

Growth Factor Data Sheet

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Rat beta-defensin 4 (DEFB4) 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, DEFB4 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 lung and skin, as well as in monocytes and macrophages. Expression is induced by proinflammatory cytokines, such as IL1B and IFNG. DEFB4 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). DEFB4 stimulates mast cells to induce Ca^{2+} mobilization, histamine release, and COX-1 mediated prostaglandin D2 release in a G-protein-dependent and phospholipase C-dependent manner. DEFB4 also stimulates cholinergic Ca^{2+} -dependent epithelial Cl^- secretion. Inhibition of DEFB4 by high salt concentration may play a role in the pathogenesis of cystic fibrosis.

Catalog Number	1590-04
Product Name	DEFB4, Rat Recombinant Rat Defensin, Beta 4 RBD-4, DEFB4
Source	<i>Escherichia coli</i>
MW	~4.4 kDa (41 amino acids)
Sequence	QSINNPITCL TKGGVCWGPC TGGFRQIGTC GLPRVRCCKK K
Accession Number	O88514
Purity	>95% 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 monocytes is in a concentration range of 0.1-100.0 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.