

Advancements in CRISPR-Cas9 for Genetic Disorders

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Abstract. This article reviews the latest advancements in CRISPR-Cas9 technology for the treatment of genetic disorders. We assess its application in gene editing for conditions like cystic fibrosis and muscular dystrophy. The precision and efficiency of CRISPR-Cas9 have revolutionized the field, offering potential cures for previously untreatable diseases. Despite ethical concerns and technical challenges, ongoing research continues to advance its clinical applications. This review provides insights into current breakthroughs and future directions for CRISPR-Cas9 in medical science.

Keywords: CRISPR-Cas9, genetic disorders, gene editing, cystic fibrosis, muscular dystrophy

Introduction

CRISPR-Cas9 technology has emerged as a groundbreaking tool in the field of genetic engineering. Its ability to precisely edit genes has opened up new possibilities for treating genetic disorders. This article examines recent advancements in CRISPR-Cas9 applications, focusing on its use in conditions like cystic fibrosis and muscular dystrophy. The technology's unparalleled precision has the potential to correct genetic mutations, offering hope for permanent cures. However, ethical considerations and technical hurdles remain significant challenges. This review discusses the current state of CRISPR-Cas9 technology, highlighting key breakthroughs and anticipating future developments in its medical implementation.

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