

PAO (H-17): sc-31660

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 -alaline 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 H2O2 in polyamine analogue-treated human breast cancer cell lines. *J. Biol. Chem.* 280:39843-39851.
6. Babbar, N., et al. 2006. Tumor necrosis factor-alpha 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.

CHROMOSOMAL LOCATION

Genetic locus: SMOX (human) mapping to 20p13; Smox (mouse) mapping to 2 F1.

SOURCE

PAO (H-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of PAO1 of human 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 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-31660 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PAO (H-17) is recommended for detection of PAO1-4 of mouse, rat and 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).

PAO (H-17) is also recommended for detection of PAO1-4 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for PAO siRNA (h): sc-44540, PAO siRNA (m): sc-44541, PAO shRNA Plasmid (h): sc-44540-SH, PAO shRNA Plasmid (m): sc-44541-SH, PAO shRNA (h) Lentiviral Particles: sc-44540-V and PAO shRNA (m) Lentiviral Particles: sc-44541-V.

Molecular Weight of PAO: 62 kDa.

Positive Controls: Rat testis extract: sc-2400 or LADMAC whole cell lysate: sc-364189.

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.

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.