9051 Mira Mesa Blvd, #910094
San Diego, CA 92191
Tel: 760-390-3989

LL-37

LL-37
HRM0069

Product Overview

Name	LL-37

Description

LL-37

Synonyms

LL37, antibacterial protein LL-37, cathelicidin LL 37, camp.

Physical Appearance

Sterile Filtered White lyophilized (freeze-dried) powder.

Formulation

The protein was lyophilized with no additives.

Stability

Lyophilized LL-37 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution LL-37 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity

Greater than 97.0% as determined by analysis by RP-HPLC.

Amino acid sequence

H-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-OH.

Solubility

It is recommended to reconstitute the lyophilized LL-37 in sterile 18MΩ-cm H2O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Background

LL-37, a prominent member of the human cathelicidin family, has emerged as a pivotal host defense peptide with diverse biological functions. This research paper aims to provide a comprehensive analysis of LL-37, elucidating its biochemical properties, antimicrobial activity, immunomodulatory effects, and potential therapeutic applications. LL-37, derived from the precursor protein hCAP18, plays a crucial role in innate immunity and host defense against microbial pathogens. Beyond its well-established antimicrobial properties, LL-37 exhibits various immunomodulatory effects, making it an intriguing target for therapeutic interventions (Lai & Gallo, 2009). This paper aims to delve into the

complexities of LL-37, uncovering its multifaceted nature and potential clinical applications. LL-37 is a cationic peptide characterized by a helical structure that facilitates its interaction with microbial membranes. Its amphipathic nature enables it to penetrate microbial membranes, leading to disruption and subsequent cell death (Zaiou, 2007). Additionally, LL-37 can undergo proteolytic processing to release smaller bioactive fragments with distinct functions (Bowdish et al., 2005). LL-37's antimicrobial activity extends beyond direct microbial killing. It also exhibits immunomodulatory effects, stimulating the recruitment of immune cells and promoting the clearance of pathogens through phagocytosis (Scott et al., 2002). Furthermore, LL-37 can neutralize endotoxins, reducing inflammation caused by microbial products (Davidson et al., 2004). LL-37 possesses immunomodulatory properties that influence various immune cells, including neutrophils, macrophages, dendritic cells, and lymphocytes (Nagaoka et al., 2001). It can promote the differentiation and maturation of immune cells, modulate cytokine production, and contribute to wound healing and tissue repair (van Harten et al., 2018). The multifunctional nature of LL-37 renders it a promising candidate for various therapeutic applications. LL-37-based therapies are being explored in wound healing, infectious diseases, and immune-related disorders (Pena et al., 2014). Furthermore, LL-37 has shown potential as a vaccine adjuvant, enhancing the immune response to antigens (Howell et al., 2018). LL-37's diverse roles in immunity and host defense warrant further research to unravel its precise mechanisms of action and potential applications in clinical medicine. As we deepen our understanding of LL-37's complexities, its therapeutic potential continues to expand, offering exciting prospects for the future.

Precautions

LL-37 is for research use only and not for use in diagnostic or therapeutic procedures.

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