

Proteomic profiling of bone marrow mesenchymal stem cells using two dimensional electrophoresis under hyperglycemia condition.

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Bone marrow mesenchymal stem cells (BM MSCs) are nonhematopoietic and pluripotent stromal cells derived from bone marrow. They appear to participate in the physiologic healing process of tissue injury by being recruited from the bone marrow, home into the injured site via the circulation. In this study, we investigated the effect of diabetic hyperglycemia in circulating BM MSCs.

To clarify the molecular mechanisms of hyperglycemia, we examined patterns of the protein expressed in BM MSCs by two dimensional electrophoresis. After they were exposed to normal (5mM) or high (25mM) glucose concentration for 3days, cell toxicity were measured by a MTS and the alteration of cell surface antigens assessed by flow cytometry analysis. Then, we evaluated the capacity of differentiation into adipocytes and osteoblasts from hBM MSCs in hyperglycemia conditions ex vivo. These results may provide a framework of molecular mechanism for the relationship between hyperglycemia and stem cells.

References

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