

Product Specification Sheet

**Beta-Defensin 3 (MBD-3)**

Cat. # MBD34-P

Purified Full length MBD-3 (oxidized, 3 disulfides)

**SIZE:** 100 ug

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 Beta defensin-3 is synthesized from 63 aa precursor (mature peptide 24-63 aa). The sequence of mature MBD-3 is: KIN NPV SCL RKG GRC WNR CIG NTR QIG SCG VPF LKC CKR K 40 AA). . The full length MBD-3 was synthesized and disulfides were formed (oxidized) in their natural orientation). The peptide has been purified by HPLC to >95% purity.

**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 peptides in powder form in tightly capped vials at –20oC or below.

**Specificity & Cross-reactivity**

The MBD-3 sequence is ~ 50% conserved bovine and human beta defensin-3. Biological activity of the MBD34-P has not been established. MBD-3, full length, **non-oxidized** preparation (Cat # MBD35-P) is also available.

**General References:**

Bals R et al (1999) Infect. Immun. 67, 3542-3547;; Harder 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.

**Related material available from ADI**

Antibodies alpha and beta-defensins and MMP7

Study distribution of proteins in pre-made **Kidney blots** from 7 defined regions of rat kidney

**Recycle blots in Just 5-10 min. (use the same strip for various proteins)** New formulation will strip antibodies in just a few minutes at room temp. (no boiling or pungent mercaptoethanol).

MBD34-S

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