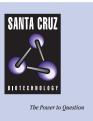
# SANTA CRUZ BIOTECHNOLOGY, INC.

# PGRP-Iα (K-15): sc-54969



# BACKGROUND

Peptidoglycan recognition proteins (PGRPs) are molecules that recognize peptidoglycan, a large component in bacterial cell walls. In insects, PGRPs activate antimicrobial pathways, and in mammals PGRPs function as antibacterial neutrophil proteins. PGRP-L halts bacterial growth by acting as an alanine amidase, an enzyme that hydrolyzes the amide bond of bacterial peptidoglycan. PGRP-I $\alpha$  and PGRP-I $\beta$  are also members of the PGRP family that help to recognize bacteria by binding to peptidoglycan and Gram-positive bacteria, but they do not have amidase activity. These two PGRPs are expressed in the esophagus and, to a lesser extent, in the tonsils and thymus. PGRP-I $\alpha$  and PGRP-I $\beta$  are transmembrane proteins of 341 and 373 amino acids, respectively, and they have have at least three highly conserved C-terminal PGRP domains either in the extracellular or in the cytoplasmic (or in both) regions.

## REFERENCES

- Liu, C., Xu, Z., Gupta, D. and Dziarski, R. 2001. Peptidoglycan recognition proteins: a novel family of four human innate immunity pattern recognition molecules. J. Biol. Chem. 276: 34686-34694.
- Wang, Z.M., Li, X., Cocklin, R.R., Wang, M., Wang, M., Fukase, K., Inamura, S., Kusumoto, S., Gupta, D. and Dziarski, R. 2003. Human peptidoglycan recognition protein-L is an N-acetylmuramoyl-L-alanine amidase. J. Biol. Chem. 278: 49044-49052.
- Guan, R., Malchiodi, E.L., Wang, Q., Schuck, P. and Mariuzza, R.A. 2004. Crystal structure of the C-terminal peptidoglycan-binding domain of human peptidoglycan recognition protein-Iα. J. Biol. Chem. 279: 31873-31882.
- Natori, S. 2004. Overview: Innate immunity and peptideglycan recognition protein. Tanpakushitsu Kakusan Koso 49: 1156-1160.
- 5. Fournier, B. and Philpott, D.J. 2005. Recognition of *Staphylococcus aureus* by the innate immune system. Clin. Microbiol. Rev. 18: 521-540.
- 6. Kumar, S., Roychowdhury, A., Ember, B., Wang, Q., Guan, R., Mariuzza, R.A. and Boons, G.J. 2005. Selective recognition of synthetic lysine and mesodiaminopimelic acid-type peptidoglycan fragments by human peptidoglycan recognition proteins-I $\alpha$  and -S. J. Biol. Chem. 280: 37005-37012.
- Uehara, A., Sugawara, Y., Kurata, S., Fujimoto, Y., Fukase, K., Kusumoto, S., Satta, Y., Sasano, T., Sugawara, S. and Takada, H. 2005. Chemically synthesized pathogen-associated molecular patterns increase the expression of peptidoglycan recognition proteins via toll-like receptors, Nod1 and Nod2 in human oral epithelial cells. Cell. Microbiol. 7: 675-686.
- Wang, H., Gupta, D., Li, X. and Dziarski, R. 2005. Peptidoglycan recognition protein 2 (N-acetylmuramoyl-L-ala amidase) is induced in keratinocytes by bacteria through the p38 kinase pathway. Infect. Immun. 73: 7216-7225.
- Guan, R., Brown, P.H., Swaminathan, C.P., Roychowdhury, A., Boons, G.J. and Mariuzza, R.A. 2006. Crystal structure of human peptidoglycan recognition protein-Iα bound to a muramyl pentapeptide from Gram-positive bacteria. Protein Sci. 15: 1199-1206.

#### CHROMOSOMAL LOCATION

Genetic locus: PGLYRP3 (human) mapping to 1q21.

# SOURCE

PGRP-I $\alpha$  (K-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PGRP-I $\alpha$  of human origin.

## PRODUCT

Each vial contains 200  $\mu g$  lgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-54969 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

#### **APPLICATIONS**

PGRP-I $\alpha$  (K-15) is recommended for detection of PGRP-I $\alpha$  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).

Suitable for use as control antibody for PGRP-I $\alpha$  siRNA (h): sc-62787.

Molecular Weight of PGRP-Ia: 38 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) Immunofluo-rescence: use donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

#### **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.

#### PROTOCOLS

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