



Technical Data Sheet

Recombinant Rat Beta-defensin 3 (rRtBD-3)

Rat Beta-defensin 3

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. β -Defensins are expressed on some leukocytes and at epithelial surfaces. They contain a six-cysteine motif that forms three intra-molecular disulfide bonds. Because β -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 Ca^{2+} and 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.

Catalog Number:	RC260-14
Source:	<i>Escherichia coli</i> .
Molecular Weight:	Approximately 4.5 kDa, a single non-glycosylated polypeptide chain containing 41 amino acids.
Quantity:	5 μg /20 μg /1000 μg
AA Sequence:	KKVYNNAVSCM TNGGICWLKC SGTFREIGSC GTRQLKCKK K
Purity:	> 95 % by SDS-PAGE and HPLC analyses.
Biological Activity:	Fully biologically active when compared to standard. Measured by its antimicrobial activity against <i>E. coli</i> . The ED_{50} for this effect is typically 4-20 $\mu\text{g}/\text{ml}$.
Physical Appearance:	Sterile Filtered White lyophilized (freeze-dried) powder.
Formulation:	Lyophilized from a 0.2 μm filtered concentrated solution in PBS, pH 7.4.
Endotoxin:	Less than 1 EU/ μg of rRtBD-3 as determined by LAL method.
Reconstitution:	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 $\leq -20^\circ\text{C}$. Further dilutions should be made in appropriate buffered solutions.



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Storage:

This lyophilized preparation is stable at 2-8 °C, but should be kept at -20 °C for long term storage, preferably desiccated. Upon reconstitution, the preparation is stable for up to one week at 2-8 °C. For maximal stability, apportion the reconstituted preparation into working aliquots and store at -20 °C to -70 °C. Avoid repeated freeze/thaw cycles.

Usage:

This material is offered by Bio Basic Inc for research, laboratory or further evaluation purposes. NOT FOR HUMAN USE.