

Product Specification Sheet

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**Purified Mouse Beta-Defensin 1 (MBD-1)**

Cat. # MBD14-P

Purified MBD-1, full length, Oxidized

**SIZE:** 100 ug

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Antimicrobial peptides are a common mechanism of host defense utilized by a variety of species, from insects to humans. Defensins are a large family of broad-spectrum antimicrobial peptides, identified originally in leukocytes of rabbits and humans. **Defensins**, cationic/polar peptides (30-35 aa; 3-4 kDa), are distinguished by a conserved tri-disulfides and a largely  $\beta$ -Sheet structure. Defensins, expressed at the cell surface, have been hypothesized to function as a biochemical barrier against microbial infection by inhibiting colonization of the epithelium by wide range of pathogenic microorganisms. In leukocytes, these peptides are stored in cytoplasmic granules and are released into phagolysosomes where they contribute to the killing of engulfed microorganisms.

The genes encoding human  $\alpha$  and  $\beta$  -defensins are clustered in a contiguous segment of chromosome 8p23. Defensins are classified into two families designated  $\alpha$  - and  $\beta$  - based on distinctive, although similar, tri-disulfide linkages in the peptides.  $\beta$ -defensins are slightly larger and differ in the position and arrangement of 3 disulfides. In humans, six  $\alpha$  -defensin (**cryptidins**), **HD 1-6** (HD1-4 are also known as **HNP1-4** for Human Neutrophil Peptides), and two  $\beta$  -defensins, **HBD-1 and HBD-2**, have been identified to date. Rat (**RBD-1 and RBD-2**) and mouse (**MBD1-4**) homologues of the human beta-defensin have also been identified.  $\alpha$ -defensins are encoded by genes designated DEFA1-6, whereas human  $\beta$ -defensins are encoded by the DEFB1 and DEFB2 genes

**Source of Antigen**

Mouse and rat beta-defensin-1 is synthesized from 69 aa precursor (mature peptide 33-69 aa). The sequence of mature MBD-1 is: DQY KCL QHG GFC LRS SCP SNT KLQ GTC KPD KPN CCK S, 37 aa. The full length MBD-1 was synthesized and disulfides were formed in their natural orientation). The peptide has been purified by HPLC to >95% purity (mol wt 4077 daltons)..

**Form & Storage**

**The peptide** is provided as lyophilized powder in 1 mg/vial. Appropriate stock solution can be prepared and stored frozen in suitable aliquots. We recommend the storage of MBD-1 in powder form in tightly capped vials at  $-20^{\circ}\text{C}$  or below.

**Specificity & Cross-reactivity**

The MBD-1 sequence is 89% conserved in rat, and 55% in human beta defensin-1. Biological activity of the MBD-1 has not been established.

**General References:**

Huttner Km et al (1997) FEBS Lett. 413, 45-69; Liu L et al (1997) Genomics 43, 316-320; Bartels J et al (1997) Nature 387, 861; Ganz T (1999) Science 286, 420; Yang D et al (1999) Science 286, 525.

\*This product is for In vitro research use only.

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MBD14-P

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