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SANTA CRUZ BIOTECHNOLOGY, INC.

BPI siRNA (h): sc-42738

BACKGROUND

The bactericidal permeability increasing protein (BPI) is an antibacterial and endotoxin-neutralizing molecule that is abundant in the granules of polymorphonuclear leukocytes (neutrophil granules). The 31.5-kb-long human BPI gene maps to chromosome 20q11.23, contains 15 exons, and encodes a 456 amino acid protein. Epithelial cells which line mucosal surfaces are the first line of defense against bacterial invasion and infection. BPI localizes to the cell surface of epithelial cells and blocks endotoxin-mediated signaling, thereby protecting mucosal surfaces against Gram-negative bacteria and their endotoxin. BPI, lipopolysaccharide binding protein (LBP), phospholipid transfer protein (PLTP), and cholesteryl ester transfer protein (CETP) constitutes a family of functionally related proteins.

REFERENCES

1. Ooi, C.E., et al. 1987. A 25-kDa NH_2-terminal fragment carries all the antibacterial activities of the human neutrophil 60-kDa bactericidal/permeability-increasing protein. J. Biol. Chem. 262: 14891-14894.
2. Gray, P.W., et al. 1989. Cloning of the cDNA of a human neutrophil bactericidal protein. Structural and functional correlations. J. Biol. Chem. 264: 9505-9509.
3. Schumann, R.R., et al. 1990. Structure and function of lipopolysaccharide binding protein. Science 249: 1429-1431.
4. Gray, P.W., et al. 1993. The genes for the lipopolysaccharide binding protein (LBP) and the bactericidal permeability increasing protein (BPI) are encoded in the same region of human chromosome 20. Genomics 15: 188-190.
5. Hubacek, J.A., et al. 1997. The genomic organization of the genes for human lipopolysaccharide binding protein (LBP) and bactericidal permeability increasing protein (BPI) is highly conserved. Biochem. Biophys. Res. Commun. 236: 427-430.
6. Beamer, L.J., et al. 1997. Crystal structure of human BPI and two bound phospholipids at 2.4 angstrom resolution. Science 276: 1861-1864.

CHROMOSOMAL LOCATION

Genetic locus: BPI (human) mapping to 20q11.23.

PRODUCT

BPI siRNA (h) 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 BPI shRNA Plasmid (h): sc-42738-SH and BPI shRNA (h) Lentiviral Particles: sc-42738-V as alternate gene silencing products.

For independent verification of BPI (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-42738A, sc-42738B and sc-42738C.

PROTOCOLS

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

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

BPI siRNA (h) is recommended for the inhibition of BPI expression in human 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

BPI (H-10): sc-514212 is recommended as a control antibody for monitoring of BPI 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BPI gene expression knockdown using RT-PCR Primer: BPI (h)-PR: sc-42738-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.