

Product Specification Sheet

Purified Human Beta-Defensin 1 (HBD-1)

Cat. # HBD16-P

Purified HBD-1, full length, Oxidized

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 β -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 α and β -defensins are clustered in a contiguous segment of chromosome 8p23. Defensins are classified into two families designated α – and β - based on distinctive, although similar, tri-disulfide linkages in the peptides. β -defensins are slightly larger and differ in the position and arrangement of 3 disulfides. In humans, six α –defensin (**cryptidins**), **HD 1-6** (HD1-4 are also known as **HNP1-4** for Human Neutrophil Peptides), and two β -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. α -defensins are encoded by genes designated DEFA1-6, whereas human β -defensins are encoded by the DEFB1 and DEFB2 genes

Source of Antigen and Antibodies

HBD-1 is synthesized from 68 aa precursor (mature peptide 33-68 aa). The sequence of mature HBD-1 is: DHY NCV SSG GQC LYS ACP IFT KIQ GTC YRG KAK CCK, 36 aa; **mol wt 3.935 kDa**; The full length HBD-1 was synthesized and disulfides were formed in their natural orientation). The peptide has been purified by HPLC to >95% purity.

Form & Storage

The peptide is provided as lyophilized powder. 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°C or below.

Specificity & Cross-reactivity

The HBD-1 sequence is 88% conserved in monkey, 52% in rat, and 55% in mouse beta-defensin-1. Biological activity of HBD-1 in various species 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; McCray PB et al (1997) Am. J. Respir. Cell. Mol. Biol. 16, 343-349; Bensch KW et al (1995) FEBS Lett. 368, 331-335; 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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HBD16-P

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