

PUMA β/δ (P-13): sc-19190

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: PUMA α , β , γ and δ . Both PUMA α and PUMA β contain a BH3 domain, while PUMA γ and PUMA δ lack this domain. The BH3 domain is essential for binding of PUMA α and PUMA β 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

- 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.
- Yu, J., et al. 2001. PUMA induces the rapid apoptosis of colorectal cancer cells. *Mol. Cell* 7: 673-682.
- Nakano, K., et al. 2001. PUMA, a novel pro-apoptotic gene, is induced by p53. *Mol. Cell* 7: 683-694.
- 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.
- Jeffers, J.R., et al. 2003. PUMA is an essential mediator of p53-dependent and -independent apoptotic pathways. *Cancer Cell* 4: 321-328.
- Hemann, M.T., et al. 2004. Suppression of tumorigenesis by the p53 target PUMA. *Proc. Natl. Acad. Sci. USA* 101: 9333-9338.
- 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.
- Cartron, P.F., et al. 2004. The first α helix of Bax plays a necessary role in its ligand-induced activation by the BH3-only proteins BID and PUMA. *Mol. Cell.* 16: 807-818.
- Erlacher, M., et al. 2005. BH3-only proteins PUMA and Bim are rate-limiting for γ -radiation and glucocorticoid-induced apoptosis of lymphoid cells *in vivo*. *Blood* 106: 4131-4138.

CHROMOSOMAL LOCATION

Genetic locus: BBC3 (human) mapping to 19q13.32.

STORAGE

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

SOURCE

PUMA β/δ (P-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of PUMA δ of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-19190 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PUMA β/δ (P-13) is recommended for detection of PUMA β and PUMA δ of 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 shRNA Plasmid (h): sc-37153-SH and PUMA shRNA (h) Lentiviral Particles: sc-37153-V.

Molecular Weight of PUMA α : 18-24 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204.

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

- Fandy, T.E., et al. 2005. Interactive effects of HDAC inhibitors and TRAIL on apoptosis are associated with changes in mitochondrial functions and expressions of cell cycle regulatory genes in multiple myeloma. *Neoplasia* 7: 646-657.

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.