



PGRP-S (E-17): sc-55740

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- α and PGRP- β are also members of the PGRP family that help recognize bacteria by binding to peptidoglycan and Gram-positive bacteria, but they do not have amidase activity. PGRP-S participates in intracellular killing of Gram-positive bacteria by stimulating two antimicrobial defense systems, the prophenoloxidase cascade and the antimicrobial peptides through Toll receptors.

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.
- Dziarski, R., Platt, K.A., Gelius, E., Steiner, H. and Gupta, D. 2003. Defect in neutrophil killing and increased susceptibility to infection with nonpathogenic Gram-positive bacteria in peptidoglycan recognition protein-S (PGRP-S)-deficient mice. *Blood* 102: 689-697.
- Kibardin, A.V., Mirkina, I.I., Zakeeva, I.R., Baranova, E.V., Georgiev, G.P. and Kiselev, S.L. 2003. Expression analysis of proteins encoded by genes of the tag7/tagL (PGRP-S,L) family in human peripheral blood cells. *Genetika* 39: 244-249.
- Lo, D., Tynan, W., Dickerson, J., Mendy, J., Chang, H.W., Scharf, M., Byrne, D., Brayden, D., Higgins, L., Evans, C. and O'Mahony, D.J. 2003. Peptidoglycan recognition protein expression in mouse Peyer's Patch follicle associated epithelium suggests functional specialization. *Cell. Immunol.* 224: 8-16.
- 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.
- Cho, J.H., Fraser, I.P., Fukase, K., Kusumoto, S., Fujimoto, Y., Stahl, G.L. and Ezekowitz, R.A. 2005. Human peptidoglycan recognition protein S is an effector of neutrophil-mediated innate immunity. *Blood* 106: 2551-2558.
- Guan, R., Wang, Q., Sundberg, E.J. and Mariuzza, R.A. 2005. Crystal structure of human peptidoglycan recognition protein S (PGRP-S) at 1.70 Å resolution. *J. Mol. Biol.* 347: 683-691.
- 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 α and S. *J. Biol. Chem.* 280: 37005-37012.
- Tydell, C.C., Yuan, J., Tran, P. and Selsted, M.E. 2006. Bovine peptidoglycan recognition protein-S: antimicrobial activity, localization, secretion, and binding properties. *J. Immunol.* 176: 1154-1162.

CHROMOSOMAL LOCATION

Genetic locus: Pglyrp1 (rat) mapping to 1q21.

SOURCE

PGRP-S (E-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PGRP-S of rat origin.

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-55740 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PGRP-S (E-17) is recommended for detection of PGRP-S of 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).

Molecular Weight of PGRP-S: 22 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 or our catalog for detailed protocols and support products.