Increasing In Vivo Success of Stem Cells with GSK3 Inhibition

The disclosed innovation provides methods for increasing populations of hematopoietic, mesenchymal, mesodermal, or neural progenitor/ stem cells in vivo in a mammalian subject.

What is the Problem?

Hematopoietic stem cell (HSC) therapy has shown promise in managing hematopoietic malignancies, but it faces several clinical limitations. These challenges include the limited availability of allogenic HSC donors and the difficulty in harvesting adequate numbers of HSCs per donor. These factors restrict the broader application and efficacy of HSC therapy in treating hematopoietic and immune-related diseases.

What is the Solution?

The innovation provides methods for increasing populations of hematopoietic, mesenchymal, mesodermal, or neural progenitor/stem cells in vivo in a mammalian subject. This is achieved by administering one or more Wnt/β-catenin signal, Notch signal, or Hedgehog signal-promoting agents. This approach can help to enrich certain stem cell populations for use in treating immune-related diseases, mesenchymal/mesoderm degenerative diseases, or neurodegenerative diseases, overcoming some of the current limitations in HSC therapy.

What is the Competitive Advantage?

The competitive advantage of this technology lies in its ability to address the unmet need for increasing stem cell populations in vivo, overcoming current limitations in HSC therapy. This innovative approach has a wide range of applications, including research into the pathogenicity of mutations in signaling pathways, gene-edited stem cell therapy for genetic diseases, and the study of therapeutics for diseases such as myelodysplastic syndrome. As the global stem cell therapy market is expected to grow significantly, this technology has the potential to make a substantial impact in the field.

Technology ID

BDP 8644

Category

Research Tools
Therapeutics/Platform Technology
Therapeutics/Immunology
Selection of Available Technologies

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