

Recombinant Rat Beta-defensin 1

Information

Gene ID	83687
Accession #	O89117
Alternate Names	Defensin beta1
Source	Escherichia coli.
M.Wt	Approximately 4.1 kDa, a single non-glycosylated polypeptide chain containing 37 amino acids.
AA Sequence	DQYRCLQNGG FCLRSSCP SH TKLQGTCKPD KPNCCRS
Appearance	Sterile Filtered White lyophilized (freeze-dried) powder.
Stability & Storage	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
Formulation	Lyophilized from a 0.2 µm filtered concentrated solution in 20 mM PB, 500 mM NaCl, pH 7.0.
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 ≤ -20 °C. Further dilutions should be made in appropriate buffered solutions.
Biological Activity	Fully biologically active when compared to standard. The biological activity determined by a chemotaxis bioassay using CD34+ dendritic cells is in a concentration range of 100.0-1000.0 ng/ml.
Shipping Condition	Gel pack.
Handling	Centrifuge the vial prior to opening.
Usage	For Research Use Only! Not to be used in humans.

Components and Storage

Components	5µg	100µg	500µg
Recombinant Rat Beta-defensin 1	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	> 95 % by SDS-PAGE and HPLC analyses.
Endotoxin	Less than 1 EU/μg of rRtBD-1 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. 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.

Reference

1. Wang YS, Wang GQ, Wen YJ, et al. 2007. Clin Cancer Res, 13: 6779-87
2. Morrison GM, Davidson DJ, Kilanowski FM, et al. 1998. Mamm Genome, 9: 453-7
3. Kurosawa S, Ohta M, Hayakawa M, et al. 2002. Hybrid Hybridomics, 21: 359-63
4. Palladino MA, Mallonga TA, Mishra MS. 2003. Biol Reprod, 68: 509-15
5. Kurland AR, Schreiner H, Diamond G. 2006. J Periodontal Res, 41: 567-72.



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