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BD5 Human

Beta Defensin-5 Human Recombinant
CYK0078

Product Overview

Name	BD5 Human
Description	
Beta Defensin-5 Human Recombinant	
Accession (Primary)	Q8NG35
Synonyms	
Beta-defensin 105, eta-defensin 5, BD-5, DEFB-5, Defensin, beta 105, DEFB105A, BD5, DEFB105, DEFB5, DEFB105B.	
Introduction	
Defensins (alpha & beta) are cationic peptides with a wide spectrum of antimicrobial activity which include a significant arm of the innate immune system. There are 6 human beta-defensins, BD-1, BD-2, BD-3, BD-4, BD-5 and BD-6 which are expressed on some leukocytes and at epithelial surfaces. In addition to their direct antimicrobial activities, beta-defensins can act as chemoattractants towards immature dendritic cells and memory T cells. Beta-defensins contain a 6-cysteine motif which forms 3 intra-molecular disulfide bonds.	
Source	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
Lyophilized from a 0.2 μm filtered concentrated solution in PBS, pH 7.4.	
Stability	
Lyophilized Beta Defensin-5 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution BD5 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 95.0% as determined by:(a) Analysis by RP-HPLC.(b) Analysis by SDS-PAGE.	
Amino acid sequence	
GLDFSQPFPS GEFAVCESCK LGRGKCRKEC LENEKPDGNC RLNFLCCRQR I.	
Solubility	

It is recommended to reconstitute the lyophilized Beta Defensin-5 in sterile 18M-cm H 2 O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Background

Beta Defensin-5 Human Recombinant: Unleashing the Potential of an Emerging Antimicrobial Peptide Abstract: Beta Defensin-5 (hBD-5) human recombinant is an intriguing antimicrobial peptide with diverse properties and promising therapeutic applications. This research paper aims to provide a comprehensive analysis of hBD-5, including its characteristics, mode of action, and potential uses. Furthermore, innovative methodologies for the production and optimization of hBD-5 human recombinant are proposed, offering insights into its future implications in the field of infectious disease management. Introduction: The emergence of drug-resistant infections demands innovative solutions to combat pathogens. Antimicrobial peptides, such as hBD-5, have attracted attention due to their broad-spectrum activity. This paper explores the unique features of hBD-5 and presents novel approaches for its production and optimization. Characteristics and Mode of Action: hBD-5 is a cationic peptide composed of 41 amino acids and possesses a distinctive structure that contributes to its antimicrobial properties. The mechanism of action involves the disruption of microbial membranes and subsequent destruction of pathogens. Additionally, hBD-5 exhibits immunomodulatory effects by stimulating immune cells and modulating the inflammatory response. Production of hBD-5 Human Recombinant: Efficient production methodologies are crucial for the therapeutic application of hBD-5 human recombinant. Various expression systems, including bacterial, yeast, and mammalian cell-based platforms, have been investigated. Each system presents unique advantages and challenges, requiring careful selection to achieve high yields and protein quality. Optimization strategies, such as codon optimization, fusion protein tags, and growth conditions, have been implemented to enhance production efficiency. Purification techniques, such as chromatography and ultrafiltration, have been optimized to isolate high-quality hBD-5 recombinant. Potential Applications: hBD-5 human recombinant holds great promise for the treatment of drug-resistant pathogens. Its broad-spectrum antimicrobial activity against bacteria, viruses, and fungi positions it as a valuable therapeutic agent for infectious disease management. Moreover, hBD-5 exhibits potential in wound healing and tissue regeneration, as it promotes cell migration and angiogenesis. Exploring its potential as an adjuvant therapy in combination with existing antibiotics is an exciting area for future research. Conclusion: hBD-5 human recombinant represents an emerging antimicrobial peptide with diverse therapeutic potential. Optimizing production methodologies and elucidating its mechanisms of action will further enhance its clinical utility. With its broad-spectrum antimicrobial activity and potential implications in wound healing and adjuvant therapy, hBD-5 human recombinant holds promise as an innovative therapeutic tool.

References

Bibliography: Diamond G, Beckloff N, Weinberg A, Kisich KO. The roles of antimicrobial peptides in innate host defense. Curr Pharm Des. 2009;15(21):2377-2392. Harder J, Bartels J, Christophers E, Schröder JM. Isolation and characterization of human β-defensin-3, a novel human inducible peptide antibiotic. J Biol Chem. 2001;276(8):5707-5713. Diamond G, Ryan LK. β-Defensins: what are they really doing in the oral cavity? Oral Dis. 2011;17(7):628-635. García JR, Krause A, Schulz S, et al. Human β-defensin 4: a novel inducible peptide with a

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specific salt-sensitive spectrum of antimicrobial activity. FASEB J. 2001;15(10):1819-1821. Quinones-Mateu ME, Lederman MM, Feng Z, et al. Human epithelial β-defensins 2 and 3 inhibit HIV-1 replication. AIDS. 2003;17(16):F39-F48.

Precautions

BD5 Human is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (Q8NG35)

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References for protein:

Bibliography: Diamond G, Beckloff N, Weinberg A, Kisich KO. The roles of antimicrobial peptides in innate host defense. Curr Pharm Des. 2009;15(21):2377-2392. Harder J, Bartels J, Christophers E, Schröder JM. Isolation and characterization of human β-defensin-3, a novel human inducible peptide antibiotic. J Biol Chem. 2001;276(8):5707-5713. Diamond G, Ryan LK. β-Defensins: what are they really doing in the oral cavity? Oral Dis. 2011;17(7):628-635. García JR, Krause A, Schulz S, et al. Human β-defensin 4: a novel inducible peptide with a specific salt-sensitive spectrum of antimicrobial activity. FASEB J. 2001;15(10):1819-1821. Quinones-Mateu ME, Lederman MM, Feng Z, et al. Human epithelial β-defensins 2 and 3 inhibit HIV-1 replication. AIDS. 2003;17(16):F39-F48.