SANTA CRUZ BIOTECHNOLOGY, INC.

BNIP-3 (ANa40): sc-56167

BACKGROUND

The adenovirus E1B protein is a viral homolog of the Bcl-2 family of proteins that are involved in regulating cell death. A family of interacting proteins, which are designated Nip or Bnip and include BNIP-1, BNIP-2, BNIP-3 and Nix, associate with both the E1B protein and Bcl-2 proteins to mediate apoptotic signaling. BNIP-1 contains a hydrophobic transmembrane domain, which enables its localization to the nuclear envelope, endoplasmic recticulum and mitochondria. BNIP-2, (previously designated Nip2 and Nip21 in human and mouse respectively), shares homology with the non-catalytic domain of Cdc42 GTPase-activating protein (Cdc42GAP). Through binding to Cdc42GAP, BNIP-2 enhances the GTPase activity of Cdc42GAP, facilitating the hydrolysis of GTP bound to Cdc42 and thereby, mediating the signaling pathways involving receptor kinases, small GTPases and apoptotic proteins. Nix, which is also designated Nip3L or Bnip3L, is highly related to BNIP-3, and both proteins localize to the mitochondria where they associate with Bcl-2 proteins. BNIP-3 preferentially binds to Bcl-x_L and induces apoptosis by suppressing the anti-apoptosis activity of Bcl-x_L.

CHROMOSOMAL LOCATION

Genetic locus: BNIP3 (human) mapping to 10q26.3; Bnip3 (mouse) mapping to 7 F4.

SOURCE

BNIP-3 (ANa40) is a mouse monoclonal antibody raised against amino acids 1-163 of BNIP-3 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.

BNIP-3 (ANa40) is available conjugated to agarose (sc-56167 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-56167 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56167 PE), fluorescein (sc-56167 FITC), Alexa Fluor® 488 (sc-56167 AF488), Alexa Fluor® 546 (sc-56167 AF546), Alexa Fluor® 594 (sc-56167 AF594) or Alexa Fluor® 647 (sc-56167 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56167 AF680) or Alexa Fluor® 790 (sc-56167 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

BNIP-3 (ANa40) is recommended for detection of BNIP-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 immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for BNIP-3 siRNA (h): sc-37451, BNIP-3 siRNA (m): sc-37452, BNIP-3 shRNA Plasmid (h): sc-37451-SH, BNIP-3 shRNA Plasmid (m): sc-37452-SH, BNIP-3 shRNA (h) Lentiviral Particles: sc-37451-V and BNIP-3 shRNA (m) Lentiviral Particles: sc-37452-V.

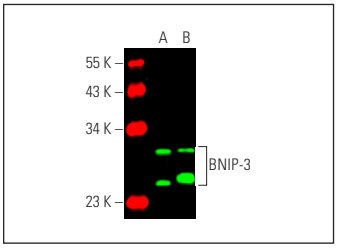
Molecular Weight (predicted) of BNIP-3: 22 kDa.

Molecular Weight (observed) of BNIP-3: 22/30/60 kDa.

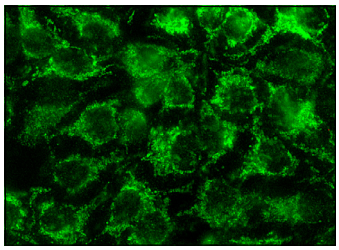
STORAGE

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

DATA



BNIP-3 (ANa40) Alexa Fluor® 680: sc-56167 AF680. Direct near-infrared western blot analysis of BNIP-3 expression in RAW 264.7 whole cell lysate (**A**) and mouse brain tissue extract (**B**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 790: sc-516731.



BNIP-3 (ANa40): sc-56167. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Ulasov, I.V., et al. 2009. Combination of adenoviral virotherapy and temozolomide chemotherapy eradicates malignant glioma through autophagic and apoptotic cell death *in vivo*. Br. J. Cancer 100: 1154-1164.
2. Chavez-Valdez, R., et al. 2012. Necrostatin-1 attenuates mitochondrial dysfunction in neurons and astrocytes following neonatal hypoxia-ischemia. Neuroscience 219: 192-203.
3. Zhu, Y., et al. 2013. Modulation of serines 17 and 24 in the LC3-interacting region of Bnip3 determines pro-survival mitophagy versus apoptosis. J. Biol. Chem. 288: 1099-1113.
4. Wang, B., et al. 2014. BNIP3 upregulation by ERK and JNK mediates cadmium-induced necrosis in neuronal cells. Toxicol. Sci. 140: 393-402.
5. Polletta, L., et al. 2015. SIRT5 regulation of ammonia-induced autophagy and mitophagy. Autophagy 11: 253-270.
6. Dai, X.Y., et al. 2016. Nuclear translocation and activation of YAP by hypoxia contributes to the chemoresistance of SN38 in hepatocellular carcinoma cells. Oncotarget 7: 6933-6947.
7. Zhang, W. and Zhang, J. 2017. Dexmedetomidine preconditioning protects against lung injury induced by ischemia-reperfusion through inhibition of autophagy. Exp. Ther. Med. 14: 973-980.
8. Fu, R., et al. 2018. A novel autophagy inhibitor berbamine blocks SNARE-mediated autophagosome-lysosome fusion through upregulation of BNIP3. Cell Death Dis. 9: 243.
9. Sung, J.S., et al. 2020. ITGB4-mediated metabolic reprogramming of cancer-associated fibroblasts. Oncogene 39: 664-676.

RESEARCH USE

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