

# **Ex Vivo Differentiation of Bone Marrow- Derived Mesenchymal Stem Cells into Osteoblasts, Chondrocytes and Neuronal Cells**

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Degree in Medical Biochemistry & Molecular Biology

**By**

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# SUMMARY

Cell culture is a term that refers to the growth and maintenance of cells in a controlled environment outside of an organism. A successful stem cell culture is one that keeps the cells healthy, dividing, and unspecialized.

Stem cells are cells found in most, if not all, multi-cellular organisms. They differ from other kinds of Cells in the body. They are characterized by the ability to renew themselves through mitotic cell division and differentiating into a diverse range of specialized cell types

The culturing of stem cells is the first step in establishing a stem cell line—a propagating collection of genetically identical cells. Cell lines are important because they provide a long-term supply of multiplying cells that can be shared for research and therapy development.

The present study aimed to clarify the ability of human bone marrow mesenchymal stem cells(BM-MSCs) to differentiate into Osteoblasts, Chondrocytes and Neuronal Cells

The work was divided into 4 main parts:

1. Isolation, propagation and identification of of human bone marrow mesenchymal stem cells(BM-MSCs)
2. Differentiation of human BM- derived MSCs into osteoblasts.
3. Differentiation of human BM- derived MSCs into Chondrocytes.
4. Differentiation of human BM- derived MSCs into Neuronal Cells.