SANTA CRUZ BIOTECHNOLOGY, INC.

PGRP-Iβ siRNA (m): sc-62786

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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-Iα and PGRP-Iβ 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-Iα and PGRP-Iβ 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

1. Liu, C., et al. 2001. Peptidoglycan recognition proteins: a novel family of four human innate immunity pattern recognition molecules. J. Biol. Chem. 276: 34686-34694.
2. Wang, Z.M., et al. 2003. Human peptidoglycan recognition protein-L is an N-acetylmuramoyl-L-alanine amidase. J. Biol. Chem. 278: 49044-49052.
3. Guan, R., et al. 2004. Crystal structure of the C-terminal peptidoglycan-binding domain of human peptidoglycan recognition protein Ia. J. Biol. Chem. 279: 31873-31882.
4. 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., et al. 2005. Selective recognition of synthetic lysine and meso-diaminopimelic acid-type peptidoglycan fragments by human peptidoglycan recognition proteins Ia and S. J. Biol. Chem. 280: 37005-37012.
7. Uehara, A., et al. 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.

CHROMOSOMAL LOCATION

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

PRODUCT

PGRP-Iβ siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PGRP-Iβ shRNA Plasmid (m): sc-62786-SH and PGRP-Iβ shRNA (m) Lentiviral Particles: sc-62786-V as alternate gene silencing products.

For independent verification of PGRP-Iβ (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-62786A, sc-62786B and sc-62786C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PGRP-Iβ siRNA (m) is recommended for the inhibition of PGRP-Iβ expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

PGRP-Iβ (186C426): sc-52945 is recommended as a control antibody for monitoring of PGRP-Iβ gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PGRP-Iβ gene expression knockdown using RT-PCR Primer: PGRP-Iβ (m)-PR: sc-62786-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

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