

PAO (m): 293T Lysate: sc-110175

BACKGROUND

Mammalian polyamine catabolism is under the control of two enzymes, spermidine/spermine N1-acetyltransferase and the flavin adenine dinucleotide-dependent polyamine oxidase (PAO). In the polyamine back-conversion pathway, spermine and spermidine are acetylated by SSAT-1 and then oxidized by PAO to produce spermidine and putrescine, respectively. The PAO protein regulates polyamine intracellular concentration and may act as a determinant of cellular sensitivity to the antitumor polyamine analogs. PAO contributes to β -alanine production via aldehyde dehydrogenase conversion of 3-amino-propanal. The PAO gene encodes more than five transcript variants which encode four active isoenzymes. The longest isoenzyme, PAOh1, represents a new addition to the polyamine metabolic pathway and may be a target for antineoplastic drug development.

REFERENCES

1. Parry, L., et al. 1995. Effect of expression of human spermidine/spermine N1-acetyltransferase in *Escherichia coli*. *Biochemistry* 34: 2701-2709.
2. Vujcic, S., et al. 2002. Identification and characterization of a novel flavin-containing spermine oxidase of mammalian cell origin. *Biochem. J.* 367: 665-675.
3. Wang, Y., et al. 2003. Properties of purified recombinant human polyamine oxidase, PAOh1/Smo. *Biochem. Biophys. Res. Commun.* 304: 605-611.
4. Chen, Y., et al. 2003. Genomic identification and biochemical characterization of a second spermidine/spermine N1-acetyltransferase. *Biochem. J.* 373: 661-667.
5. Pledgie, A., et al. 2005. Spermine oxidase SMO(PAOh1), not N1-acetyl-polyamine oxidase PAO, is the primary source of cytotoxic H_2O_2 in polyamine analogue-treated human breast cancer cell lines. *J. Biol. Chem.* 280: 39843-39851.
6. Babbar, N. and Casero, R.A., Jr. 2006. Tumor necrosis factor- α increases reactive oxygen species by inducing spermine oxidase in human lung epithelial cells: a potential mechanism for inflammation-induced carcinogenesis. *Cancer Res.* 66: 11125-11130.
7. Bianchi, M., et al. 2007. Chronic sub-lethal oxidative stress by spermine oxidase overactivity induces continuous DNA repair and hypersensitivity to radiation exposure. *Biochim Biophys Acta.* 1773: 774-783.
8. Murray-Stewart, T., et al. 2008. Nuclear localization of human spermine oxidase isoforms—possible implications in drug response and disease etiology. *FEBS J.* 275: 2795-2806.

CHROMOSOMAL LOCATION

Genetic locus: Smox (mouse) mapping to 2 F1.

PRODUCT

PAO (m): 293T Lysate represents a lysate of mouse PAO transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

RESEARCH USE

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

APPLICATIONS

PAO (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive PAO antibodies. Recommended use: 10-20 μ l per lane.

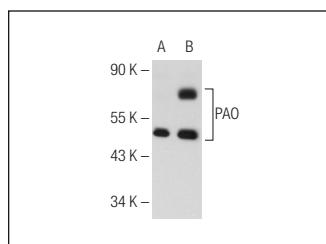
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

PAO (C-3): sc-166185 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse PAO expression in PAO transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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.

DATA



PAO (C-3): sc-166185. Western blot analysis of PAO expression in non-transfected: sc-117752 (A) and mouse PAO transfected: sc-110175 (B) 293T whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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