Growth Factor Data Sheet

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Human beta-defensin 4A (DEFB4A) is an antimicrobial peptide that contributes to the innate immune system and is active against gram-negative bacteria, fungi, and viruses. It also contributes to the adaptive immune system through recruitment of leukocytes to sites of infection through chemotaxis. Like the other β-defensins, DEFB4A is a small protein that contains a motif consisting of six cysteine residues which form three intramolecular disulfide bridges. It is expressed in epithelia of many organs, including the lungs and skin, as well as in monocytes and macrophages. Expression is induced by 1,25-dihydroxyvitamin D_3 and proinflammatory cytokines, such as IL1B and IFNG, and downregulated by the anti-inflammatory steroid dexamethasone. DEFB4A is a cationic peptide that disrupts the membranes of invading microbes, which are negatively charged due to the presence of lipopolysaccharides (LPS) or lipoteichoic acid (LTA). DEFB4A stimulates mast cells to induce Ca2+ mobilization, histamine release, and COX-1 mediated prostaglandin D2 release in a G-protein-dependent and phospholipase C-dependent manner. Inhibition of DEFB4A by high salt concentration may play a role in the pathogenesis of cystic fibrosis.

Catalog Number **Product Name**	**1190-02** **DEFB4A, Human** Recombinant Human Defensin, Beta 4A Defensin, Beta 2, DEFB2, HBD-2, SAP1 Defensin, Beta 4, DEFB4
Source	*Escherichia coli*
MW	~4.3 kDa (41 amino acids)
Sequence	GIGDPVTCLK SGAICHPVFC PRRYKQIGTC GLPGTKCCKK P
Accession Number	O15263
Purity	>98% by SDS-PAGE and HPLC analyses
Biological Activity	Fully biologically active when compared to standard. The biological activity determined by a chemotaxis bioassay using immature human dendritic cells is in a concentration range of 10-100 ng/ml.
Formulation	Sterile filtered white lyophilized powder. Purified and tested for use in cell culture.
Storage/Handling	This lyophilized preparation is stable at 2-8°C, but should be kept at -20°C for long term storage. The reconstituted sample can be apportioned into working aliquots and stored at -80 °C for up to 6 months. Avoid repeated freeze/thaw cycles.
Reconstitution	The sample should be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in a siliconized tube using PBS that contains a 0.1% BSA to a concentration of 0.1-1.0 mg/mL. Reconstituted solutions are stable for up to one week at 2-8°C. Stock solutions should be aliquoted and stored at -80°C. Further dilutions should be made in appropriate buffered solutions containing BSA or serum.