ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Human Beta-Defensin 3 (HBD-3/BD-3) Protein Antibodies

Cat. # HBD32-A Rabbit Anti-Human BD-3 protein (full length) IgG (affinity pure) **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.

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.

FUNCTION: Exhibits antimicrobial activity against Gram-positive bacteria S.aureus and S.pyogenes, Gram-negative bacteria P.aeruginosa and E.coli and the yeast C.albicans. Kills multiresistant S.aureus and vancomycin-resistent E.faecium. No significant hemolytic activity was observed.
SUBCELLULAR LOCATION: Secreted.
TISSUE SPECIFICITY: Highly expressed in skin and tonsils, and to a lesser extent in trachea, uterus, kidney, thymus, adenoid, pharynx and tongue. Low expression in salivary gland, bone marrow, colon, stomach, polyp and larynx. No expression in small intestine.
INDUCTION: By infection of bacteria and by interferon gamma.
MASS SPECTROMETRY: MW=5154.59; METHOD=Electrospray; RANGE=23-67; NOTE=Ref.1.
SIMILARITY: Belongs to the beta-defensin family.
Protein name Beta-defensin 103A [Precursor]
Synonyms Defensin, beta 103A, Defensin, beta 103 Beta-defensin 3, DEFB-3, BD-3, hBD-3, HBD3, Defensin-like protein, BD3, DEFB103, DEFB3
Gene name Name: DEFB103A

Source of Antigen and Antibodies

Antigen	Recombinant purified human HDEFA-1/NP-1 (protein accession # P81534) full length protein **(cat #HBD37-R-10**)
Ab Host/type	Rabbit, Polyclonal IgG, purified over antigen-agarose (Cat # **HBD32**-A)
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control IgG	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Affinity pure IgG
100ul solution lyophilized powder
Supplied in **Buffer**: PBS, pH 7.4 @ ~1 mg/ml
Reconstitute powder in PBS at 1 mg/ml

Storage
Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.
Shipping: 4oC for solutions and room temp for powder.

Recommended Usage

Western Blotting (1-3 ug/ml for affinity pure antibody using ECL technique) using native or denatured protein.

ELISA: Recombinant BD-1 protein can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (0.5-1 ul/ml for affinity pure).

Histochemistry & Immunofluorescence: see refs 2.

Specificity & Cross-reactivity

Anti-BD-3 reacts with human BD-3. Antibody cross-reactivity in various species has not been studied. Recombinant human BD-3 protein #HBD37-R-10 can be as control protein for ELISA or Western. Antibodies to mouse BD-3 are also available.

General References: (1).. 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.

(2) Citations of ADI's Antibodies (see web site for updated list)

Sumikawa Y, 2006 Microbes and Infection, 8, 1513-1521, WB, used recombinant mBD-3 as control for WB and cultured cells

Wade KB, 2004, Microbes Infection 6, 51-57, IHC, MDCK cells

Supp DM, 2004 Burns 30, 643-648, IHC, human skin, acetone fixed -20oC

Burd RS, 2002, Shock. 18(5):461-464, 40-aa mbd-3, oxidation, antimicrobial assay

*This product is for In vitro research use only.

Related material available from ADI

Antibodies alpha and beta-defensins 1-4 and MMP7

Human BD-1, BD-2, BD-3 and NP-1 ELISA kits

HBD32-A 70827A

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