

Growth Factor Data Sheet

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Murine beta-defensin 1 (DEFB1) is an antimicrobial peptide that contributes to the innate and adaptive immune systems and is active against bacteria, fungi, and viruses. Like the other β -defensins, DEFB1 is a small protein that contains a motif consisting of six cysteine residues which form three intramolecular disulfide bridges. It is constitutively expressed in epithelial tissue, mainly of the respiratory and genitourinary tract, as well as in monocytes, macrophages, and dendritic cells. DEFB1 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 DEFB1 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. The primary role of DEFB1 is believed to be prevention of microbial colonization on epithelia. Transgenic mice lacking the *Defb1* gene showed an increased load of *Staphylococcus* species in the bladder, suggesting a role for DEFB1 in resistance to urinary tract infection. Inhibition of DEFB1 by high salt concentration may play a role in the pathogenesis of cystic fibrosis.

Catalog Number	1390-01
Product Name	DEFB1, Murine Recombinant Murine Defensin, Beta 1 BD1, DEFB-1, MBD-1
Source	<i>Escherichia coli</i>
MW	~5.2 kDa (48 amino acids)
Sequence	VGILTSLGRR TDQYKCLQHG GFCLRSSCPN NTKLQGTCCKP DKPNCKKS
Accession Number	P56386
Purity	>97% by SDS-PAGE and HPLC analyses
Biological Activity	Fully biologically active when compared to standard. The biologically active determined by a chemotaxis bioassay using CD34+ dendritic cells is in a concentration range of 100.0-1000.0 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.