SANTA CRUZ BIOTECHNOLOGY, INC.

POPX2 (B-7): sc-514794

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine protein phosphatases. POPX1, also designated partner of PIX 1, PPM1E (protein phosphatase 1E) or PP2CH, and POPX2, also designated partner of PIX 2, PPM1F (protein phosphatase 1F), CaMKPase (CaM-kinase phosphatase), or FEM-2, belong to the PP2C family of serine/threonine phosphatases. Members of the PP2C family are negative regulators of cell stress response pathways. POPX2 is a ubiquitously expressed protein and POPX1 is predominantly expressed in brain and testis. POPX1 and POPX2 specifically interact with PIX (PAK interacting exchange factor) proteins and negatively regulate the activity of αPAK, a protein kinase that can lead to the breakdown of actin stress fibers and other morphological changes. POPX2 can also interact with and regulate CaMKII activity. Overexpression of POPX2 can result in caspase-dependent apoptosis.

REFERENCES

1. Nomura, N., et al. 1994. Prediction of the coding sequences of unidentified human genes. I. The coding sequences of 40 new genes (KIAA0001-KIAA0040) deduced by analysis of randomly sampled cDNA clones from human immature myeloid cell line KG-1. DNA Res. 1: 27-35.
2. Kikuno, R., et al. 1999. Prediction of the coding sequences of unidentified human genes. XIV. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 6: 197-205.
3. Tan, K.M., et al. 2001. The *Caenorhabditis elegans* sex-determining protein FEM-2 and its human homologue, hFEM-2, are Ca^{2+}/calmodulin-dependent protein kinase phosphatases that promote apoptosis. J. Biol. Chem. 276: 44193-44202.
4. Koh, C.G., et al. 2002. The p21-activated kinase PAK is negatively regulated by POPX1 and POPX2, a pair of serine/threonine phosphatases of the PP2C family. Curr. Biol. 12: 317-321.
5. Harvey, B.P., et al. 2004. Regulation of the multifunctional Ca^{2+}/calmodulin-dependent protein kinase II by the PP2C phosphatase PPM1F in fibroblasts. J. Biol. Chem. 279: 24889-24898.
6. Ishida, A., et al. 2005. Identification of major Ca^{2+}/calmodulin-dependent protein kinase phosphatase-binding proteins in brain: biochemical analysis of the interaction. Arch. Biochem. Biophys. 435: 134-146.

CHROMOSOMAL LOCATION

Genetic locus: PPM1F (human) mapping to 22q11.22; Ppm1f (mouse) mapping to 16 A3.

SOURCE

POPX2 (B-7) is a mouse monoclonal antibody raised against amino acids 1-100 mapping at the N-terminus of POPX2 of mouse origin.

RESEARCH USE

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

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

POPX2 (B-7) is recommended for detection of POPX2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for POPX2 siRNA (h): sc-62844, POPX2 siRNA (m): sc-62845, POPX2 shRNA Plasmid (h): sc-62844-SH, POPX2 shRNA Plasmid (m): sc-62845-SH, POPX2 shRNA (h) Lentiviral Particles: sc-62844-V and POPX2 shRNA (m) Lentiviral Particles: sc-62845-V.

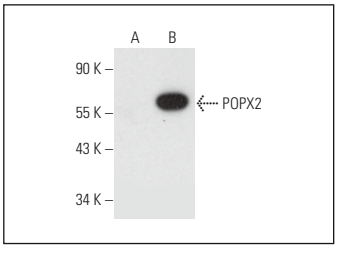
Molecular Weight of POPX2: 54 kDa.

Positive Controls: POPX2 (h2): 293T Lysate: sc-177761 or mouse spinal cord extract: sc-395045.

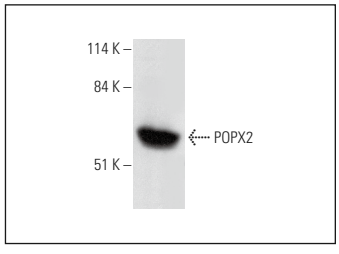
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



POPX2 (B-7): sc-514794. Western blot analysis of POPX2 expression in non-transfected: sc-117752 (**A**) and human POPX2 transfected: sc-177761 (**B**) 293T whole cell lysates.



POPX2 (B-7): sc-514794. Western blot analysis of POPX2 expression in mouse spinal cord tissue extract.

STORAGE

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

PROTOCOLS

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