ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Alpha Defensin 1 (HDEFA2 or NP-2) Protein

□ Cat. # HDEFA26-R-25	Purified human alpha-defensin-2 protein	**SIZE**: 25 ug
□ Cat. # HDEFA26-R-100	Purified human alpha-defensin-1 protein	**SIZE**: 100 ug

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.

α-defensins are encoded by genes designated DEFA1-6, whereas human **β**-defensins are encoded by the DEFB1 and DEFb2 genes. HD1-4 are expressed in neutrophils, whereas HD5 and HD6 are expressed in epithelial cells of the intestinal and reproductive tract. HD1-3/HNP1-3 make up about 30% of the neutrophil's total granule protein. The HNPs are 29 to 30 amino acids long and are identical in sequence except at the N-terminal amino acid. **DEFA1** and **DEFA3** differ from each other only by their terminal ala and asp, respectively. **DEFA2** is identical to both except that it has 29 instead of 30 amino acids.

Source of Antigen and Antibodies

Alpha Defensin 2 (HDEFA2 or NP-2)

Sequence Cys-Tyr-Cys-Arg-Ile-Pro-Ala-Cys-Ile-Ala-Gly-Glu-Arg-Arg-Tyr-Gly-Thr-Cys-Ile-Tyr-Gln-Gly-Arg-Leu-Trp-Ala-Phe-Cys-Cys

MW 3371.0

Formula C147H217N43O37S6
Disulfide Bridge Disulfide bridges Cys1-Cys29; Cys3-Cys18 and Cys8-28

Purity >95%

Form & Storage

Alpha defensin is provided in lyophilized form. It has no additives or preservatives. **Lyophilized products** should be reconstituted in distilled water and then further diluted in a desired buffer. 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.

This preparation is not sterile. It can be sterile filtered if necessary.

Biological Activity

Not determined.

General References: Selstead ME et al (1985) J Clin Invest. 76, 1436-1439; mars MW et al (1988) Blood 71, 1713-1719; Daher KA et al (1988) PNAS 85, 7327-7331; Linzmeier R et al (1993) FEBS lett. 321, 267-273Wilson CL et al (1999) Science 286, 113-117; Mallow EB et al (1996) J. Biol. Chem. 271, 4038-4045; Ganz T and Lehrer RI (1998) Current Opinion Biol. 10, 41-44;.

*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

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