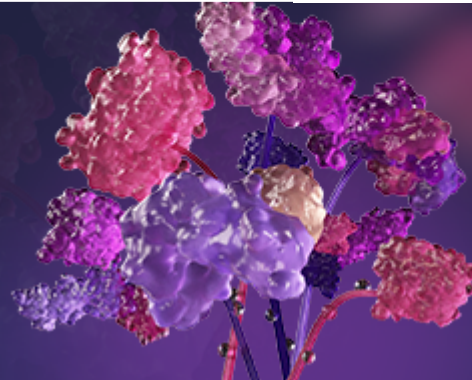


Cytokines in Stem Cell Biology



Stem cell biology has become one of the most important areas of contemporary scientific research. Stem cells are capable of differentiating into different types of cells in the body and have the potential for self-renewal. Depending on the developmental stage, stem cells can be classified as embryonic stem cells or adult stem cells^[1]. The synergistic action of multiple regulatory factors leads to differentiation of stem cells. **Cytokines** play a crucial role in controlling the direction of stem cell proliferation and differentiation^[2].

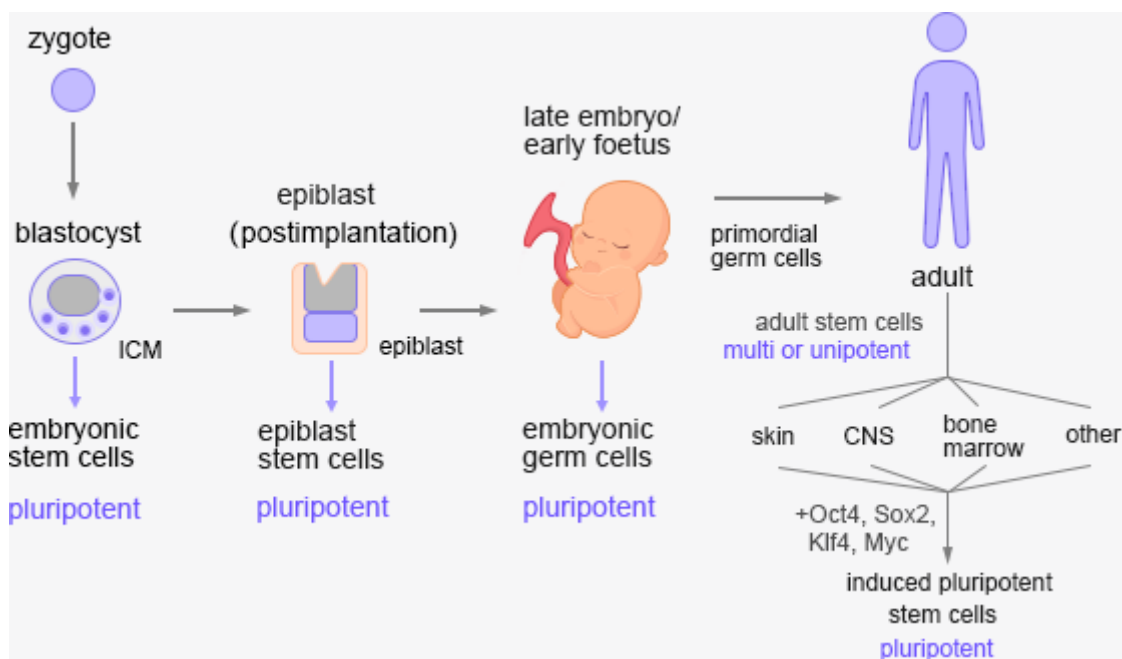


Fig. 1 Changes in the potency of stem cells in human body development^[1]

Embryonic Stem Cells

Highly undifferentiated cells that hold great promise in the field of regenerative medicine. However, ethical and legal controversies related to human embryonic stem cells hinder the applications of these types of stem cells^[2].

Adult Stem Cells

Undifferentiated cells that can be found throughout the body and have the ability to repair and regenerate. These include neural stem cells, blood stem cells, mesenchymal stem cells, epidermal stem cells, etc^[3].

MCE  cytokines in stem cell research:

Cat. No.	Name	Application
HY-P7330	FGF basic/ bFGF Protein	Promotes the survival and proliferation of stem cells.
HY-P7085	M-CSF Protein	Promotes the survival, proliferation, differentiation, and activation of macrophage lineage.
HY-P700150AF	Animal-Free TGF beta 1/ TGFB1 Protein	Stimulates the self-renewal of hematopoietic stem cells.
HY-P7164	Erythropoietin/ EPO Protein	Stimulates the proliferation and differentiation of erythroid progenitor cells to red blood cells.
HY-P73276	LIF Protein	Inhibits the spontaneous differentiation of stem cells.
HY-P70576G	GMP IL-3 Protein	Promotes the survival and proliferation of stem cells.

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References:

[1] *Stem Cell Res Ther.* 2019;10(1):68.