

# PIPOX (F-9): sc-166749

## BACKGROUND

PIPOX (pipecolic acid oxidase), also known as LPIPOX or PSO, is a 390 amino acid protein that localizes to the peroxisome and belongs to the MSOX/MTOX family. Existing as a monomer, PIPOX uses FAD as a cofactor to catalyze the metabolism and subsequent degradation of sarcosine, L-pipecolic acid and L-proline. The gene encoding PIPOX maps to human chromosome 17q11.2, which comprises over 2.5% of the human genome and encodes over 1,200 genes. Two key tumor suppressor genes are associated with chromosome 17, namely, p53 and BRCA1. Tumor suppressor p53 is necessary for maintenance of cellular genetic integrity by moderating cell fate through DNA repair versus cell death. Malfunction or loss of p53 expression is associated with malignant cell growth and Li-Fraumeni syndrome. Like p53, BRCA1 is directly involved in DNA repair, though specifically it is recognized as a genetic determinant of early onset breast cancer and predisposition to cancers of the ovary, colon, prostate gland and fallopian tubes.

## REFERENCES

1. Reuber, B.E., Karl, C., Reimann, S.A., Mihalik, S.J. and Dodt, G. 1997. Cloning and functional expression of a mammalian gene for a peroxisomal sarcosine oxidase. *J. Biol. Chem.* 272: 6766-6776.
2. IJlst, L., de Kromme, I., Oostheim, W. and Wanders, R.J. 2000. Molecular cloning and expression of human L-pipecolate oxidase. *Biochem. Biophys. Res. Commun.* 270: 1101-1105.
3. Dodt, G., Kim, D.G., Reimann, S.A., Reuber, B.E., McCabe, K., Gould, S.J. and Mihalik, S.J. 2000. L-pipecolic acid oxidase, a human enzyme essential for the degradation of L-pipecolic acid, is most similar to the monomeric sarcosine oxidases. *Biochem. J.* 345: 487-494.
4. Dodt, G., Kim, D., Reimann, S., McCabe, K., Gould, S.J. and Mihalik, S.J. 2000. The human L-pipecolic acid oxidase is similar to bacterial monomeric sarcosine oxidases rather than D-amino acid oxidases. *Cell Biochem. Biophys.* 32: 313-316.
5. Chikayama, M., Ohsumi, M. and Yokota, S. 2000. Enzyme cytochemical localization of sarcosine oxidase activity in the liver and kidney of several mammals. *Histochem. Cell Biol.* 113: 489-495.
6. Nusbaum, R., Vogel, K.J. and Ready, K. 2006. Susceptibility to breast cancer: hereditary syndromes and low penetrance genes. *Breast Dis.* 27: 21-50.

## CHROMOSOMAL LOCATION

Genetic locus: PIPOX (human) mapping to 17q11.2; Pipox (mouse) mapping to 11 B5.

## SOURCE

PIPOX (F-9) is a mouse monoclonal antibody raised against amino acids 176-345 mapping near the C-terminus of PIPOX of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

PIPOX (F-9) is recommended for detection of PIPOX 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 PIPOX siRNA (h): sc-76144, PIPOX siRNA (m): sc-76145, PIPOX shRNA Plasmid (h): sc-76144-SH, PIPOX shRNA Plasmid (m): sc-76145-SH, PIPOX shRNA (h) Lentiviral Particles: sc-76144-V and PIPOX shRNA (m) Lentiviral Particles: sc-76145-V.

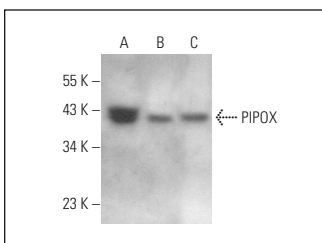
Molecular Weight of PIPOX: 44 kDa.

Positive Controls: PIPOX (h): 293T Lysate: sc-170328, Hep G2 cell lysate: sc-2227 or KNRK whole cell lysate: sc-2214.

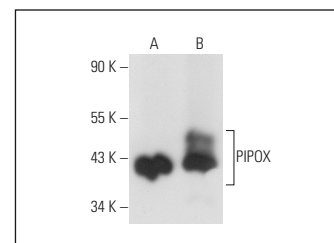
## RECOMMENDED SUPPORT REAGENTS

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



PIPOX (F-9): sc-166749. Western blot analysis of PIPOX expression in Hep G2 (A), 3T3-L1 (B) and KNRK (C) whole cell lysates.



PIPOX (F-9): sc-166749. Western blot analysis of PIPOX expression in non-transfected: sc-117752 (A) and human PIPOX transfected: sc-170328 (B) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Natarajan, S.K., Muthukrishnan, E., Khalimonchuk, O., Mott, J.L. and Becker, D.F. 2017. Evidence for pipecolate oxidase in mediating protection against hydrogen peroxide stress. *J. Cell. Biochem.* 118: 1678-1688.

## 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.