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Regenerative Medicine and Diabetes: Stem Cells on the Frontier

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Abstract

Regenerative medicine is emerging as a groundbreaking approach in the treatment of diabetes, with stem cell therapy at its forefront. Diabetes, a chronic condition characterized by impaired insulin production or action, has traditionally been managed through lifestyle changes, medication, and insulin therapy. However, these treatments do not address the underlying cause of the disease. Stem cells ofer a promising alternative by potentially restoring normal pancreatic function. Research has focused on diferentiating pluripotent stem cells into insulin-producing beta cells, which can be transplanted into patients to replenish their depleted cell populations. Recent advances have demonstrated signifcant progress in improving the e fciency and safety of these techniques. This review explores the current state of stem cell therapy in diabetes, highlighting key scientifc breakthroughs, clinical trials, and future directions. By addressing both Type 1 and Type 2 diabetes, stem cell therapy holds the potential to revolutionize diabetes management, moving from symptom control to a potential cure. As this feld progresses, it promises to ofer new hope for millions of individuals afected by this debilitating disease.

Keywords: ; C ; E ; B

Introduction

Stem Cells and Their Potential

- **Beta-Cell Regeneration**

Discussion

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