

# POPX1 (G-20): sc-67780

## 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 known as partner of PIX 1, PPM1E (protein phosphatase 1E) or PP2CH) and POPX2 (also known as partner of PIX 2, PPM1F, 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  $\alpha$ PAK, 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: Ppm1e (mouse) mapping to 11 C.

## SOURCE

POPX1 (G-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of POPX1 of mouse origin.

## STORAGE

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

## PRODUCT

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

Blocking peptide available for competition studies, sc-67780 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

POPX1 (G-20) is recommended for detection of POPX1, also designated protein phosphatase 1E, of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 POPX1 siRNA (m): sc-62843, POPX1 shRNA Plasmid (m): sc-62843-SH and POPX1 shRNA (m) Lentiviral Particles: sc-62843-V.

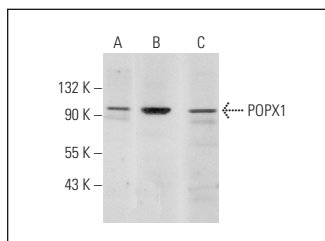
Molecular Weight of POPX1: 84 kDa.

Positive Controls: mouse brain extract: sc-2253, mouse heart extract: sc-2254 or mouse hypothalamus extract: sc-364242.

## 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

## DATA



POPX1 (G-20): sc-67780. Western blot analysis of POPX1 expression in mouse brain (A), mouse heart (B) and mouse hypothalamus (C) tissue extracts.

## RESEARCH USE

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