

# Growth Factor Data Sheet

GoldBio growth factors are manufactured for **RESEARCH USE ONLY** and cannot be sold for human consumption!

Human beta-defensin 104A (DEFB104A) is an antimicrobial peptide that contributes to both the innate and the adaptive immune systems and is active against gram-negative and gram-positive bacteria, fungi, and viruses. Like the other  $\beta$ -defensins, DEFB104A is a small protein that contains a motif consisting of six cysteine residues which form three intramolecular disulfide bridges. It is expressed at highest levels in the testis and stomach, and at lower levels in the uterus, neutrophils, thyroid, lung, and kidney. Expression of DEFB104A is upregulated by phorbol 12-myristate 13-acetate (PMA), as well as in response to infection with gram-positive and gram-negative bacteria. DEFB104A 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  $\text{Ca}^{+2}$  and  $\text{Mg}^{+2}$  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. DEFB104A has been shown to be more active against *Pseudomonas aeruginosa* than DEFB1, DEFB4A, or DEFB103A. Inhibition of DEFB104A by high salt concentration may play a role in the pathogenesis of cystic fibrosis.

<b>Catalog Number</b>	<b>1190-04</b>
<b>Product Name</b>	<b>DEFB104A, Human</b> Recombinant HumanDefensin, Beta 104A Defensin, Beta 4, DEFB4, HBD4
<b>Source</b>	<i>Escherichia coli</i>
<b>MW</b>	~6.0 kDa (50 amino acids)
<b>Sequence</b>	EFELDRICGY GTARCRKKCR SQEYRIGRCP NTYACCLRKW DESLLNRTKP
<b>Accession Number</b>	<a href="#">Q8WTQ1</a>
<b>Purity</b>	>97% by SDS-PAGE and HPLC analyses
<b>Biological Activity</b>	Fully biologically active when compared to standard. The biological activity determined by a chemotaxis bioassay using human monocytes is in a concentration range of 0.1-100 ng/ml.
<b>Formulation</b>	Sterile filtered white lyophilized powder. Purified and tested for use in cell culture.
<b>Storage/Handling</b>	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.
<b>Reconstitution</b>	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.