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Identification of surface markers during proliferation and differentiation of mouse adipose-derived mesenchymal stem cells

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Embryonic stem (ES) cells and genetically modified stem cells are being widely used in basic research in the field of regenerative medicine. However, clinical application of these cells is currently difficult in view of ethical issues. On the other hand, cells derived from bone marrow, adipose tissue or other tissues have attracted attention as clinically applicable sources of autografting cells, because these cells can differentiate into various types of cells, including adipocytes, osteocytes, chondrocytes, smooth muscle cells, endothelial cells and neuronal cells. Since, adipose tissue yields mesenchymal stem cells (MSCs) 500 fold greater than bone marrow, isolated with minimal invasive procedure and moreover, it is contaminated with lesser number of hematopoietic stem cells, it could be a better source for mesenchymal stem cells. Surface markers are now increasingly used for identification of these cells and their differentiation. Even these markers are being exploited for obtaining homogenous cell prearation. Many surface antigens which are known for mouse bone marrow MSCs but their presence or absence in mouse adipose tissue has not been established. Comparatively, identification of markers on adipose derived MSCs from human is actively pursued. So far, presence or absence of 36 well studied surface markers on human adipose derived MSCs is established, albeit some of them being doubtful. In contrast, presence of only 6 markers and absence of 10 markers in mouse adipose derived MSCs has been established.

Biography

Ms. Vandana is pursuing PhD from National Dairy Research institute which is a premier institute of INDIA in Dairy Research sector. She has completed Master of sciences from Maharshi Dayanad University, Rohtak,India. She has a very good academic record and awarded Institute Fellowship from, Indian Council of Agricultural Research, INDIA.