

Product Specification Sheet

**Recombinant Human Beta-Defensin 2 (HBD-2) Protein**

|                       |  |             |           |
|-----------------------|--|-------------|-----------|
| □ Cat. # HBD25-R-10   | Recombinant, purified, Human beta-Defensin 2 full length protein (41 aa) | <b>SIZE</b> | □ 10 ug   |
| □ Cat. # HBD25-R-100  | Recombinant, purified, Human beta-Defensin 2 full length protein (41 aa) | <b>SIZE</b> | □ 100 ug  |
| □ Cat. # HBD25-R-1000 | Recombinant, purified, Human beta-Defensin 2 full length protein (41 aa) | <b>SIZE</b> | □ 1000 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.

**Source of Antigen and Antibodies**

Human defensin-2 (hBD-2; 41 aa): Mol wt. 4.3 kDa

GIGDPVTCLK SGAICHPVFC PRRYKQIGTC  
GLPGTKCCKK P

HBD-2 was expressed in E. coli, refolded, purified to >98% purity. Endotoxin content is insignificant (<0.1 ng/ug (1.0 EU/ug).

**Form & Storage**

**Recombinant HBD-2 protein** is provided in solution containing 10 mM acetic acid or lyophilized. It has no additives or preservatives.

**Lyophilized products** should be reconstituted in 10 mM acetic acid at 0.1-1.0 mg/ml. The solution should be diluted into other appropriate buffers and or pH adjusted before usage. The solution can be stored at 4oC for 1 week or frozen at –20oC or below for long term storage. Lyophilized vials should be stored frozen until usage. It is not recommended to store diluted working solutions (<100 ng/ml). Avoid repeated freeze and thaw.

**Biological Activity**

The HBD-2 recombinant protein activity was determined by its ability to chemoattract immature dendritic cells using a concentration of 1.0-10.0 ng/ml.

**General References:**

Harder J et al (1997) Nature 387, 861; Diamond J. et al (2000) Infect. Immun. 68, 113-119; Morrison GM et al (1999) FEBS lett. 442, 112-116; Liu L et al (1998) Gene 222, 237-244; 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.

**Related material available from ADI**

| Catalog#     | ProdDescription  |
|--------------|--|
| HBD21-A      | Anti-Human beta-Defensin 2 (BD-2/hBD-2), IgG #1, aff pure  |
| HBD21-P      | Human beta-Defensin 2 (BD-2/hBD-2) control/blocking peptide #1   |
| HBD21-S      | Anti-Human beta-Defensin 2 (BD-2/hBD-2) antiserum #1   |
| HBD23-A      | Anti-Human beta-Defensin 2 (BD-2/hBD-2, full length protein), IgG #4, aff pure   |
| HBD24-P      | Human beta-Defensin 2 (BD-2/hBD-2) full length synthetic peptide (41 aa, linear, no-disulfides); note: replaces HBD22-P. |
| HBD31-A      | Anti-human beta-Defensin 3 (BD-3) IgG #1 aff pure  |
| HBD31-P      | Human beta-Defensin 3 (BD-3) control/blocking peptide #1   |
| HBD31-S      | Anti-Human beta-Defensin 3 (BD-3/hBD-3) antiserum #1   |
| HBD32-A      | Anti-Human beta-Defensin 3 (BD-3/hBD-3, full length protein), IgG, aff pure  |
| HBD37-R-1000 | Recombinant (E.Coli), purified, Human beta-Defensin 3 (BD-3/hBD-3, full length peptide (45 aa), biologically active      |
| HBD38-R-100  | Purified synthetic Human beta-Defensin 3 (BD-3/hBD-3) full length peptide (45 aa)  |
| HBD38-R-25   | Purified synthetic Human beta-Defensin 3 (BD-3/hBD-3) full length peptide (45 aa)  |
| HBD45-R-20   | Recombinant (E. coli), purified, Human beta-Defensin 4 (BD-4/hBD-4) full length protein (50 aa), biologically active     |
| HBD45-R-5    | Recombinant (E. coli), purified, Human beta-Defensin 4 (BD-4/hBD-4) full length protein (50 aa), biologically active     |
| HBD46-R-25   | Purified synthetic Human beta-Defensin 4 (BD-4/hBD-4) full length peptide (37 aa)  |