SANTA CRUZ BIOTECHNOLOGY, INC.

β-Amyloid (20.1): sc-53822

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Proteolytic cleavage of the Amyloid protein precursor (APP) gives rise to the β-Amyloid and Amyloid A4 proteins, which are present in human platelets. Amyloid deposition is associated with type II diabetes, Down syndrome and a variety of neurological disorders, including Alzheimer's disease. The Amyloid precursor protein (APP) undergoes alternative splicing, resulting in several isoforms. Proteolytic cleavage of APP leads to the formation of the 4 kDa Amyloid β/A4 Amyloid protein. This protein is involved in the formation of neurofibrillary tangles and plaques that characterize the senile plaques of Alzheimer's patients. APLP1 (Amyloid precursor-like protein 1) and APLP2 are structurally similar to APP. Human APLP2 is a membrane-bound sperm protein that contains a region highly homologous to the transmembrane-cytoplasmic domains of APP found in brain plaques of Alzheimer's disease patients.

CHROMOSOMAL LOCATION

Genetic locus: APP (human) mapping to 21q21.3.

SOURCE

β-Amyloid (20.1) is a mouse monoclonal antibody raised against amino acids 1-40 of β-Amyloid of human origin.

PRODUCT

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

β-Amyloid (20.1) is available conjugated to agarose (sc-53822 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-53822 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53822 PE), fluorescein (sc-53822 FITC), Alexa Fluor® 488 (sc-53822 AF488), Alexa Fluor® 546 (sc-53822 AF546), Alexa Fluor® 594 (sc-53822 AF594) or Alexa Fluor® 647 (sc-53822 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53822 AF680) or Alexa Fluor® 790 (sc-53822 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

β-Amyloid (20.1) is recommended for detection of APP and β-Amyloid of human origin by Western Blotting (starting dilution 1:200, 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), immunohistochemistry (including paraffin-embedded sections) (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 APP siRNA (h): sc-29677, APP shRNA Plasmid (h): sc-29677-SH and APP shRNA (h) Lentiviral Particles: sc-29677-V.

Molecular Weight of β-Amyloid: 4-46 kDa.

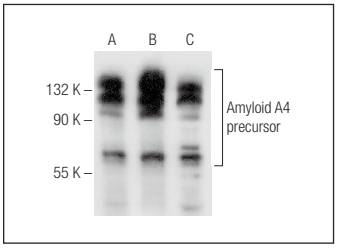
Molecular Weight of Amyloid A4: 100-125 kDa.

Positive Controls: H4 cell lysate: sc-2408, U-87 MG cell lysate: sc-2411 or PC-3 cell lysate: sc-2220.

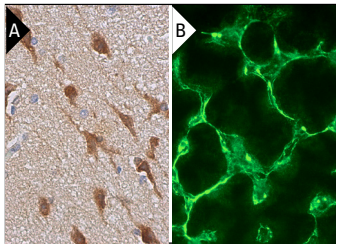
STORAGE

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

DATA



β-Amyloid (20.1): sc-53822. Western blot analysis of β-Amyloid expression in H4 (**A**), PC-3 (**B**) and U-87 MG (**C**) whole cell lysates.



β-Amyloid (20.1): sc-53822. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic and nuclear staining of neuronal cells and neuropil staining (**A**). Immunofluorescence staining of methanol-fixed HeLa cells showing cell-surface localization (**B**).

SELECT PRODUCT CITATIONS

1. Lu, X., et al. 2009. Linear epitope mapping by native mass spectrometry. Anal. Biochem. 395: 100-107.
2. Yang, C.C., et al. 2011. Biofunctionalized magnetic nanoparticles for specifically detecting biomarkers of Alzheimer's disease *in vitro*. ACS Chem. Neurosci. 2: 500-505.
3. Chiu, M.J., et al. 2012. New assay for old markers-plasma β-Amyloid of mild cognitive impairment and Alzheimer's disease. Curr. Alzheimer Res. 9: 1142-1148.
4. Currinn, H., et al. 2016. APP controls the formation of $PI(3,5)P_2$ vesicles through its binding of the PIKfyve complex. Cell. Mol. Life Sci. 73: 393-408.
5. Jesko, H., et al. 2018. Altered expression of urea cycle enzymes in Amyloid-β protein precursor overexpressing PC 12 cells and in sporadic Alzheimer's disease brain. J. Alzheimers Dis. 62: 279-291.
6. Fan, W., et al. 2019. Mouse induced pluripotent stem cells-derived Alzheimer's disease cerebral organoid culture and neural differentiation disorders. Neurosci. Lett. 711: 134433.
7. Price, D., et al. 2020. Humanin blocks aggregation of Amyloid β induced by acetylcholinesterase, an effect abolished in the presence of IGFBP-3. Biochemistry 59: 1981-2002.
8. Dorandish, S., et al. 2021. Regulation of Amyloid-β levels by matrix metalloproteinase-2/9 (MMP2/9) in the media of lung cancer cells. Sci. Rep. 11: 9708.
9. Li, J., et al. 2022. β-Amyloid protein induces mitophagy-dependent ferroptosis through the CD36/PINK/PARKIN pathway leading to blood-brain barrier destruction in Alzheimer's disease. Cell Biosci. 12: 69.

RESEARCH USE

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