

# LL-37 (D-5): sc-166770

## BACKGROUND

Cathelicidins are a family of antimicrobial proteins found in the peroxidase-negative granules of neutrophils. Along with the family of proteins known as defensins, cathelicidins participate in the first line of defense by preventing local infection and systemic invasion of microbes. CAP-18 precursor (FALL-39 peptide antibiotic, cationic anti-microbial protein, CAMP, HSD26) is a cathelicidin anti-microbial protein that contains the antibacterial peptide LL-37 (amino acids 134-170). In contrast to the defensins, which are cysteine-rich peptides that fold in  $\beta$ -pleated sheets, LL-37 is a cysteine-free peptide that can adopt an amphipathic  $\alpha$ -helical conformation. LL-37 binds to bacterial lipopolysaccharides (LPS) and is a potent chemotactic factor for recruiting mast cells to sites of inflammation. LL-37 is present in inflammatory skin diseases that include psoriasis, sub-acute lupus erythematosus, dermatitis and nickel contact hypersensitivity. It is not found in normal skin epidermis. The secreted protein is expressed primarily in bone marrow, testis and neutrophils. The mouse and rat ortholog, CRAMP (cathelin-related antimicrobial peptide), is also part of the cathelicidin family of host defense peptides. These include precursors of potent antimicrobial peptides that direct antimicrobial activity against various microbial pathogens and also activate mesenchymal cells during wound repair. CRAMP is expressed in testis, spleen, stomach and intestine.

## CHROMOSOMAL LOCATION

Genetic locus: CAMP (human) mapping to 3p21.31.

## SOURCE

LL-37 (D-5) is a mouse monoclonal antibody raised against amino acids 131-170 mapping at the C-terminus of LL-37 proteolytic fragment of CAP-18 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

LL-37 (D-5) is available conjugated to agarose (sc-166770 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166770 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166770 PE), fluorescein (sc-166770 FITC), Alexa Fluor® 488 (sc-166770 AF488), Alexa Fluor® 546 (sc-166770 AF546), Alexa Fluor® 594 (sc-166770 AF594) or Alexa Fluor® 647 (sc-166770 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166770 AF680) or Alexa Fluor® 790 (sc-166770 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## APPLICATIONS

LL-37 (D-5) is recommended for detection of mature LL-37 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

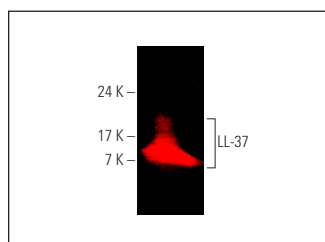
Molecular Weight of LL-37 peptide: 3-4 kDa.

Molecular Weight of CAP-18 precursor: 16 kDa.

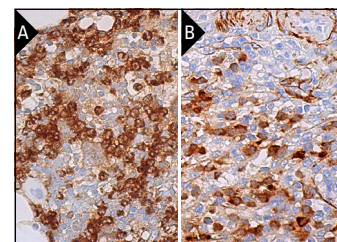
Molecular Weight of CAP-18 prodomain: 14 kDa.

Positive Controls: human bone marrow extract: sc-363752.

## DATA



LL-37 (D-5) Alexa Fluor® 790: sc-166770 AF790. Direct near-infrared western blot analysis of LL-37 expression in human bone marrow tissue extract. Blocked with UltraCruz® Blocking Reagent: sc-516214.



LL-37 (D-5): sc-166770. Immunoperoxidase staining of formalin fixed, paraffin-embedded human bone marrow tissue showing cytoplasmic and membrane staining of subset of hematopoietic cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing cytoplasmic and membrane staining of cells in red pulp and smooth muscle cells (B).

## SELECT PRODUCT CITATIONS

1. Zou, X., et al. 2013. Augmentation of epithelial resistance to invading bacteria by using mRNA transfections. *Infect. Immun.* 81: 3975-3983.
2. Chen, X., et al. 2017. DNA methylation directly downregulates human cathelicidin antimicrobial peptide gene (CAMP) promoter activity. *Oncotarget* 8: 27943-27952.
3. Jatana, S., et al. 2018. Pyrimidine synthesis inhibition enhances cutaneous defenses against antibiotic resistant bacteria through activation of NOD2 signaling. *Sci. Rep.* 8: 8708.
4. Chen, X., et al. 2020. Human cathelicidin antimicrobial peptide suppresses proliferation, migration and invasion of oral carcinoma HSC-3 cells via a novel mechanism involving caspase-3 mediated apoptosis. *Mol. Med. Rep.* 22: 5243-5250.
5. Kulkarni, N.N., et al. 2021. Sequence determinants in the cathelicidin LL-37 that promote inflammation via presentation of RNA to scavenger receptors. *J. Biol. Chem.* 297: 100828.

## RESEARCH USE

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