

FABP3 Human

Fatty Acid Binding Protein-3 Human
NTP0026

Product Overview

Name FABP3 Human

Description

Fatty Acid Binding Protein-3 Human

Synonyms

Fatty acid-binding protein heart, H-FABP, Heart-type fatty acid-binding protein, Muscle fatty acid-binding protein, M-FABP, Mammary-derived growth inhibitor, MDGI, FABP3, FABP11, O-FABP.

Introduction

Recombinant Fatty Acid Binding Protein is a newly introduced plasma marker of acute myocardial infarction (AMI). The plasma kinetics of FABP (15kD) closely resemble those of myoglobin in that elevated plasma concentrations are found within 2 hours after AMI and return to normal generally within 18 to 24 hours. But the concentration of FABP in the skeletal muscle is 20 times lower than in cardiac tissue (for myoglobin the same content for cardiac and skeletal tissue), that makes FABP to be more cardiac specific than myoglobin. This makes FABP a useful biochemical marker for the early assessment or exclusion of AMI. FABP also appears to be a useful plasma marker for the estimation of myocardial infarct size.

Source

Escherichia Coli.

Physical Appearance

Sterile filtered liquid formulation.

Formulation

50mM phosphate borate buffer pH-8.

Stability

Store at 4°C if entire vial will be used within 2-4 weeks. Store, frozen at -20°C for longer periods of time. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Avoid multiple freeze-thaw cycles.

Purity

Greater than 90.0% as determined by SDS-PAGE.

Precautions

FABP3 Human is for research use only and not for use in diagnostic or therapeutic procedures.

Background

FABP3 is abundantly expressed in cardiac and skeletal muscle tissues, where it serves as a crucial mediator in the cellular handling of fatty acids. By facilitating the uptake, transport, and utilization of fatty acids, FABP3 ensures a steady supply of energy, making it indispensable for the high-energy-demanding heart and skeletal muscles. Beyond its role in energy metabolism, FABP3 has been implicated in diverse cellular processes, including inflammation, oxidative stress response, and cellular differentiation. **Molecular Insights:** At the molecular level, FABP3 exhibits a remarkable affinity for long-chain fatty acids. Its unique binding properties enable it to shuttle fatty acids to specific cellular compartments, such as mitochondria, for β -oxidation. Additionally, FABP3 is intricately involved in the regulation of gene expression, modulating the activity of various transcription factors and signaling pathways. **Understanding these molecular intricacies is key to deciphering FABP3's diverse functions.** **Physiological Significance:** In cardiac muscle, FABP3 plays a crucial role in myocardial energy metabolism. During periods of increased energy demand, such as cardiac stress or exercise, FABP3 ensures a rapid supply of fatty acids for ATP production. Its absence or dysfunction has been associated with impaired cardiac function and increased susceptibility to ischemic injury. In skeletal muscles, FABP3 contributes to the utilization of fatty acids as an energy source during sustained physical activity. **Implications in Disease:** Research indicates that alterations in FABP3 expression and function are linked to several pathological conditions. In cardiovascular diseases, FABP3 has emerged as a potential biomarker for myocardial infarction, reflecting myocardial damage. Moreover, studies have highlighted its involvement in insulin resistance, diabetes, and metabolic syndrome, emphasizing its significance in metabolic disorders. **Therapeutic Prospects:** The unique properties of FABP3 have garnered attention in drug development. Researchers are exploring FABP3-targeted therapies for cardiovascular diseases and metabolic disorders. Modulating FABP3 activity presents a promising avenue for managing conditions characterized by dysregulated fatty acid metabolism and oxidative stress. **Conclusion:** FABP3, the unassuming intracellular fatty acid chaperone, plays a central role in human physiology and disease. Its intricate involvement in energy metabolism, cellular signaling, and disease pathogenesis underscores its significance as a research subject. As our understanding of FABP3 deepens, it opens doors to innovative diagnostic approaches and therapeutic interventions, potentially impacting millions of lives worldwide.