

## LPO (D-17): sc-50834

### BACKGROUND

Lactoperoxidase is an antibacterial agent in cow milk. The heme protein lactoperoxidase (LPO), also referred to as salivary peroxidase (SPO), is an oxidoreductase secreted into milk. LPO, a 712 amino acid protein, belongs to the XPO subfamily of the peroxidase family. It is expressed in mammary and salivary glands, and in the presence of H<sub>2</sub>O<sub>2</sub>, LPO acts as a catalyst for the oxidation of many phenols and aromatic amines. It is crucial for protecting the lactating mammary gland and intestinal tract of newborn infants against microorganisms. LPO binds one calcium ion per heterodimer and one heme B (iron-protoporphyrin IX) group covalently per heterodimer. The LPO gene, which spans 28 kb, is similar in gene organization and sequence to the peroxidase genes MPO and EPX, suggesting the possibility that these genes evolved from a common ancestral gene. The LPO and MPO genes are arranged in a tail-to-tail manner on chromosome 17q22.

### REFERENCES

- Dull, T.J., Uyeda, C., Strosberg, A.D., Nedwin, G. and Seilhamer, J.J. 1990. Molecular cloning of cDNAs encoding bovine and human lactoperoxidase. *DNA Cell Biol.* 9: 499-509.
- Kiser, C., Caterina, C.K., Engler, J.A., Rahemtulla, B. and Rahemtulla, F. 1996. Cloning and sequence analysis of the human salivary peroxidase-encoding cDNA. *Gene* 173: 261-264.
- Ueda, T., Sakamaki, K., Kuroki, T., Yano, I. and Nagata, S. 1997. Molecular cloning and characterization of the chromosomal gene for human lactoperoxidase. *Eur. J. Biochem.* 243: 32-41.
- Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 150205. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Ihalin, R., Loimaranta, V. and Tenovou, J. 2005. Origin, structure, and biological activities of peroxidases in human saliva. *Arch. Biochem. Biophys.* 445: 261-268.
- Nlend, M.C., Cauvi, D.M, Venot, N. and Chabaud, O. 2005. Role of sulfated tyrosines of thyroglobulin in thyroid hormonesynthesis. *Endocrinology* 146: 4834-4843.
- Shin, K., Wakabayashi, H., Yamauchi, K., Teraguchi, S., Tamura, Y., Kurokawa, M. and Shiraki, K. 2005. Effects of orally administered bovine lactoferrin and lactoperoxidase on influenza virus infection in mice. *J. Med. Microbiol.* 54: 717-723.
- Le Nguyen, D.D., Ducamp, M.N., Dornier, M., Montet, D. and Loiseau, G. 2005. Effect of the lactoperoxidase system against three major causal agents of disease in mangoes. *J. Food Prot.* 68: 1497-1500.
- Odabasoglu, F., Cakir, A., Suleyman, H., Aslan, A., Bayir, Y., Halici, M. and Kazaz, C. 2006. Gastroprotective and antioxidant effects of usnic acid on indomethacin-induced gastric ulcer in rats. *J. Ethnopharmacol.* 103: 59-65.

### STORAGE

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

### CHROMOSOMAL LOCATION

Genetic locus: LPO (human) mapping to 17q22.

### SOURCE

LPO (D-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of LPO 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.

Blocking peptide available for competition studies, sc-50834 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

LPO (D-17) is recommended for detection of LPO of 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).

LPO (D-17) is also recommended for detection of LPO in additional species, including equine, canine and porcine.

Suitable for use as control antibody for LPO siRNA (h): sc-60962, LPO shRNA Plasmid (h): sc-60962-SH and LPO shRNA (h) Lentiviral Particles: sc-60962-V.

Molecular Weight of LPO: 78 kDa.

### 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](http://www.scbt.com) or our catalog for detailed protocols and support products.