SANTA CRUZ BIOTECHNOLOGY, INC.

cytochrome c (A-8): sc-13156

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cytochrome c is a well characterized mobile electron transport protein essential to energy conversion in all aerobic organisms. In mammalian cells, this highly conserved protein is normally localized to the mitochondrial intermembrane space. More recent studies have identifed cytosolic cytochrome c as a factor necessary for activation of apoptosis. During apoptosis, cytochrome c is translocated from the mitochondrial membrane to the cytosol, where it is required for activation of caspase-3 (CPP32). Overexpression of Bcl-2 has been shown to prevent the translocation of cytochrome c, thereby blocking the apoptotic process. Overexpression of Bax has been shown to induce the release of cytochrome c and to induce cell death. The release of cytochrome c from the mitochondria is thought to trigger an apoptotic cascade, whereby Apaf-1 binds to Apaf-3 (caspase-9) in a cytochrome c-dependent manner, leading to caspase-9 cleavage of caspase-3.

REFERENCES

1. Gonzales, D.H., et al. 1990. Biogenesis of mitochrondrial c-type cytochromes. J. Bioenerg. Biomembr. 22: 753-768.
2. Lehninger, A.L., et al. 1993. Principles of Biochemistry, 2nd ed. New York: Worth Publishers, Inc., 480-483.
3. Liu, X., et al. 1996. Induction of apoptotic program in cell-free extracts: requirement for dATP and cytochrome c. Cell 86: 147-157.
4. Yang, J., et al. 1997. Prevention of apoptosis by Bcl-2: release of cytochrome c from mitochondria blocked. Science 275: 1129-1132.

CHROMOSOMAL LOCATION

Genetic locus: CYCS (human) mapping to 7p15.3; Cycs (mouse) mapping to 6 B2.3, Cyct (mouse) mapping to 2 C3.

SOURCE

cytochrome c (A-8) is a mouse monoclonal antibody raised against amino acids 1-104 of cytochrome c of equine 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.

cytochrome c (A-8) is available conjugated to agarose (sc-13156 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-13156 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-13156 PE), fluorescein (sc-13156 FITC), Alexa Fluor® 488 (sc-13156 AF488), Alexa Fluor® 546 (sc-13156 AF546), Alexa Fluor® 594 (sc-13156 AF594) or Alexa Fluor® 647 (sc-13156 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-13156 AF680) or Alexa Fluor® 790 (sc-13156 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

cytochrome c (A-8) is recommended for detection of cytochrome c of mouse, rat and human origin by Western Blotting (starting dilution 1:500, dilution range 1:500-1:2,000), 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), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

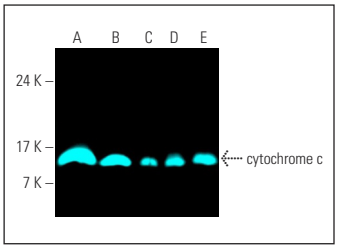
cytochrome c (A-8) is also recommended for detection of cytochrome c in additional species, including equine.

Suitable for use as control antibody for cytochrome c siRNA (h): sc-29292, cytochrome c-s siRNA (m): sc-29293, cytochrome c shRNA Plasmid (h): sc-29292-SH, cytochrome c-s shRNA Plasmid (m): sc-29293-SH, cytochrome c shRNA (h) Lentiviral Particles: sc-29292-V and cytochrome c-s shRNA (m) Lentiviral Particles: sc-29293-V.

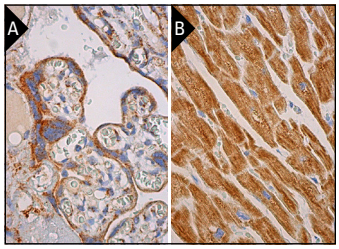
Molecular Weight of cytochrome c: 15 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, RAW 264.7 whole cell lysate: sc-2211 or NIH/3T3 whole cell lysate: sc-2210.

DATA



cytochrome c (A-8) Alexa Fluor® 647: sc-13156 AF647. Direct fluorescent western blot analysis of cytochrome c expression in RAW 264.7 (**A**), M1 (**B**), NIH/3T3 (**C**), K-562 (**D**) and HL-60 (**E**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.



cytochrome c (A-8): sc-13156. Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing cytoplasmic staining of trophoblastic cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes (**B**).

SELECT PRODUCT CITATIONS

1. Belov, G.A., et al. 2003. The major apoptotic pathway activated and suppressed by poliovirus. J. Virol. 77: 45-56.
2. Lee, C.C., et al. 2022. Blockage of autophagy increases timosaponin AIII-induced apoptosis of glioma cells *in vitro* and *in vivo*. Cells 12: 168.
3. Shi, L., et al. 2023. DUSP1 protects against ischemic acute kidney injury through stabilizing mtDNA via interaction with JNK. Cell Death Dis. 14: 724.
4. Rahman, F.A., et al. 2024. Augmented mitochondrial apoptotic signaling impairs C2C12 myoblast differentiation following cellular aging through sequential passaging. J. Cell. Physiol. 239: e31155.

RESEARCH USE

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