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The Stem Cell Dilemma: Beacons of Hope or Harbingers of Doom?

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Summary: People are intrigued by all the possibilities and hope that stem cell research has to offer. In a time where we are so technologically advanced and interested in finding cures for so many debilitating and potentially life-threatening diseases, stem cell research makes scientists hopeful that these cures will be more than just a possibility and instead a reality. Law-makers and the government as a whole are involved, as well, and need to determine whether to make such research legal and how much money to delegate to such experimentation. Society has also taken interest in this controversial topic and has been very vocal. The authors set out to discuss both sides of this controversy, highlighting the potential hopes and dangers. The authors contend that whether this knowledge and technology is used for good or evil is up to society.

Chapter One: Agents of Hope

- **Chapter Summary:** The authors discuss the hopeful possibilities that stem cells have in curing heart disease, diabetes and other autoimmune diseases, spinal cord injury, and nervous system diseases.
- **Chapter Discussion:** The umbilical cord is a symbol of hope in the world of science. It contains cells with the ability to regenerate and possibly put an end to a vast number of diseases.[2] No one is more aware of this than the Nash family. Molly Nash suffered from a genetic disease that caused a failure of bone marrow and developed leukemia by the age

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[2] LEO FURCHT AND WILLIAM HOFFMAN, THE STEM CELL DILEMMA: BEACONS OF HOPE OR HARBINGERS OF DOOM? 2 (2008) [hereinafter Furcht].

of six. Molly's blood needed to be replaced with healthy blood and this healthy blood needed to be a perfect match. Such blood could come only from a sibling, whose umbilical cord would harbor the necessary stem cells. Molly's parents conceived a baby through in vitro fertilization to ensure that the baby would not have the same genetic disease as Molly and essentially created "the world's first designer baby."[3] The stem cells from his umbilical cord rehabilitated Molly's entire blood system. Such is an example of only one of many possibilities stem cells offer the world of medicine.

Stem cells also offer profound and much needed possibilities for cardiology.[4] Diabetes is another area of interest, especially as obesity becomes a more common occurrence in today's world.[5] Stem cell research is the avenue that would most likely lead to finding a renewable source of insulin-producing cells.[6] A diabetic needs insulin to live. Parents supporting stem cell research in the area of diabetes wrote, "Eight times a day and sometimes more, and once or maybe twice each and every night, we poke our daughter's soft fingers to find out if she needs insulin or a cookie for 'lows.'"[7] Stem cell research, and an eventual cure for diabetes, would completely alter the lives of such parents for the better.

[3] Furcht, *supra* note 2, at 3.

[4] *Id.* at 11.

[5] *Id.* at 16.

[6] *Id.* at 19.

[7] *Id.* at 18.

In 2006, television viewers were able to see paralyzed rats moving their limbs.[8] That movement was a result of being implanted with rat embryonic stem cells. The researcher responsible for this, Douglas Kerr, believes that the stem cells went to the most severely damaged spots of the rats' spinal cord and rescued dying neurons, thereby reforming sufficient connections affording movement in the rats.[9] If aiding paralysis is possible in rats, perhaps it is possible in humans, as well. Stem cell research could potentially benefit those suffering from multiple sclerosis.[10]

Another disease in desperate need of a cure is Alzheimer's. Statistics project that by 2050, the rate of Alzheimer's will increase by nearly 300 percent.[11] Stem cells offer the possibility of being regenerators of brain tissue, which could replace lost brain cells. While hopeful, there is still some serious doubt in this area. "Expecting transplanted neurons to weave themselves into the fraying circuits seems about as likely as a skein of yarn inserting itself into a damaged tapestry and recreating the original."[12] Additionally, there's no guarantee that embryonic stem cells will affect the desired cells. Instead of

[8] Furcht, *supra* note 2, at 22.

[9] *Id.* at 23.

[10] *Id.* at 25.

[11] *Id.* at 26.

[12] *Id.* at 27. (citing Sharon Begley, *Harnessing Stem Cells to Battle Alzheimer's Is at Least Worth a Try*, WALL ST. J., July 2, 2004 at B1).

becoming brain cells, stem cells could form bone.[13] Such doubt deters using stem cells for cures since the patient could be exposed to unnecessary risk.

With all of this hope, there are also serious risks to consider. Among these risks is the possibility of developing tumors after an embryonic stem cell transplant. This opens the door to a host of questions: Would you accept the risk of a possible tumor? Would you accept it for your child? Would the FDA accept it?[14] Despite how these questions may be answered, it is undeniable that stem cell research does offer a lot of knowledge about human disease.[15]

Chapter Two: Architects of Development

- **Chapter Summary:** The authors provide a brief overview of stem cells generally, as well as regenerative science.
- **Chapter Discussion:** The stem cell is the "architect and engineer of all complex organisms."[16] They maintain continual self-renewal, self-differentiation, and self-destruction.[17] Their "duality of purpose" marks their ability to reproduce themselves and create new tissues.[18] These stem cells are of one of two categories: adult stem cells and

[13] Furcht, *supra* note 2, at 28.

