SANTA CRUZ BIOTECHNOLOGY, INC.

AChE (A-11): sc-373901

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Acetylcholinesterase (AChE) hydrolyzes acetylcholine at synaptic junctions. Alternative mRNA splicing gives rise to three forms of AChE. The T form, also known as the asymmetric form, is soluble and is present in synapses. The H form is also known as the globular form and is present on the outer surfaces of cell membranes. The R form is not known to be a functional species. AChE globular form subunits are GPI-anchored to cell membranes and asymmetric subunits are anchored to basal lamina components by a collagen tail. The catalytic subunits of AChE are oligomers composed of disulfide-linked homodimers. The loss of AChE from cholinergic and noncholinergic neurons in the brain is seen in patients with Alzheimer's disease. However, AChE activity is increased around amyloid plaques, which may be due to a disturbance in calcium homeostasis involving the opening of L-type voltage-dependent calcium channels.

CHROMOSOMAL LOCATION

Genetic locus: ACHE (human) mapping to 7q22.1; Ache (mouse) mapping to 5 G2.

SOURCE

AChE (A-11) is a mouse monoclonal antibody raised against amino acids 481-614 of AChE of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

AChE (A-11) is available conjugated to agarose (sc-373901 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-373901 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373901 PE), fluorescein (sc-373901 FITC), Alexa Fluor® 488 (sc-373901 AF488), Alexa Fluor® 546 (sc-373901 AF546), Alexa Fluor® 594 (sc-373901 AF594) or Alexa Fluor® 647 (sc-373901 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-373901 AF680) or Alexa Fluor® 790 (sc-373901 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

AChE (A-11) is recommended for detection of AChE of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for AChE siRNA (h): sc-29628, AChE siRNA (m): sc-29629, AChE shRNA Plasmid (h): sc-29628-SH, AChE shRNA Plasmid (m): sc-29629-SH, AChE shRNA (h) Lentiviral Particles: sc-29628-V and AChE shRNA (m) Lentiviral Particles: sc-29629-V.

Molecular Weight (predicted) of AChE: 68 kDa.

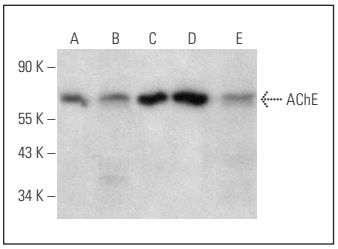
Molecular Weight (observed) of average of AChE: 71 kDa.

Positive Controls: Neuro-2A whole cell lysate: sc-364185, A-431 whole cell lysate: sc-2201 or HuT 78 whole cell lysate: sc-2208.

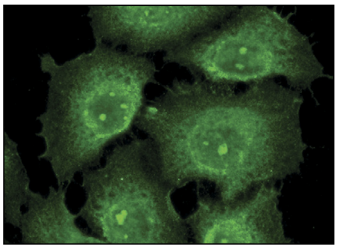
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



AChE (A-11): sc-373901. Western blot analysis of AChE expression in HuT 78 (**A**), A-431 (**B**), Neuro-2A (**C**), EOC 20 (**D**) and C6 (**E**) whole cell lysates.



AChE (A-11): sc-373901. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization.

SELECT PRODUCT CITATIONS

1. Park, S.B., et al. 2019. Effect of *Aruncus dioicus* var. *kamtschaticus* extract on neurodegeneration improvement: ameliorating role in cognitive disorder caused by high-fat diet induced obesity. Nutrients 11: 1319.
2. Gao, N., et al. 2020. A role of Lamin A/C in preventing neuromuscular junction decline in mice. J. Neurosci. 40: 7203-7215.
3. Shin, E.J., et al. 2021. Ameliorative effect of persimmon *(Diospyros kaki)* in cognitively impaired diabetic mice. J. Food Biochem. 45: e13581.
4. Onder, S., et al. 2022. Butyrylcholinesterase in SH-SY5Y human neuroblastoma cells. Neurotoxicology 90: 1-9.
5. Han, G., et al. 2022. Dihuang-Yinzi alleviates cognition deficits via targeting energy-related metabolism in an Alzheimer mouse model as demonstrated by integration of metabolomics and network pharmacology. Front. Aging Neurosci. 14: 873929.
6. Moon, J.H., et al. 2022. Walnut prevents cognitive impairment by regulating the synaptic and mitochondrial dysfunction via JNK signaling and apoptosis pathway in high-fat diet-induced C57BL/6 mice. Molecules 27: 5316.
7. Go, M.J., et al. 2022. Korean red pine *(Pinus densiflora)* bark extract attenuates Aβ-induced cognitive impairment by regulating cholinergic dysfunction and neuroinflammation. J. Microbiol. Biotechnol. 32: 1154-1167.
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9. Cortés-Gómez, M.Á., et al. 2023. Presenilin 1 modulates acetylcholinesterase trafficking and maturation. Int. J. Mol. Sci. 24: 1437.

RESEARCH USE

For research use only, not for use in diagnostic procedures.