SANTA CRUZ BIOTECHNOLOGY, INC.

PUMAα (N-20): sc-20534

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The Power to Question

BACKGROUND

PUMA (Bcl-2 binding component 3, JFY1, PUMA/JFY1) is a mitochondrial pro-apoptotic Bcl-2 homology domain (BH3)-only protein that induces rapid apoptosis through a Bax- and mitochondria-dependent pathway. The PUMA gene encodes four proteins originating from different splice variants of the same transcript: PUMAα, β, γ and δ. Both PUMAα and PUMAβ contain a BH3 domain, while PUMAγ and PUMAδ lack this domain. The BH3 domain is essential for binding of PUMAα and PUMAβ to Bcl-2 or Bcl-x_L. PUMA is an initiator of γ-radiation apoptosis and glucocorticoid-induced apoptosis in lymphoid cells *in vivo*. Bcl-2 family members generally regulate apoptosis and transmit death signals to mitochondria. Members of this family include both pro- and anti-apoptotic proteins that share homologous sequences known as Bcl-2 homology domains (BH1-4). The BH3 proteins, BID, NOXA, PUMA, NBK, Bim and Bad, are all pro-apoptotic and share sequence homology within the amphipathic α-helical BH3 region.

REFERENCES

1. Han, J., et al. 2001. Expression of BBC3, a pro-apoptotic BH3-only gene, is regulated by diverse cell death and survival signals. Proc. Natl. Acad. Sci. USA 98: 11318-11323.
2. Yu, J., et al. 2001. PUMA induces the rapid apoptosis of colorectal cancer cells. Mol. Cell 7: 673-682.
3. Nakano, K., et al. 2001. PUMA, a novel pro-apoptotic gene, is induced by p53. Mol. Cell 7: 683-694.
4. Bouillet, P., et al. 2002. BH3-only proteins—evolutionarily conserved pro-apoptotic Bcl-2 family members essential for initiating programmed cell death. J. Cell Sci. 115: 1567-1574.
5. Jeffers, J.R., et al. 2003. PUMA is an essential mediator of p53-dependent and -independent apoptotic pathways. Cancer Cell 4: 321-328.
6. Hemann, M.T., et al. 2004. Suppression of tumorigenesis by the p53 target PUMA. Proc. Natl. Acad. Sci. USA 101: 9333-9338.
7. Cregan, S.P., et al. 2004. p53 activation domain 1 is essential for PUMA upregulation and p53-mediated neuronal cell death. J. Neurosci. 24: 10003-10012.

CHROMOSOMAL LOCATION

Genetic locus: BBC3 (human) mapping to 19q13.32; Bbc3 (mouse) mapping to 7 A2.

SOURCE

PUMAα (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of PUMAα of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-20534 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PUMAα (N-20) is recommended for detection of PUMAα of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 PUMA siRNA (h): sc-37153, PUMA siRNA (m): sc-37154, PUMA siRNA (r): sc-270040, PUMA shRNA Plasmid (h): sc-37153-SH, PUMA shRNA Plasmid (m): sc-37154-SH, PUMA shRNA Plasmid (r): sc-270040-SH, PUMA shRNA (h) Lentiviral Particles: sc-37153-V, PUMA shRNA (m) Lentiviral Particles: sc-37154-V and PUMA shRNA (r) Lentiviral Particles: sc-270040-V.

Molecular Weight of PUMAα: 18-24 kDa.

Positive Controls: K-562 nuclear extract: sc-2130, Jurkat whole cell lysate: sc-2204 or U-937 cell lysate: sc-2239.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Demonacos, C., et al. 2004. A new effector pathway links ATM kinase with the DNA damage response. Nat. Cell Biol. 6: 968-976.
2. Xiang, Z., et al. 2010. Mcl1 haploinsufficiency protects mice from Myc-induced acute myeloid leukemia. J. Clin. Invest. 120: 2109-2118.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.