

Biotechnology and stem cell research essay

[Literature](#), [Russian Literature](#)



The word “ biotechnology’ has been said that it means technologists will help the world find solutions to its problems now and in the future. With the world being in such turmoil such as poverty, diseases, lack of food, and energy resources being tapped out, the ideas of overcoming these problems has become the objective of biotechnology development.

Therefore, biotechnology has then described as “ the last revolution of the current century,” “ the third wave in the evolution of human ambitions. ” (Biology-Today, retrieved 12/24/14). All the different areas of sciences such as biology and microbiology, as well as electronics and engineering have all been created by the latest velveteen of biotechnology. The science of biotechnology has come a long way in the medical field in the last century where once, people would have had to live without arms, legs, or diseased organs. Now, through science and experimentations, people are living with artificial limbs and organs; even some cancers and other deplaning diseases are being eradicated, such as, smallpox and measles.

While some diseases have been fully eradicated, this not true of all diseases. Science is using biotechnology to continue working on how to rid the world of some of the most deadly diseases. One of these is the HIV virus, which causes AIDS. There is a fast growing need to find cures for such diseases as the AIDS virus and, gene therapy to help those with genetic disorders, a better and safer drug therapy for transplant patients so their bodies will not reject their new organs and transplants.

While certain diseases have been eradicated, there are new strains of other viruses that medical technicians need to contend with. One of these diseases

is a new strain of HIV known as AY/02. While this strain of HIV is predominately known in the Guinea-Bissau, West Africa region, this particular strain is starting to spread quickly all over the world due to those infected traveling all over the world migrating into the United States and Europe. " HIV is an extremely dynamic and variable virus.

New subtypes and recombinant forms of HIV-1 have been introduced to our part of the world, and it is highly likely that there are a large number of circulating recombinant forms of which we know little or nothing. We therefore need to be aware of how the HIV-1 epidemic changes over time. " (Paddock, C. 2013, November 29).

Scientists are now working with biotechnology to try to figure out how to unravel the mystery of what is causing this new strain of HIV and how to combat it. Like the HIV-1, cancer patients are also benefiting from scientists working with biotechnology in the study of stem cell therapy. When a cancer patient has been treated with chemotherapy or radiation, the cancerous cells have been destroyed. Thanks to stem cell research, dead stem cells can now be replaced with new healthy cells. These new cells will then adapt to the area that has been affected by the dead cancerous cells. These new and healthy cells may then help areas of the body such as the heart, liver, kidneys, brain, and other parts of the body in the healing process. While scientists are trying to find ways to use stem cell research in combating diseases such as HIV, cancer, Parkinson disease, and maybe even people who have been paralyzed or suffer from brain damage, there are both pros and cons on the use of stem-cell research.

There are three different ways that these cells can be extracted and two of those ways are the most controversial. Adult stem cells can be taken from either bone marrow or the peripheral system. Extracting bone marrow can be very painful and may cause destruction of the bone marrow cells.

Extracting peripheral stem cells will not cause damage to the bones but it takes longer for the procedure. When it comes to health issues, time is of the utmost importance. While it is hard to extract cells from a person's own body, they are better than both the umbilical cord and embryonic stem cells.

Since the person is using their body, they will have the perfect match of DNA and there will be no chance of rejection. The results have shown both a profound and promising light for the now and in the future when scientists will be able to do extractions of stem cells that are quicker and less painful. While stem cells can be extracted from a person's own body, there are also other ways that stem cells can be extracted. These extractions are through the umbilical cord and through the embryo.

The controversy over stem cell research starts with the cells from embryos. While each blastocyst has about 100 cells, most of these are stem cells. Every 2-3 days, the stem cells, which can be kept alive indefinitely, will continue to double in number. Because the genetic material all comes from the same fertilized egg, a replicating set of stem cells is therefore called a "stem cell line. Many people oppose this type of stem cell extraction because, in order for these cells to be taken, the embryo is destroyed and this means a human life has been taken.