LL-37

Purity: >98% (HPLC on request) | Molecular Formula: C205H340N60053
Molecular Weight: 4493.33 g/mol | Sequence: Leu-Leu-Gly-Asp-Phe-Phe-Arg-Lys-Ser-Lys-Glu- Lys-Ile-Gly-Lys-Glu-Phe-Lys-Arg-Ile-Val-Gln-Arg-Ile-Lys-Asp-Phe-Leu-Arg-Asn-Leu-Val-Pro-Arg- Thr-Glu-Ser

DESCRIPTION:

LL-37 Is an antimicrobial peptide which belongs to the cathelicidin family of AMPs (antimicrobial peptides). LL-37, like cathelicidins, are stored in neutrophil granules as inactive precursors and are released as mature peptides when neutrophils are stimulated. LL-37 is expressed in various cells and tissues such as circulating neutrophils and myeloid bone marrow cells, epithelial cells of the skin, and is also expressed in the gastrointestinal tract, as well as in the epididymis and lungs. Moreover, production of LL-37 in macrophages is stimulated by vitamin D released by sunlight through the skin. LL-37 plays an important role in the first line of defense against infection and systemic invasion of pathogens at sites of inflammation and wound. It is cytotoxic to both bacterial and normal eukaryotic cells and is significantly resistant to proteolytic degradation in solution. LL-37 shows a broad spectrum of antimicrobial activity against bacteria, enveloped viruses, and fungi. It has also demonstrated success in helping promote wound healing but it may play a negative role in atopic dermatitis and psoriasis.

PROTOCOL:

Content & Potency: Provided as a 10mg lyophilized vial
Vial reconstitution: 1ml sterile water for injection
Suggested dosage: Inject 100-300mcg (0.04-0.12ml or 4-12units) subcutaneously once daily

CLINICAL RESEARCH:

Membrane Core-Specific Antimicrobial Action of Cathelicidin LL-37 Peptide Switches Between Pore and Nanofibre Formation

Membrane-disrupting antimicrobial peptides provide broad-spectrum defence against localized bacterial invasion in a range of hosts including humans. The most generally held consensus is that targeting to pathogens is based on interactions with the head groups of the membrane lipids. Here we show that the action of LL-37, a human antimicrobial peptide switches the mode of action based on the structure of the alkyl chains, and not the head groups of unsaturated phospholipids and membrane modulation with saturated phospholipids. Uniquely, the membrane modulation yields helical-rich fibrous peptide-lipid superstructures. Our results point at alternative design strategies for peptide antimicrobials.

Shahmiri, Mandi & Enciso, Marta & Adda, Christopher & Smith, Brian & Perugini, Matthew & Mechler, Adam. (2016). Membrane Core-Specific Antimicrobial Action of Cathelicidin LL-37 Peptide Switches Between Pore and Nanofibre Formation. Scientific Reports.