

Growth Factor Data Sheet

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Human beta-defensin 103A (DEFB103A) is an antimicrobial peptide that contributes to the innate and adaptive immune systems and is active against gram-negative and gram-positive bacteria, fungi, and viruses. Like the other β -defensins, DEFB103A is a small protein that contains a motif consisting of six cysteine residues which form three intramolecular disulfide bridges. It is expressed in epithelial tissue of many organs, heart and skeletal muscle tissue, and leukocytes. Expression of DEFB103A is induced by proinflammatory cytokines such as IL1B and IFNG. DEFB103A is a cationic peptide and interacts with the membranes of invading microbes, which are negatively charged due to the presence of lipopolysaccharides (LPS) or lipoteichoic acid (LTA). LTA and LPS have higher affinity for DEFB103A than for Ca^{+2} and Mg^{+2} ions. The larger defensin molecule displaces the smaller ion, changing the membrane structure and affecting the stability of the membrane; this can lead to the formation of pores and subsequent depolarization or lysis. DEFB103A has been shown to have a greater positive surface charge than DEFB1 or DEFB4A, giving it greater antimicrobial activity. Inhibition of DEFB103A by high salt concentration may play a role in the pathogenesis of cystic fibrosis.

Catalog Number	1190-03
Product Name	DEFB103A, Human Recombinant HumanDefensin, Beta 103A Defensin, Beta 3, DEFB3, HBD-3
Source	<i>Escherichia coli</i>
MW	~5.2 kDa (45 amino acids)
Sequence	GIINTLQKYY CRVRGGRCVAV LSCLPKEEQI GKCSTRGRKRC CRRKK
Accession Number	P81534
Purity	>98% by SDS-PAGE and HPLC analyses
Biological Activity	Fully biologically active when compared to standard. The ED ₅₀ as determined by anti-microbial activity against <i>E. coli</i> is less than 30 μ g/ml, corresponding to a specific activity of >33.3 IU/mg
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.