

β-defensin 4 (P-14): sc-10862

BACKGROUND

β-defensins (also designated BD, and hBD in human) are small cationic peptides with broad-spectrum antimicrobial activity. Produced in mucosal epithelia and neutrophils of several species, β-defensins are developmentally regulated. Unlike the other previously described human β-defensins, human β-defensin 4 (hBD-4) expression is restricted to a few tissues, with highest expression in testis. A restricted pattern is also exhibited by mouse β-defensin 4. Rat β-defensin 4 (also designated BD-4, RBD-4, BD-2, and RBD-2) is developmentally regulated in the lung and is predominantly expressed in the lung and, to a lesser extent, in the trachea and tongue. It exhibits a regulation pattern similar to that of specific genes involved in host defense around the time of birth. The selectivity in both expression pattern and antimicrobial activity of human β-defensin 4 suggests that it is best suited to act at the epithelial locations where it is expressed.

REFERENCES

1. McCray, P.B., Jr., et al. 1997. Human airway epithelia express a β-defensin. *Am. J. Respir. Cell Mol. Biol.* 16: 343-349.
2. Liu, L., et al. 1997. The human β-defensin 1 and α-defensins are encoded by adjacent genes: two peptide families with differing disulfide topology share a common ancestry. *Genomics* 43: 316-320.
3. Liu, L., et al. 1998. Structure and mapping of the human β-defensin 2 (hBD-2) gene and its expression at sites of inflammation. *Gene* 222: 237-244.
4. Bals, R., et al. 1999. Mouse β-defensin 3 is an inducible antimicrobial peptide expressed in the epithelia of multiple genes. *Infect. Immun.* 67: 3542-3547.
5. Yang, D., et al. 1999. β-defensins: linking innate and adaptive immunity through dendritic and T cell CCR6. *Science* 286: 525-528.
6. Morrison, G.M., et al. 1999. A novel mouse β-defensin, Defβ2, which is upregulated in the airways by lipopolysaccharides. *FEBS Lett.* 442: 112-116.
7. Garcia, J.R., et al. 2001. Human β-defensin 4: a novel inducible peptide with a specific salt-sensitive spectrum of antimicrobial activity. *FASEB J.* 15: 1819-1821.

CHROMOSOMAL LOCATION

Genetic locus: Defb4 (mouse) mapping to 8 A1.3.

SOURCE

β-defensin 4 (P-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of β-defensin 4 of mouse origin.

PRODUCT

Each vial contains 200 μg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-10862 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

β-defensin 4 (P-14) is recommended for detection of precursor and mature β-defensin 4 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for β-defensin 4 siRNA (m): sc-40484, β-defensin 4 shRNA Plasmid (m): sc-40484-SH and β-defensin 4 shRNA (m) Lentiviral Particles: sc-40484-V.

Molecular Weight of β-defensin 4: 9 kDa.

Positive Controls: mouse lung extract: sc-2390

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Alan, E. and Liman, N. 2012. Immunohistochemical localization of β defensins in the endometrium of rat uterus during the postpartum involution period. *Vet. Res. Commun.* 36: 173-185.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.