



## User Manual

**beta-Defensin 4 (BD-4) (Human)**

**Cat. No. HEOPP-02072**

**Description:**

Defensins (alpha and beta) are cationic peptides with a broad spectrum of antimicrobial activity that comprise an important arm of the innate immune system. The  $\alpha$ -defensins are distinguished from the  $\beta$ -defensins by the pairing of their three disulfide bonds. To date, four human  $\beta$ -defensins have been identified: BD-1, BD-2, BD-3 and BD-4. The  $\beta$ -defensin proteins are expressed as the C-terminal portion of precursors and are released by proteolytic cleavage of a signal sequence.  $\beta$ -defensins contain a six-cysteine motif that forms three intra-molecular disulfide bonds.  $\beta$ -defensins are 3-5 kDa peptides ranging in size from 33-47 amino acid residues. BD-4 is expressed in testis, stomach, uterus, neutrophils, thyroid, lung and kidney. In addition to its direct antimicrobial activities, BD-4 is chemoattractant towards human blood monocytes.

**Source:**

*Escherichia coli*

**Unit:**

20  $\mu$ g

**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  $< -20^{\circ}\text{C}$ . Further dilutions should be made in appropriate buffered solutions.

**Formulation:**

Lyophilized from a 0.2  $\mu$ m filtered concentrated solution in 20 mM PB, pH 7.4, 130 mM NaCl.

**Storage:**

This lyophilized preparation is stable at 2-8 $^{\circ}\text{C}$ , but should be kept at -20 $^{\circ}\text{C}$  for long term storage, preferably desiccated. Upon reconstitution, the preparation is stable for up to one week at 2-8 $^{\circ}\text{C}$ . For maximal stability, apportion the reconstituted preparation into working

aliquots and store at -20°C to -70°C. Avoid repeated freeze/thaw cycles.

**Molecular Weight:**

Approximately 6.0 kDa, a single non-glycosylated polypeptide chain containing 50 amino acids.

**Endotoxin:**

Less than 1 EU/μg of BD-4 as determined by LAL method.

**Usage:**

This material is offered by Cyagen Biosciences for research, laboratory or further evaluation purposes. FOR RESEARCH USE ONLY. NOT INTENDED FOR ANY ANIMAL OR HUMAN THERAP EUTIC OR DIAGNOSTIC USE.

**Biological Activity:**

The biologically active determined by a chemotaxis bioassay using human monocytes is in a concentration range of 0.1-100.0 ng/mL.

**Physical Appearance:**

Sterile filtered white lyophilized (freeze-dried) powder.

**AA Sequence:**

EFELDRICGY GTARCRKKCR SQEYRIGRCP NTYACCLRKW DESLLNRTKP

**Purity:**

> 98% by SDS-PAGE and HPLC analyses.

Material Safety Data Sheets (MSDSs) are available upon request.

The Certificate of Analysis (COA), which provides detailed quality control information for each product, is also available at the Cyagen website.

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