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GFAP Human

Glial Fibrillary Acidic Protein Human Recombinant
RCP0908

Product Overview

Name	GFAP Human
Description	
Glial Fibrillary Acidic Protein Human Recombinant	
Accession (Primary)	P14136
Synonyms	
Glial fibrillary acidic protein, GFAP	
Source	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
GFAP was lyophilized from 16mM NaHCO3, 0.05% CHAPS and 0.05% Tween 20.	
Stability	
Lyophilized GFAP although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution Glial Fibrillary Acidic Protein 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 90.0% as determined by SDS-PAGE.	
Solubility	
It is recommended to reconstitute the lyophilized GFAP in sterile 18MΩ-cm H2O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.	
Background	
Glial Fibrillary Acidic Protein (GFAP), a key intermediate filament protein predominantly found in astrocytes, plays a fundamental role in the central nervous system. Initially recognized for its structural functions, GFAP has emerged as a multifaceted molecule with implications in neural development, synaptic plasticity, and various neurological disorders. This research delves into the realm of GFAP human recombinant protein, shedding light on its structural properties, physiological significance, and its diverse roles in both health and disease. Structural Complexity of GFAP: GFAP	

belongs to the family of intermediate filament proteins, conferring structural support to astrocytes. Its unique structure comprises a central α-helical rod domain flanked by non-helical head and tail domains. This structural complexity allows GFAP to form stable filaments, providing structural integrity to astrocytes and contributing to the architecture of the central nervous system. Physiological Functions in Glial Cells: Beyond its structural role, GFAP participates in various physiological processes within glial cells. It is involved in the regulation of astrocyte morphology, motility, and migration, crucial for their interactions with neurons and blood vessels. Additionally, GFAP contributes to the formation and maintenance of the blood-brain barrier, highlighting its significance in the brain's homeostasis. Implications in Neurological Disorders: Aberrant GFAP expression and aggregation are associated with several neurological disorders. In Alexander disease, a rare neurodegenerative disorder, mutations in the GFAP gene lead to the formation of GFAP aggregates, contributing to disease pathology. Moreover, elevated levels of GFAP in cerebrospinal fluid serve as a biomarker for various neurological conditions, including traumatic brain injury, Alzheimer's disease, and multiple sclerosis, indicating its involvement in the brain's response to injury and neuroinflammation. GFAP in Neural Regeneration: Recent studies have unveiled GFAP′s role in neural regeneration and repair processes. In response to brain injury, GFAP-expressing astrocytes become reactive, forming a glial scar that isolates damaged areas. While this scar formation initially limits tissue damage, persistent scar formation can impede neural regeneration. Understanding the dynamics of GFAP expression in reactive astrocytes is crucial for developing therapies that promote neural regeneration following brain injuries or neurodegenerative diseases. GFAP human recombinant protein, once thought of as a structural element in astrocytes, has proven to be a pivotal player in the complex landscape of glial biology and neurological disorders. Its intricate functions extend beyond providing structural support, encompassing roles in neural development, disease pathology, and tissue repair. As research continues to uncover the nuances of GFAP′s involvement in health and disease, it offers promising avenues for developing targeted therapies and diagnostic tools, emphasizing its significance in the intricate workings of the central nervous system.

Precautions

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

Target Information: (P14136)

Background

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