

## Recombinant Rat Defb4 protein

**Cat. No.** Defb4-598R    **Lot. No.** (See product label)

### SPECIFICATION

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <b>Product Overview</b> | Recombinant Rat Defb4 protein was expressed in Escherichia coli.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Species</b>          | Rat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Source</b>           | E.coli                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>ProteinLength</b>    | 41                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Description</b>      | <p>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. <math>\beta</math>-Defensins are expressed on some leukocytes and at epithelial surfaces. They contain a six-cysteine motif that forms three intra-molecular disulfide bonds. Because <math>\beta</math>-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 <math>\text{Ca}^{2+}</math> and <math>\text{Mg}^{2+}</math> 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.</p> |
| <b>Form</b>             | Lyophilized from a 0.2 $\mu\text{m}$ filtered concentrated solution in 10 mM PB, pH 7.4, 500 mM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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|                       |                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | NaCl.                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Bio-activity</b>   | Fully biologically active when compared to standard. The biologically active determined by a chemotaxis bioassay using human monocytes is in a concentration range of 0.1-100.0 ng/ml.                                                                                                                                                                                                      |
| <b>Molecular Mass</b> | Approximately 4.4 kDa, a single non-glycosylated polypeptide chain containing 41 amino acids.                                                                                                                                                                                                                                                                                               |
| <b>AA Sequence</b>    | QSINNPITCLTKGGVCWGPCTGGFRQIGTCGLPRVRCKKK                                                                                                                                                                                                                                                                                                                                                    |
| <b>Endotoxin</b>      | Less than 1 EU/g of rRtBD-4 as determined by LAL method.                                                                                                                                                                                                                                                                                                                                    |
| <b>Purity</b>         | >95% by SDS-PAGE and HPLC analysis.                                                                                                                                                                                                                                                                                                                                                         |
| <b>Storage</b>        | Use a manual defrost freezer and avoid repeated freeze-thaw cycles. 12 months from date of receipt, -20 to -70 centigrade as supplied. 1 month, 2 to 8 centigrade under sterile conditions after reconstitution. 3 months, -20 to -70 centigrade under sterile conditions after reconstitution.                                                                                             |
| <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 centigrade. Further dilutions should be made in appropriate buffered solutions. |

## GENE INFORMATION

|                        |       |
|------------------------|-------|
| <b>Gene Name</b>       | Defb4 |
| <b>Official Symbol</b> | Defb4 |

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| <b>Synonyms</b>       | Defensin beta4 |
| <b>Gene ID</b>        | 64389          |
| <b>mRNA Refseq</b>    | NM_022544      |
| <b>Protein Refseq</b> | NP_071989      |
| <b>UniProt ID</b>     | O88514         |

**SDS-PAGE of Defb4-598R**

