

## Recombinant Murine Beta-defensin 2

### Information

<b>Gene ID</b>	13215
<b>Accession #</b>	P82020
<b>Alternate Names</b>	Defensin beta2
<b>Source</b>	Escherichia coli.
<b>M.Wt</b>	Approximately 5.5 kDa, a single non-glycosylated polypeptide chain containing 51 amino acids.
<b>AA Sequence</b>	AVGSLKSIGY EAELDHCHTN GGYCVRAICP PSARRPGSCF PEKNPCCKYM K
<b>Appearance</b>	Sterile Filtered White lyophilized (freeze-dried) powder.
<b>Stability &amp; Storage</b>	Use a manual defrost freezer and avoid repeated freeze-thaw cycles - 12 months from date of receipt, -20 to -70 °C as supplied - 1 month, 2 to 8 °C under sterile conditions after reconstitution - 3 months, -20 to -70 °C under sterile conditions after reconstitution
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered concentrated solution in PBS, pH 7.4.
<b>Reconstitution</b>	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in sterile distilled water or aqueous buffer containing 0.1 % BSA to a concentration of 0.1-1.0 mg/mL. Stock solutions should be apportioned into working aliquots and stored at ≤ -20 °C. Further dilutions should be made in appropriate buffered solutions.
<b>Biological Activity</b>	Fully biologically active when compared to standard. The biologically active determined by a chemotaxis bioassay using immature human dendritic cells is in a concentration of 10-100 ng/ml.
<b>Shipping Condition</b>	Gel pack.
<b>Handling</b>	Centrifuge the vial prior to opening.
<b>Usage</b>	For Research Use Only! Not to be used in humans.

### Components and Storage

Components	5µg	100µg	500µg
Recombinant Murine Beta-defensin 2	5µg	100µg	500µg

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- 12 months from date of receipt, -20 to -70 °C as supplied
- 1 month, 2 to 8 °C under sterile conditions after reconstitution
- 3 months, -20 to -70 °C under sterile conditions after reconstitution

## Quality Control

Purity	> 98 % by SDS-PAGE and HPLC analyses.
Endotoxin	Less than 1 EU/ $\mu$ g of rMuBD-2 as determined by LAL method.

## Description

Defensins (alpha and beta) are cationic peptides with antimicrobial activity against Gram-negative and Gram-positive bacteria, fungi, and enveloped viruses. They are 2-6 kDa proteins and take important roles in innate immune system. On the basis of their size and pattern of disulfide bonding, mammalian defensins are classified into alpha, beta and theta categories.  $\beta$ -Defensins are expressed on some leukocytes and at epithelial surfaces. They contain a six-cysteine motif that forms three intra-molecular disulfide bonds. Because  $\beta$ -defensins are cationic peptides, they can therefore interact with the membrane of invading microbes, which are negative due to lipopolysaccharides (LPS) and lipoteichoic acid (LTA) found in the cell membrane. Especially, they have higher affinity to the binding site compared to  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  ions. Furthermore, they can affect the stability of the membrane. Additionally, they are not only have the ability to strengthen the innate immune system but can also enhance the adaptive immune system by chemotaxis of monocytes, T-lymphocytes, dendritic cells and mast cells to the infection site.

## Reference

1. Rivas-Santiago B, Cervantes-Villagrana A, Sada E, et al. 2012. Arch Med Res, 43: 324-8
2. Poiraud C, Quereux G, Knol AC, et al. 2012. Eur J Dermatol, 22: 634-9
3. Mullin J, Carter S, Williams N, et al. 2012. Vet Microbiol,



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