Recombinant Human PSP

Catalog Number: 5498-PS

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived Leu21-Ile249, with a C-terminal 6-His tag Accession # Q96DR5
N-terminal Sequence Analysis	Leu21
Predicted Molecular Mass	25.9 kDa

SPECIFICATIONS

SDS-PAGE	30-40 kDa, reducing conditions
Activity	Measured by its ability to inhibit LPS-induced TNF-α secretion by RAW 264.7 mouse monocyte/macrophage cells. 5 µg/mL of rhPSP will inhibit 30-60% of the TNF-α secretion induced by 0.5 ng/mL of LPS.
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Parotid secretory protein (PSP; also short palate, lung, nasal epithelium carcinoma-associated protein 2 or SPLUNC2 and C20orf70) is a 36 - 40 kDa secreted glycoprotein and member of the Bactericidal permeability-increasing (BPI)/Lipopolysaccharide-binding protein (LBP)/PLUNC superfamily and PLUNC family of proteins (1). Human PSP is synthesized as a 249 amino acid (aa) precursor that contains an 18 aa signal sequence and a 231 aa mature chain. The mature chain contains one BPI/LBS/PLUNC domain (aa 62 - 220) and two potential sites for N-linked glycosylation. Mature human PSP is 31% and 26% aa identical to mature mouse and rat PSP, respectively. Human PSP is expressed in the parotid and submandibular glands in ductal epithelial cells and acinar cells (1 - 2). PSP has been shown to exhibit bacteristatic and bactericidal effects on *Pseudomonas aerginosa* (1). In addition, PSP-derived peptides inhibit the binding of endotoxin to LBP and inhibit the endotoxin-stimulated secretion of tumor necrosis factor α from macrophages (1, 3). These findings suggest that PSP peptides can serve as templates for the design of novel anti-inflammatory peptides (3). One study showed that peptide GL-13 induced bacterial matting, suggesting passive agglutination of bacteria (4). GL-13 was shown to agglutinate Gram negative bacteria *P. aerginosa* and *Aggregatibacter (Actinobacillus) actinomycetemcomitans*, Gram positive *Streptococcus gordonii* and uncoated sheep erythrocytes (4). The agglutination leads to increased clearance by host phagocytic cells.

References:

1. Geetha, C. *et al.* (2003) Biochem. Soc. Trans. **31**:815.
2. Bingle, C.D. and S.-U. Gorr (2004) Int. J. Biochem. Cell Biol. **36**:2144.
3. Geetha, C. *et al.* (2005) J. Dent. Res. **84**:149.
4. Gorr, S.-U. *et al.* (2008) Peptides **29**:2118.

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