

# The Potential Innovative Use of Embryonic Stem Cells in Regenerative Therapy

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## DESCRIPTION

Stem cells are body cells, also known as somatic cells, that can multiply and differentiate. Stem cells specialize and take on specific duties as an organism grows. Different types of cells can be found in adult tissues such as skin, muscle, blood, bone, liver, and nerves. Because stem cells have not yet differentiated, they can transform into specialized cells. Stem cells are also used by organisms to replace damaged cells. Most plants and animals include stem cells. They divide and differentiate into distinct types of cells. Studies in the 1960s increased interest in stem cell studies.

The undifferentiated cells also called stem cells, which can differentiate into a variety of specialized cell types, are a potential new area of study in medicine. The approach to treating disease and restoring damaged tissues may be altered as an outcome of the study and use of stem cells. However, the ethical discussion around specific stem cell studies, in particular the use of embryonic stem cells, is still a contentious issue.

The application of stem cells has the potential to transform medical practice. Stem cells can differentiate into any other type of cell in the body through a process called differentiation. They are useful for repairing damaged tissues and organs because of this special property. For instance, using a patient's own stem cells, new heart muscle cells might be developed to repair damage from a heart attack. They could be used to repair damaged neurons and treat disorders like Parkinson's. Diabetes, several degenerative disorders, and spinal cord injuries may all be treated with the help of stem cells.

The possibilities are almost limitless, and the medical world is making great breakthroughs in investigating stem cells' medicinal potential. Although there is little examining over the potential advantages of stem cell therapy, the removal of embryonic stem cells in particular has given rise to a heated ethical discussion.

The majority of the time, unused embryos from *in vitro* fertilization operations are used to collect embryonic stem cells.

Many people, particularly those with strong religious beliefs, seeing the embryos as having the capacity to become human beings. Therefore, some people believe that it is morally incorrect to destroy these embryos in order to intake stem cells.

Others believe that the ability to reduce suffering and cure diseases exceeds these ethical problems. They believe that it seems more ethical to use these embryos for studies that could save or improve the lives of many people because it is extremely unlikely that they would ever develop into human beings.

Technologists have made tremendous progress in providing alternatives to embryonic stem cells after realizing the ethical issues. Adult cells that have undergone genetic reprogramming to take on characteristics of embryonic stem cells are known as induced pluripotent stem cells. While without the same problems of ethics, these cells have many of the same medicinal potentials as embryonic stem cells. These developments have the subject can develop without being slow down in ethical protections, support it to receive more widespread public support.

The potential advantages of studying stem cells are too great to let differences that can be resolved through discussion and the creation of ethical norms stand in their path. A dynamic and modern subject with the potential to alter medicine is studying stem cells. One can accomplish this by appreciating the diverse points of view that make the society distinctive and vibrant while also discovering new therapies and cures that will benefit everyone else. In the field of medicine, the study of stem cells holds immense promise, with the potential to improve treatments for a variety of diseases and injuries.

However, ethical considerations, particularly those concerning embryonic stem cells, have generated debate. The development of alternatives such as Personalized Stem Cell is considered as a method to resolve these ethical issues while still advancing scientific knowledge and medical advances. Finally, in the suitable effort to conduct stem cell studies, establishing a balance between ethical considerations and scientific developments is important.

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