The Impact of Mitochondrial Dynamics on Cellular Metabolism

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Abstract. Mitochondrial dynamics, including fission and fusion processes, play a vital role in cellular metabolism and energy homeostasis. This article explores the mechanisms of mitochondrial dynamics and their impact on metabolic regulation. We discuss how alterations in these processes contribute to metabolic disorders and highlight potential therapeutic approaches targeting mitochondrial dynamics to improve metabolic health.

Keywords: Mitochondrial dynamics, Cellular metabolism, Energy homeostasis, Fission and fusion, Metabolic disorders

Introduction

Mitochondria are dynamic organelles that undergo continuous cycles of fission and fusion, processes collectively known as mitochondrial dynamics. These processes are crucial for maintaining mitochondrial function, cellular metabolism, and energy homeostasis. Recent studies have highlighted the significance of mitochondrial dynamics in regulating metabolic pathways and their implications for health and disease. In this article, we explore the intricate mechanisms governing mitochondrial fission and fusion and their impact on cellular metabolism. We also discuss how dysregulation of these processes can contribute to metabolic disorders such as obesity, diabetes, and cardiovascular diseases. Understanding the role of mitochondrial dynamics in metabolism provides novel insights into potential therapeutic strategies for improving metabolic health.

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