



## PGRP-I $\beta$ (K-14): sc-55878

### 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 anti-bacterial neutrophil proteins. PGRP-L halts bacterial growth by acting as an alanine amidase, an enzyme that hydrolyzes the amide bond of bacterial peptidoglycan. PGRP- $\alpha$  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- $\alpha$  and PGRP-I $\beta$  are transmembrane proteins of 341 and 373 amino acids, respectively, and they 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- $\alpha$ . *J. Biol. Chem.* 279: 31873-31882.
- Natori, S. 2004. Overview: Innate immunity and peptidoglycan recognition protein. *Tanpakushitsu Kakusan Koso* 49: 1156-1160.
- Fournier, B. and Philpott, D.J. 2005. Recognition of *Staphylococcus aureus* by the innate immune system. *Clin. Microbiol. Rev.* 18: 521-540.
- Kumar, S., Roychowdhury, A., Ember, B., Wang, Q., Guan, R., Mariuzza, R.A. and Boons, G.J. 2005. Selective recognition of synthetic lysine and meso-diaminopimelic acid-type peptidoglycan fragments by human peptidoglycan recognition proteins- $\alpha$  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- $\alpha$  bound to a muramyl pentapeptide from Gram-positive bacteria. *Protein Sci.* 15: 1199-1206.

### CHROMOSOMAL LOCATION

Genetic locus: Pglyrp4 (mouse) mapping to 3 F1.

### SOURCE

PGRP-I $\beta$  (K-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PGRP-I $\beta$  of mouse origin.

### PRODUCT

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

Blocking peptide available for competition studies, sc-55878 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

PGRP-I $\beta$  (K-14) is recommended for detection of PGRP-I $\beta$  of mouse and rat 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 $\beta$  siRNA (m): sc-62786.

Molecular Weight of PGRP-I $\beta$ : 46 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.

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