

ProNGF Human

Pro-Nerve Growth Factor Human Recombinant

NTR0073

Product Overview

Name	ProNGF Human
Accession(Primary)	P01138
Description	Pro-Nerve Growth Factor Human Recombinant

Target information (P01138)

Gene Name

About Gene Symbol

Background

Pro-Nerve Growth Factor Human Recombinant: Unveiling its Potential in Neuroregulation and Disease Pathogenesis Abstract: Pro-Nerve Growth Factor (Pro-NGF) human recombinant is a crucial precursor protein involved in neuronal development, survival, and degenerative processes. This research paper aims to provide a comprehensive analysis of Pro-NGF, including its characteristics, processing mechanisms, and implications in neuroregulation and disease pathogenesis. Additionally, innovative methodologies for the production and manipulation of Pro-NGF human recombinant are proposed, highlighting its potential as a therapeutic target for neurological disorders and neurodegenerative diseases. Introduction: Neuroregulation and maintenance of neuronal health are intricate processes governed by a network of signaling molecules. Pro-NGF, the precursor form of Nerve Growth Factor (NGF), acts as a key player in neuronal development, synaptic plasticity, and cell survival. This paper delves into the distinctive features of Pro-NGF and presents novel approaches for the production and manipulation of Pro-NGF human recombinant, aiming to unravel its role in neuroregulation and disease pathogenesis. Characteristics and Processing Mechanisms: Pro-NGF is initially synthesized as an inactive precursor, requiring proteolytic cleavage for conversion into mature NGF. The processing of Pro-

NGF involves the action of proteases, such as furin, and the formation of distinct protein complexes. The balance between Pro-NGF and mature NGF levels plays a critical role in modulating neuronal function and fate, influencing processes such as neuronal survival, axonal growth, and synaptic plasticity.

Production and Manipulation of Pro-NGF Human Recombinant: Efficient production methodologies and manipulation strategies are crucial for studying the role of Pro-NGF in neuroregulation and disease pathogenesis. Recombinant protein expression systems, including mammalian cell culture and bacterial expression systems, have been employed to produce functional Pro-NGF human recombinant. Techniques such as mutagenesis, protein purification, and specific inhibitors targeting Pro-NGF processing pathways enable the manipulation of Pro-NGF levels and investigation of its downstream effects.

Implications in Neuroregulation and Disease Pathogenesis: Pro-NGF human recombinant holds significant potential in understanding the intricate mechanisms underlying neuroregulation and disease pathogenesis. Dysregulation of Pro-NGF processing and altered Pro-NGF/mature NGF ratios have been implicated in various neurological disorders, including Alzheimer's disease, Parkinson's disease, and ischemic stroke. Manipulating Pro-NGF levels and the balance between its mature form may offer therapeutic strategies for modulating neurotrophic signaling and promoting neuronal health in these conditions.

Conclusion: Pro-NGF human recombinant emerges as a key regulator in neuroregulation and disease pathogenesis, offering promising avenues for therapeutic intervention. Enhancing our understanding of Pro-NGF processing mechanisms and its downstream signaling cascades will provide valuable insights into neurodevelopment, neurodegeneration, and potential therapeutic strategies. Targeting Pro-NGF as a therapeutic intervention may hold immense promise in treating neurological disorders and promoting neuronal health.

References for protein:

Bibliography: Fahnstock M, Michalski B, Xu B. Coughlin MD. The precursor pro-nerve growth factor is the predominant form of nerve growth factor in brain and is increased in Alzheimer's disease. *Mol Cell Neurosci.* 2001;18(2):210-220. Hempstead BL. The many faces of p75NTR. *Curr Opin Neurobiol.* 2002;12(3):260-267. Lee R, Kermani P, Teng KK, Hempstead BL. Regulation of cell survival by secreted proneurotrophins. *Science.* 2001;294(5548):1945-1948. Massa SM, Xie Y, Yang T, et al. Small, nonpeptide p75NTR ligands induce survival signaling and inhibit proNGF-induced death. *J Neurosci.* 2006;26(21):5288-5300. Volosin M, Song W, Almeida RD, et al. Interaction of survival and death signaling in basal forebrain neurons: Roles of neurotrophins and proneurotrophins. *J Neurosci.* 2006;26(29):7756-7766.