

proBDNF Human

Precursor Brain-Derived Neurotrophic Factor Human Recombinant

NTR0072

Product Overview

Name	proBDNF Human
Accession(Primary)	P23560
Description	Precursor Brain-Derived Neurotrophic Factor Human Recombinant

Target information (P23560)

Gene Name

About Gene Symbol

BDNF (Brain Derived Neurotrophic Factor) is a protein kinase and signaling regulator involved in cell signaling and proliferation. It is an important research target in cancer, cell signaling, and therapeutic target research and is widely studied to elucidate cellular mechanisms and identify therapeutic targets.

Background

Precursor Brain-Derived Neurotrophic Factor Human Recombinant: Unveiling the Potential of a Key Neurotrophic Factor Abstract: Precursor Brain-Derived Neurotrophic Factor (proBDNF) human recombinant is a pivotal neurotrophic factor that plays a critical role in neuronal development, survival, and synaptic plasticity. This research paper provides a comprehensive overview of proBDNF, including its characteristics, processing mechanisms, and potential therapeutic applications. Furthermore, innovative methodologies for the production and optimization of proBDNF human recombinant are proposed, highlighting its future implications in the field of neuroregenerative medicine. Introduction: Understanding the intricate processes underlying neuronal development and function is crucial for

advancing neuroregenerative strategies. Neurotrophic factors, such as proBDNF, have garnered significant attention due to their pivotal roles in supporting neuronal growth and survival. This paper delves into the unique features of proBDNF and presents novel approaches for its production and optimization. **Characteristics and Processing Mechanisms:** proBDNF is a precursor protein consisting of 247 amino acids and is processed into mature brain-derived neurotrophic factor (mBDNF) through proteolytic cleavage. The ratio between proBDNF and mBDNF is tightly regulated and determines the balance between neuronal survival and apoptosis. Additionally, proBDNF exerts distinct biological functions through its receptor interactions, modulating synaptic plasticity and neuronal activity. **Production of proBDNF Human Recombinant:** Efficient production methodologies are essential to harness the therapeutic potential of proBDNF human recombinant. Various expression systems, including bacterial, yeast, and mammalian cell-based platforms, have been explored. Each system presents unique advantages and challenges, necessitating careful selection to achieve high yields and protein quality. Optimization strategies, such as codon optimization, fusion protein tags, and growth conditions, have been employed to enhance production efficiency. Purification techniques, such as affinity chromatography and size exclusion chromatography, have been optimized to isolate high-quality proBDNF recombinant. **Potential Therapeutic Applications:** proBDNF human recombinant holds immense promise for neuroregenerative medicine. Its role in promoting neuronal survival, axonal growth, and synaptic plasticity positions it as a valuable therapeutic agent for neurodegenerative disorders, spinal cord injuries, and stroke. Additionally, the balance between proBDNF and mBDNF presents a potential therapeutic target for fine-tuning neuronal processes and restoring proper brain function. **Conclusion:** proBDNF human recombinant represents a crucial neurotrophic factor with diverse therapeutic applications in neuroregenerative medicine. Optimizing production methodologies and further understanding its processing mechanisms will enhance its clinical utility. With its potential implications in neurodegenerative disorders and neuronal repair, proBDNF human recombinant holds immense promise as a transformative tool for promoting neural health and regeneration.

References for protein:

Bibliography: Lu B, Nagappan G, Guan X, Nathan PJ, Wren P. BDNF-based synaptic repair as a disease-modifying strategy for neurodegenerative diseases. *Nat Rev Neurosci.* 2013;14(6):401-416. Mowla SJ, Farhadi HF, Pareek S, et al. Biosynthesis and post-translational processing of the precursor to brain-derived neurotrophic factor. *J Biol Chem.* 2001;276(16):12660-12666. Teng HK, Teng KK, Lee R, et al. ProBDNF induces neuronal apoptosis via activation of a receptor complex of p75NTR and sortilin. *J Neurosci.* 2005;25(22):5455-5463. Zuccato C, Cattaneo E. Brain-derived neurotrophic factor in neurodegenerative diseases. *Nat Rev Neurol.* 2009;5(6):311-322. Turner RC, Naser ZJ, Lucke-Wold BP, et al. BDNF-based synaptic repair as a treatment for neurodegenerative diseases: a review. *J Neurodegener Dis.* 2016;2016:2180417.

