

## PAO (H-85): sc-67018

### BACKGROUND

Mammalian polyamine catabolism is under the control of two enzymes, spermidine/spermine N<sub>1</sub>-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 N<sub>1</sub>-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 N<sub>1</sub>-acetyltransferase. *Biochem. J.* 373: 661-667.
5. Pledgie, A., et al. 2005. Spermine oxidase SMO(PAOh1), not N<sub>1</sub>-acetyl-polyamine oxidase PAO, is the primary source of cytotoxic H<sub>2</sub>O<sub>2</sub> in polyamine analogue-treated human breast cancer cell lines. *J. Biol. Chem.* 280: 39843-39851.
6. Babbar, N., et al. 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.

### CHROMOSOMAL LOCATION

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

### SOURCE

PAO (H-85) is a rabbit polyclonal antibody raised against amino acids 197-281 mapping within an internal region of PAO1 of human origin.

### PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

### STORAGE

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

### APPLICATIONS

PAO (H-85) is recommended for detection of PAO1, 2, 4 and 5 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

PAO (H-85) is also recommended for detection of PAO1, 2, 4 and 5 in additional species, including equine, canine, bovine and porcine.

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 goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### SELECT PRODUCT CITATIONS

1. Gürkan, A.C., et al. 2013. Inhibition of polyamine oxidase prevented cyclin-dependent kinase inhibitor-induced apoptosis in HCT 116 colon carcinoma cells. *Apoptosis* 18: 1536-1547.
2. Obakan, P., et al. 2014. Activation of polyamine catabolic enzymes involved in diverse responses against epibrassinolide-induced apoptosis in LNCaP and DU145 prostate cancer cell lines. *Amino Acids* 46: 553-564.

### RESEARCH USE

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



Try **PAO (C-3): sc-166185**, our highly recommended monoclonal alternative to PAO (H-85).