abcam

ab2803

Anti-Acetylcholinesterase antibody [HR2]

Key facts

Isotype	IgG2b
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Native Full Length Protein corresponding to Human ACHE. Database link P22303
Clone number	HR2
Purification technique	Affinity purification Protein A
Specificity	This antibody does not detect butyrylcholinesterase (BChE).
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Expected

Species	Mouse, Guinea pig, Macaque monkey, Human, Cat, Cow, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Rat, Amphibian, Primates
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Rat
Dilution info	-
Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Species	Amphibian
Dilution info	-
Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Species	Primates
Dilution info	-
Notes	-

Species	Rabbit
Dilution info	-
Notes	-

Species	Cat
Dilution info	-
Notes	-

Species	Guinea pig
Dilution info	-
Notes	-

Species	Macaque monkey
Dilution info	-
Notes	-

Species	Cow
Dilution info	-
Notes	-

ELISA

Expected

Species	Mouse, Guinea pig, Macaque monkey, Human, Cat, Cow, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Rat, Amphibian, Primates
Dilution info	-
Notes	-

WB

Not recommended

Species	Mouse
Dilution info	-
Notes	This antibody cannot be used in Western blot to detect AChE.

Species	Rat
Dilution info	-
Notes	This antibody cannot be used in Western blot to detect AChE.

Species	Guinea pig
Dilution info	-
Notes	This antibody cannot be used in Western blot to detect AChE.

Species	Amphibian
Dilution info	-
Notes	This antibody cannot be used in Western blot to detect AChE.

Species	Macaque monkey
Dilution info	-
Notes	This antibody cannot be used in Western blot to detect AChE.

Species	Human
Dilution info	-
Notes	This antibody cannot be used in Western blot to detect AChE.

Species	Cat
Dilution info	-
Notes	This antibody cannot be used in Western blot to detect AChE.

Species	Cow
Dilution info	-
Notes	This antibody cannot be used in Western blot to detect AChE.

Species	Rabbit
Dilution info	-
Notes	This antibody cannot be used in Western blot to detect AChE.

Species	Primates
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Rat, Amphibian, Primates, Rabbit, Cat, Guinea pig, Macaque monkey, Cow
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/100 - 1/1000
Notes	-

Species	Human
Dilution info	1/100 - 1/1000
Notes	-

Not recommended

Species	Rat, Amphibian, Primates, Rabbit, Cat, Guinea pig, Macaque monkey, Cow
Dilution info	-
Notes	-

IHC-Fr

Expected

Species	Mouse
Dilution info	-
Notes	Immunohistochemical staining of AChE in human brain samples results in staining of nerve fibers and terminals.

Species	Guinea pig
Dilution info	-
Notes	Immunohistochemical staining of AChE in human brain samples results in staining of nerve fibers and terminals.

Species	Macaque monkey
Dilution info	-
Notes	Immunohistochemical staining of AChE in human brain samples results in staining of nerve fibers and terminals.

Species	Human
Dilution info	-
Notes	Immunohistochemical staining of AChE in human brain samples results in staining of nerve fibers and terminals.

Species	Cat
Dilution info	-
Notes	Immunohistochemical staining of AChE in human brain samples results in staining of nerve fibers and terminals.

Species	Cow
Dilution info	-

Notes	Immunohistochemical staining of AChE in human brain samples results in staining of nerve fibers and terminals.

Species	Rabbit
Dilution info	-
Notes	Immunohistochemical staining of AChE in human brain samples results in staining of nerve fibers and terminals.

Not recommended

Species	Rat
Dilution info	-
Notes	Immunohistochemical staining of AChE in human brain samples results in staining of nerve fibers and terminals.

Species	Amphibian
Dilution info	-
Notes	Immunohistochemical staining of AChE in human brain samples results in staining of nerve fibers and terminals.

Species	Primates
Dilution info	-
Notes	-

Target data

See full target information ACHE

Function	Hydrolyzes rapidly the acetylcholine neurotransmitter released into the synaptic cleft allowing to terminate the signal transduction at the neuromuscular junction. Role in neuronal apoptosis.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks

Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Acetylcholinesterase also known as AChE is an enzyme with a molecular mass of approximately 67 kDa. It plays a critical role in neurotransmission by catalyzing the hydrolysis of the neurotransmitter acetylcholine into acetate and choline. This reaction occurs at neuromuscular junctions and cholinergic synapses therefore terminating synaptic transmission. AChE is highly expressed in muscle and brain tissue particularly in the synaptic cleft where it regulates the nerve signal terminations.
Biological function summary	Acetylcholinesterase is essential for maintaining neurotransmission dynamics by ensuring timely acetylcholine breakdown. It does not function as part of a larger enzyme complex but its activity is necessary for efficient synaptic signaling in the nervous system. This enzymatic action prevents continuous stimulation of muscles and nerves by rapidly degrading acetylcholine thereby ensuring proper muscle contraction and cognitive processes.
Pathways	Acetylcholinesterase participates significantly in the cholinergic system. It influences cholinergic signaling pathways by inactivating acetylcholine after its release into the synaptic cleft. This function aligns acetylcholinesterase closely with receptors like nicotinic and muscarinic acetylcholine receptors. It indirectly affects signal transduction pathways that involve these receptors with potential downstream effects on ion channels and intracellular messengers.
Associated diseases and disorders	Acetylcholinesterase plays a significant role in Alzheimer's disease and myasthenia gravis. In Alzheimer's disease decreased acetylcholinesterase function can lead to accumulations of acetylcholine and disrupted signaling contributing to cognitive dysfunction. Acetylcholinesterase inhibitors are therapeutic in such contexts. For myasthenia gravis a disorder affecting neuromuscular transmission the enzyme’s interaction with antibodies targets synaptic acetylcholine receptors. This interaction results in weakened muscle contractions correlating with condition severity.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

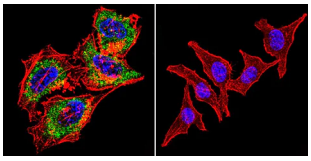
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

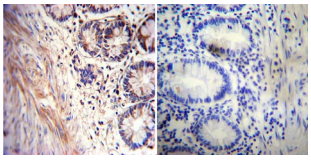
7 product images



Immunocytochemistry/ Immunofluorescence - Anti-Acetylcholinesterase antibody [HR2] (ab2803)

Acetylcholinesterase Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Acetylcholinesterase antibody

Immunocytochemistry/Immunofluorescence analysis of Acetylcholinesterase shows staining in HeLa cells. Acetylcholinesterase staining (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were incubated without (control) or with ab2803 (1:200) overnight at 4°C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.

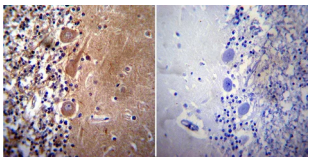


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Acetylcholinesterase antibody [HR2] (ab2803)

Acetylcholinesterase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Acetylcholinesterase antibody

Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized human Rectum tissue. To expose target proteins, heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer, microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:20 with a mouse monoclonal antibody recognizing Acetylcholinesterase (ab2803) or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-

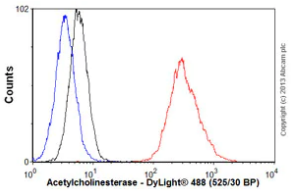
conjugated secondary antibody and SA-HRP, followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Acetylcholinesterase antibody [HR2] (ab2803)

Acetylcholinesterase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Acetylcholinesterase antibody

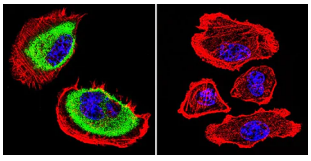
Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized human Cerebellum tissue. To expose target proteins, heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer, microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:50 with a mouse monoclonal antibody recognizing Acetylcholinesterase (ab2803) or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP, followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



Flow Cytometry - Anti-Acetylcholinesterase antibody [HR2] (ab2803)

Acetylcholinesterase Flow Cytometry staining using mouse Anti-Acetylcholinesterase antibody

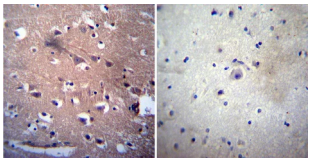
Overlay histogram showing HeLa cells stained with ab2803 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab2803, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG2b [PLPV219] (ab91366, 2µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line). Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter. This antibody gave a positive signal in HeLa cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



Immunocytochemistry/ Immunofluorescence - Anti-Acetylcholinesterase antibody [HR2] (ab2803)

Acetylcholinesterase Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Acetylcholinesterase antibody

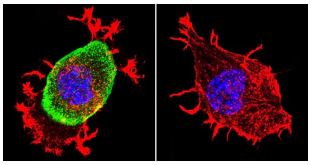
Immunocytochemistry/Immunofluorescence analysis of Acetylcholinesterase shows staining in U251 cells. Acetylcholinesterase staining (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were incubated without (control) or with ab2803 (1:200) overnight at 4°C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Acetylcholinesterase antibody [HR2] (ab2803)

Acetylcholinesterase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Acetylcholinesterase antibody

Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized human Brain tissue. To expose target proteins, heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer, microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:200 with a mouse monoclonal antibody recognizing Acetylcholinesterase (ab2803) or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP, followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



Immunocytochemistry/ Immunofluorescence - Anti-Acetylcholinesterase antibody [HR2] (ab2803)

Acetylcholinesterase Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Acetylcholinesterase antibody

Immunocytochemistry/Immunofluorescence analysis of Acetylcholinesterase shows staining in Neuro-2a cells. Acetylcholinesterase staining (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were incubated without (control) or with ab2803 (1:200) overnight at 4°C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.

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