9051 Mira Mesa Blvd, #910094
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BNP

B-type Natriuretic Peptide Human Recombinant
CYK0097

Product Overview

Name	BNP
Description	
B-type Natriuretic Peptide Human Recombinant	
Accession (Primary)	P16860
Synonyms	
NPPB, Natriuretic Peptide Precursor B, BNP, B-type Natriuretic Peptide.	
Introduction	
Natriuretic Peptide Precursor B acts as a cardiac hormone with a variety of biological actions including natriuresis, diuresis, vasorelaxation, and inhibition of renin and aldosterone secretion. It is thought to play a key role in cardiovascular homeostasis. Helps restore the body's salt and water balance. Improves heart function.	
Source	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
Natriuretic Peptide Precursor B was lyophilized from a 0.2 μm filtered concentrated solution in PBS, pH 7.4.	
Stability	
Lyophilized B-type Natriuretic Peptide although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution NPPB 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: (a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE.	
Amino acid sequence	
SPKMVQGSGCFGRKMDRISSSSGLGCKVLRRH.	
Solubility	
It is recommended to reconstitute the lyophilized B-type Natriuretic Peptide in sterile 18MΩ-cm H2O not less than 100 μg/ml, which can then be further diluted to other aqueous solutions.	

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Background

B-Type Natriuretic Peptide Human Recombinant: Expanding the Horizons of Cardiovascular Medicine Abstract: B-Type Natriuretic Peptide (BNP) human recombinant is a significant biomarker and therapeutic agent in the field of cardiovascular medicine. This research paper aims to provide an in-depth analysis of BNP, including its physiological role, diagnostic utility, and therapeutic potential. Furthermore, innovative methodologies for the production and application of BNP human recombinant are proposed, emphasizing its promising prospects in cardiovascular disease management. Introduction: Cardiovascular diseases (CVDs) pose a global health burden, necessitating novel diagnostic and therapeutic strategies. BNP, a cardiac hormone, has emerged as a valuable tool in the assessment and management of CVDs. This paper delves into the distinctive characteristics of BNP and explores its diagnostic and therapeutic implications, shedding light on its potential as a game-changer in cardiovascular medicine. Physiological Role and Mechanisms: BNP is primarily secreted by the ventricular myocardium in response to increased cardiac wall stress. It exerts its effects through binding to the natriuretic peptide receptor, stimulating cyclic guanosine monophosphate (cGMP) production and promoting vasodilation, natriuresis, and diuresis. Additionally, BNP counteracts the renin-angiotensin-aldosterone system, antagonizing the deleterious effects of cardiac remodeling and fibrosis. Diagnostic Utility: BNP levels serve as a reliable biomarker for the diagnosis, risk stratification, and monitoring of various cardiovascular conditions, including heart failure, myocardial infarction, and pulmonary hypertension. Measurements of BNP and its inactive fragment, N-terminal pro-BNP (NT-proBNP), aid in the accurate assessment of cardiac function, guiding therapeutic decisions and predicting clinical outcomes. Production and Application of BNP Human Recombinant: Efficient production methodologies and innovative applications of BNP human recombinant play a pivotal role in advancing cardiovascular medicine. Recombinant protein expression systems, such as bacterial expression systems and mammalian cell culture, have been employed to produce functional BNP. Novel strategies, including targeted delivery systems and BNP-based therapies, hold promise for enhancing the therapeutic efficacy and reducing the adverse effects associated with traditional treatment approaches. Therapeutic Potential: BNP human recombinant demonstrates significant therapeutic potential in the management of cardiovascular diseases. Synthetic BNP analogs, including neprilysin inhibitors, offer novel approaches to enhance endogenous BNP signaling and improve cardiac function. Furthermore, BNP-based therapies, such as gene therapy and BNP receptor agonists, hold promise in promoting myocardial regeneration, attenuating cardiac remodeling, and improving clinical outcomes in heart failure patients. Conclusion: BNP human recombinant emerges as a promising avenue in cardiovascular medicine, contributing to the diagnosis, risk stratification, and therapeutic interventions for various cardiovascular conditions. Optimization of production methodologies and exploration of novel therapeutic strategies will further enhance the clinical applications of BNP. Leveraging the potential of BNP as a diagnostic biomarker and therapeutic agent may revolutionize the management of cardiovascular diseases, improving patient outcomes and quality of life.

References

Bibliography: Maisel AS, Krishnaswamy P, Nowak RM, et al. Rapid measurement of B-type natriuretic peptide in the emergency diagnosis of heart failure. N Engl J Med. 2002;347(3):161-167. Nishikimi T, Kuwahara K, Nakagawa Y, et al. B-type natriuretic peptide (BNP) as a novel therapeutic target for heart failure. J Cardiol. 2012;60(2):129-137.

Seferović PM, Petrie MC, Filippatos GS, et al. Type B–natriuretic peptide-guided treatment for heart failure. J Am Coll Cardiol. 2018;71(21): 2567-2576. Troughton RW, Frampton CM, Yandle TG, et al. Treatment of heart failure guided by plasma aminoterminal brain natriuretic peptide (N-BNP) concentrations. Lancet. 2000;355(9210):1126-1130. Yancy CW, Jessup M, Bozkurt B, et al. 2017 ACC/AHA/HFSA focused update of the 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America. J Am Coll Cardiol. 2017;70(6):776-803.

Precautions

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

Target Information: (P16860)

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References for protein:

Bibliography: Maisel AS, Krishnaswamy P, Nowak RM, et al. Rapid measurement of B-type natriuretic peptide in the emergency diagnosis of heart failure. N Engl J Med. 2002;347(3):161-167. Nishikimi T, Kuwahara K, Nakagawa Y, et al. B-type natriuretic peptide (BNP) as a novel therapeutic target for heart failure. J Cardiol. 2012;60(2):129-137. Seferović PM, Petrie MC, Filippatos GS, et al. Type B–natriuretic peptide-guided treatment for heart failure. J Am Coll Cardiol. 2018;71(21): 2567-2576. Troughton RW, Frampton CM, Yandle TG, et al. Treatment of heart failure guided by plasma aminoterminal brain natriuretic peptide (N-BNP) concentrations. Lancet. 2000;355(9210):1126-1130. Yancy CW, Jessup M, Bozkurt B, et al. 2017 ACC/AHA/HFSA focused update of the 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America. J Am Coll Cardiol. 2017;70(6):776-803.