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More Stable and Potent Cyclic ADP-Ribose Analogs

Technology ID
99184

Category
Life Sciences/Pharmaceuticals
Life Sciences/Research Tools
Life Sciences/Therapeutics

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Enhancing the Lifetime of Bone Marrow Stem Cells

A potential method for enhancing the lifetime of bone marrow stem cells that uses cyclic ADP-ribose (cADPR) analogs has been developed. This technology works to increase the proliferation of human hemopoietic progenitor cells, more specifically to increase lymphocytes, in order to enhance the efficiency of the immune system without causing cell differentiation. This technology's promotion of lymphocyte proliferation provides potential application in the treatment of cancer and other immunocompromised diseases such as AIDS.

Cyclic ADP-Ribose Enhances Proliferation of Human Hemopoietic Progenitors

Cyclic ADP-ribose has an important role in the mediation of intracellular calcium release, a process that is critical in all cells. Usually cADPR behaves extracellularly to enhance the proliferation of human hemopoietic progenitors, cells that give rise to other types of blood cells.

cADPR Analogs Mobilize Intracellular Calcium More Efficiently

This technology more efficiently mobilizes intracellular calcium compared to other currently available methods. The cyclic ADP-ribose analogs are more stable to heat and enzymatic degradation than other corresponding cADPR analogs and have been found to be 50 to 100 times more potent than their parent molecules. Overall, the analogs are important research tools in examining the roles of cyclic ADP ribose in cellular function and may be important in the expansion of progenitor cells populations for bone marrow transplantation and gene therapy.

BENEFITS OF CYCLIC-ADP RIBOSE ANALOGS:

- Proliferation enhancement of human hemopoietic progenitor cells - no cell differentiation
- 50-100 times more potent than parent molecule
- More stable to heat and enzymatic degradation than other cADPR analogs
- Increase in lymphocyte proliferation- enhances immune system
- Potential treatment for cancer and immunocompromised diseases (e.g. AIDS)
- Antagonizes cADPR to induce calcium release-more efficiently mobilizes intracellular calcium compared to other methods