SANTA CRUZ BIOTECHNOLOGY, INC.

caspase-3 (CPP324-1-18): sc-56052

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Caspase-3, also known as apopain, SCA-1, Yama and CPP32, is an aspartate-specific cysteine protease that belongs to the ICE subfamily of caspases. Caspase-3 is expressed in cells as an inactive precursor from which the p17 and p11 subunits of the mature caspase-3 are proteolytically generated during apoptosis. The caspase-3 precursor is first cleaved at Asp 175-Ser 176 to produce the p11 subunit and the p20 peptide. Subsequently, the p20 peptide is cleaved at Asp 28-Ser 29 to generate the mature p17 subunit. The active caspase-3 enzyme is a heterodimer composed of two p17 and two p11 subunits. At the onset of apoptosis, caspase-3 proteolytically cleaves PARP at a Asp 216-Gly 217 bond. During the execution of the apoptotic cascade, activated caspase-3 releases SREBP from the membrane of the ER in a proteolytic reaction that is distinct from their normal sterol-dependent activation. Caspase-3 cleaves and activates SREBPs between the basic helix-loop-helix leucine zipper domain and the membrane attachment domain. Caspase-3 also cleaves and activates caspase-6, -7 and -9. The human caspase-3 gene encodes a cytoplasmic protein that is highly expressed in lung, spleen, heart, liver, kidney and cells of the immune system.

REFERENCES

1. Nicholson, D., et al. 1995. Identification and inhibition of the ICE/CED-3 protease necessary for mammalian apoptosis. Nature 37: 37-43.
2. Cohen, G.M. 1997. Caspases: the executioners of apoptosis. Biochem. J. 326: 1-16.

CHROMOSOMAL LOCATION

Genetic locus: CASP3 (human) mapping to 4q35.1; Casp3 (mouse) mapping to 8 B1.1.

SOURCE

caspase-3 (CPP324-1-18) is a mouse monoclonal antibody raised against full length caspase-3 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.

caspase-3 (CPP324-1-18) is available conjugated to agarose (sc-56052 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-56052 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56052 PE), fluorescein (sc-56052 FITC), Alexa Fluor® 488 (sc-56052 AF488), Alexa Fluor® 546 (sc-56052 AF546), Alexa Fluor® 594 (sc-56052 AF594) or Alexa Fluor® 647 (sc-56052 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56052 AF680) or Alexa Fluor® 790 (sc-56052 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

caspase-3 (CPP324-1-18) is recommended for detection of caspase-3 of mouse, rat and 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

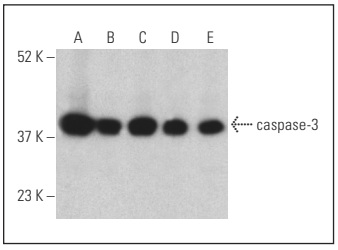
Suitable for use as control antibody for caspase-3 siRNA (h): sc-29237, caspase-3 siRNA (m): sc-29927, caspase-3 shRNA Plasmid (h): sc-29237-SH, caspase-3 shRNA Plasmid (m): sc-29927-SH, caspase-3 shRNA (h) Lentiviral Particles: sc-29237-V and caspase-3 shRNA (m) Lentiviral Particles: sc-29927-V.

Molecular Weight of procaspase-3: 32 kDa.

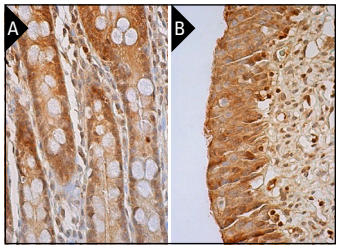
Molecular Weight of caspase-3 subunits: 11/17/20 kDa.

Positive Controls: Ramos cell lysate: sc-2216, Jurkat whole cell lysate: sc-2204 or BJAB whole cell lysate: sc-2207.

DATA



caspase-3 (CPP324-1-18): sc-56052. Western blot analysis of caspase-3 expression in BJAB (**A**), Ramos (**B**), CCRF-HSB-2 (**C**), Jurkat (**D**) and SUP-T1 (**E**) whole cell lysates. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



caspase-3 (CPP324-1-18): sc-56052. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic and nuclear staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing cytoplasmic and nuclear staining of urothelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Liu, W., et al. 2009. MAC related mitochondrial pathway in oroxylin A induces apoptosis in human hepatocellular carcinoma Hep G2 cells. Cancer Lett. 284: 198-207.
2. Jagadish, N., et al. 2020. Knockdown of A-kinase anchor protein 4 inhibits proliferation of triple-negative breast cancer cells *in vitro* and *in vivo*. Tumour Biol. 42: 1010428320914477.
3. Peggion, C., et al. 2021. Nucleolin rescues TDP-43 toxicity in yeast and human cell models. Front. Cell. Neurosci. 15: 625665.
4. Sun, X., et al. 2022. SARS-CoV-2 non-structural protein 6 triggers NLRP3-dependent pyroptosis by targeting ATP6AP1. Cell Death Differ. 29: 1240-1254.
5. Chen, C.H., et al. 2022. Protective effects of jujubosides on 6-OHDA-induced neurotoxicity in SH-SY5Y and SK-N-SH cells. Molecules 27: 4106.

RESEARCH USE

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