



Peninsula Laboratories, LLC

A Member of the Bachem Group

305 Old County Road, San Carlos, CA 94070

Tel: (800) 922-1516 • (650) 592-5392

Fax: (650) 595-4071

www.bachem.com

Monoclonal Antibody To Human Defensin 1-3 Marker For Human Neutrophils

Monoclonal antibody DEF-3 recognises a family of cyclic peptides in neutrophils. Four of these peptides are described in humans (HNP-1 to 4), six in rabbits (NP-1 to 5). Synonyms are MCP-1 for NP-1, MCP-2 for NP-2 and corticostatin for NP-3. The function of these peptides apart from their bactericidal, antifungal, and monocyte chemotactic functions is the inhibition of ACTH - induced corticosteroid synthesis. DEF-3 is an important marker for inflammation typing, and for staining mature neutrophils in immunohistochemistry.

Product Number:	T-1034
Clone:	DEF-3
Host species, isotype:	Mouse IgG1
Quantity:	100µg
Format:	Affinity purified, lyophilized
	Reconstitute by adding 0.5ml distilled water. This stock solution contains 0.2mg/ml IgG, phosphate buffered saline pH 7.2 (PBS), 5mg/ml bovine serum albumin (BSA) as a stabilizer and 0.09% sodium azide as a preservative.
Stability:	Original vial: 1 year at 4° - 8°C Stock solution or aliquots thereof: 1 year at -20°C. Avoid repeated thawing and freezing.
Applications:	Tested for immunohistochemistry (IHC); has been described to work in FACS with permeabilized cells. Approximate working dilution for IHC: Frozen sections: 0.2µg/ml (1:1000) Paraffin sections: 0.5µg/ml (1:400); Proteinase K pretreatment for antigen retrieval is recommended. Optimal dilutions should be determined by the end user. Suggested positive control: Human tonsil.
Immunogen:	Native defensins.
Antigen, epitope:	Several defensins are recognized, the epitope has not been further characterized.



Peninsula Laboratories, LLC

A Member of the Bachem Group

305 Old County Road, San Carlos, CA 94070

Tel: (800) 922-1516 • (650) 592-5392

Fax: (650) 595-4071

www.bachem.com

- Biological functions:** Various functions have been described for defensins. They are antibacterial, antifungal, chemotactic for monocytes, inhibitory for ACTH-induced corticosteroid synthesis and cytotoxic for cells. Defensins are inhibited by glucosaminoglycans (self protection for cells) and high concentrations of Ca^{2+} ions.
- Biochemistry:** Defensins are a group of cyclic peptides containing 29-35 amino acids (MW < 3500) which tend to form aggregates. The molecules are protease resistant. The defensin content of azurophilic granules in neutrophils is approximately 30% of the total protein.
- Specificity:** **Human:** Defensin 1-3 (HNP-1 to HNP-3) in human neutrophils. Synthetic defensin-1 and -2 (Bachem, Bubendorf CH) stain also positively. Not tested with Defensin-4. A side reaction to elastin has been observed in humans.
- Other:** not tested. Defensins have been described in rabbits (NP-1 to NP-5, NP3a = Corticostatin), and in mice (cryptodin).

Selected references

- STANFIELD, R.L. et al.: Characterization of Two Crystal Forms of Human Defensin Neutrophil Cationic Peptide 1, a Naturally Occurring Antimicrobial Peptide of Leukocytes. *J. Biol. Chem.* **263**(12), 5933 - 5935 (1988).
- GANZ, T. et al.: Defensins: microbicidal and cytotoxic peptides of mammalian host defense cells. *Med. Microbiol. Immunol.* **181**, 99 - 105 (1992).
- GANZ, T. et al.: Defensins: Natural Peptide Antibiotics of Human Neutrophils. *J. Clin. Invest.* **76**, 1427 - 1435 (1985).
- ELSBACH, P.: Antibiotics from within: antibacterials from human and animal sources. *TIBECH* **8**, (1990).
- DAHER, K.A. et al.: Isolation and characterization of human defensin cDNA clones. *Proc. Natl. Acad. Sci.* **85**, 7327 - 7331, (1988).
- HILL, C.P. et al.: Crystal Structure of Defensin HNP-3, an Amphiphilic Dimer: Mechanisms of Membrane Permeabilization. *Science*, **251**, 1481 - 1485 (1991).
- SELSTED, M.E. et al.: Primary structures of Three Neutrophil Defensins. *J. Clin. Invest.* **76**, 1436 - 1439, (1985).
- SCHLUESENER, H. & Meyermann, R.: Neutrophilic Defensins Penetrate the Blood Brain Barrier. *J. Neurosc. Res.* **42**: 718-723 (1995).

For in vitro research only. Caution: this product contains sodium azide, a poisonous and hazardous substance.