 2; Beta-site APP cleaving enzyme 1
UniProt Entry Name	BACE1_HUMAN

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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