CERTIFICATE OF ANALYSIS – TECHNICAL DATA SHEET

Product name	LL-37, Human, Peptide		
Catalog number	HC4013		
Lot number	-	**Expiry date**	-
Volume	Reconstitute with distilled/de ionized water	**Activity**	N.A.
Formulation	Lyophilized	**Amount**	50 µg
Host Species	Human, Peptide	**Concentration**	N.A.
Endotoxin	N.A.	**Purification**	N.A.
Storage	4°C	**Purity**	N.A.

Application notes

	IHC-F	IHC-P	IF	FC	FS	IA	IP	W
Reference #								
Yes					•			
No								
N.D.	•	•	•	•		•	•	•

N.D.= Not Determined; IHC = Immuno histochemistry; F = Frozen sections; P = Paraffin sections; IF = Immuno Fluorescence; FC = Flow Cytometry; FS = Functional Studies; IA = Immuno Assays; IP = Immuno Precipitation; W = Western blot

For testing of biological activity of LL-37 in vitro dilutions have to be made according to published references. It is recommended that users test the reagent and determine their own optimal concentrations.

General Information

Description

Cathelicidins are a family of antimicrobial proteins predominantly found in the peroxidase-negative granules of neutrophils. During bacterial infections, the life span of neutrophils is regulated by various pathogen- and host-derived substances. The cathelicidins are synthesized as preproproteins. Within the neutrophils, they are stored in granules as inactive proforms after removal of the signal peptide. The active biologic domains of the cathelicidins generally reside in the C-terminus. The C-terminal antimicrobial peptides are activated when cleaved from the proforms of the cathelicidins by serine proteases from azurophil granules. Human cationic antimicrobial protein (hCAP)18 is the only human cathelicidin identified to date. hCAP18 (18 kD) is a major protein in specific granules of neutrophils, but it is also present in subpopulations of lymphocytes and monocytes, in squamous epithelia (of the mouth, tongue, esophagus, cervix, and vagina), pulmonary epithelium, keratinocytes in inflammatory skin diseases and in the epididymus. The antibacterial C-terminus of hCAP-18, LL37 (37 aminoacids), has been shown to exert broad antimicrobial activity towards gram-negative as well as gram-positive bacteria and to have synergistic antibacterial effects with the defensins. For instance deficiency in saliva LL37 accords with occurrence of periodontal disease in patients with morbus Kostmann. LL-37 does not only kill bacteria, but can also modulate (suppress) neutrophil apoptosis via the activation of FPRL1 and P2X7 in bacterial infections. Suppression of neutrophil apoptosis results in the prolongation of their life span, and may be advantageous for host defense against bacterial invasion. Moreover it functions as a chemotactic agent for neutrophils, monocytes and T cells. LL-37 is markedly resistant to proteolytic degradation and to a limited extent also cytotoxic towards mammalian cells.

References

1. Johansson J, et al; Conformation-dependent antibacterial activity of the naturally occuring human peptide LL-37. J Biol Chem 1998, *273*: 3718
2. Agerberth B, et al; The human antimicrobial and chemotactic peptides LL-37 and alpha-defensins are expressed by specific lymphocyte and monocyte populations. Blood 2000, *96*: 3086
3. Yang D, et al; The role of mammalian antimicrobial peptides and proteins in awakening of innate host defences and adaptive immunity. Cell Moll Life Sci 2001, *58*: 978
4. Sørensen O, et al; Human cathelicidin, hCAP-18, is processed to the antimicrobial peptide LL-37 by extracellular cleavage with proteinase 3. Blood 2001, *97*: 3951
5. Saiman L, et al; Cathelicidin peptides inhibit multiply antibiotic-resistant pathogens from patients with cystic fibrosis. Antimicrob Agents Chemother 2001, *45*: 2838

Storage&stability

Lyophilized product should be stored at 4°C. Store stock solution in aliquots at -70°C. Repeated freeze and thaw cycles will cause loss of activity. Under recommended storage conditions, product is stable for at least one year.

Precautions	Caution: vial is under vacuum. For research use only. Not for use in or on humans or animals or for diagnostics. It is the responsibility of the user to comply with all local/state and federal rules in the use of this product. Hycult Biotech is not responsible for any patent infringements that might result from the use or derivation of this product.

We hereby certify that the above-stated information is correct and that this product has been successfully tested by the Quality Control Department. This product was released for sale according to the existing specifications. This document has been produced electronically and is valid without a signature.

Approved by Manager of QC	Date
Robbert Zwinkels	29/03/2018

Do you have any questions or comments regarding this product? Please contact us via support@hycultbiotech.com.