Advancements in Gene Editing for Cancer Treatment

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Abstract. Gene editing has emerged as a transformative approach in cancer treatment, offering precision medicine solutions tailored to individual genetic profiles. Recent advancements in CRISPR-Cas9 technology have enabled researchers to target and modify oncogenes with unprecedented accuracy. This article reviews the latest developments in gene editing applications for various types of cancer, highlighting both successes and ongoing challenges.

Keywords: gene, cancer, treatment, editing, crispr

Introduction: Cancer remains one of the leading causes of mortality worldwide, prompting the continuous search for more effective treatments. Traditional therapies, while often effective, can be non-specific and result in adverse side effects. In recent years, gene editing technologies, particularly CRISPR-Cas9, have revolutionized the landscape of cancer treatment by enabling precise modifications to genetic material. This precision opens up the potential for directly targeting oncogenes and other cancer-driving mutations, minimizing off-target effects and maximizing therapeutic outcomes. This article delves into the state-of-the-art advancements in gene editing, examines successful case studies, and discusses the ethical and technical challenges that remain.

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