[14] *Id.* at 32-3.

[15] *Id.* at 33.

[16] *Id.* at 36.

[17] *Id.*

[18] Furcht, *supra* note 2, at 36.

embryonic stem cells.[19] Adult stem cells have a more limited potential for regeneration. Some, however, are more versatile and known as multipotent, meaning they can regenerate tissue other than that in which they originate.[20] They typically come from bone marrow, umbilical cord blood, and less often from circulating blood.[21] The embryonic stem cell is pluripotent because it builds entire bodies.[22] They come from embryos that are created but never used.[23]

Chapter Three: Challengers of Ethics

- **Chapter Summary:** This chapter focuses on the ethical concerns regarding stem cells. It seeks to show the divide that exists among different sects of society.
- **Chapter Discussion:** There is much uncertainty about stem cells and their possible uses. What is right and what is wrong? Who decides this? Where is the ethical line and who draws it? The term "stem cell" has become very controversial in and of itself and is a hot button issue. This is due in part to the debate of the moral standing of an embryo[24] and also because of language. Words like "stem cells" and "cloning" have the power to enrage the public. Avoiding these words, however, will likely to appeal to more people.[25]

[19] Furcht, *supra* note 2, at 38.

[20] *Id*. at 39.

[21] *Id*.

[22] *Id*.

[23] *Id*. at 40.

[24] Furcht, *supra* note 2, at 79.

[25] *Id.* at 78.

"Preserving the nation's shared values while reining in its deepest moral divides was the challenge,"[26] write the authors in reference to President Bush's take on stem cell research. "President George W. Bush announced that (he was going to restrict) federal funding for embryonic stem research to existing stem cell lines".[27] This seemed to placate those who want to further medical research and the pro-life community.[28] Despite a seemingly agreeable decision regarding stem cells, controversy still abounds.

"Cloning" is a word that often comes up when discussing stem cells. This term ignites fear in the public, and it is necessary to make the distinction between reproductive cloning and therapeutic cloning. "The goal of reproductive cloning is to create a new organism, the goal of therapeutic cloning is to create stem cells to treat or cure a patient with a disease."[29] They are entirely different.

"Designer [b]abies" are also a source of fear.[30] For families like the Nashes, guaranteeing the birth of a healthy child was necessary to save their sick daughter.[31] Critics vehemently oppose exactly what the Nashes did, known as preimplantation

[26] Furcht, *supra* note 2, at 81.

[27] *Id.* at 80.

[28] *Id.* at 81.

[29] *Id.* at 86.

[30] *Id*. at 88.

[31] *See* Furcht, *supra* note 2, at xxiii.

genetic diagnosis, calling it the "ultimate shopping experience" and "morally wrong."[32] These opponents believe it is morally objectionable to predetermine the traits of unborn children and to create embryos that the parents know will be discarded.[33] David Fleming, a physician who teaches medical ethics, addresses this issue: "If we create another human life in order to kill it and use it to heal somebody else, it is slavery. We fought a civil war to prevent this."[34]

There is also the issue of using surplus embryos. There are those who argue that this is just another way to participate in research.[35] It has been argued that people are always donating kidneys or portions of their livers for research.[36] What makes these surplus eggs, of which the parents have no use, any different?[37] On the other hand, there is a growing concern that these donated eggs may end up in the wrong hands and used for research cloning. It is undeniable, clear regulations on egg donation are needed.[38]

[32] Furcht, *supra* note 2, at 91.

[33] *Id.*

[34] *Id.* at 82.

[35] *Id.* at 97.

[36] *Id.*

[37] Furcht, *supra* note 2, at 97.

[38] *Id.* at 96.

Society may never reach a common ground on stem cell research. There will always be those that disagree about when life begins.[39] In the United States, publicly funded research at the federal level is restricted to approved stem cells,[40] and yet the FDA has no ban on reproductive cloning in federal law.[41] Despite all of these differences, as long as death remains to be seen as "public enemy number 1,"[42] stem cell research will continue to be present in our world.

Chapter Four: Barometers of Politics

- **Chapter Summary:** The stem cell controversy extends to politics and the law. This chapter highlights some of the important issues that must be addressed by the country's legislators and politicians.
- **Chapter Discussion:** There is no neat division of those for and against embryonic stem cell research in our two party Democratic system. This issue potentially divides traditional constituencies and alignment.[43] It is a marriage of moral and economic issues, as well as a heavy component of life and death.[44] And the issue shows no sign of

[39] Furcht, *supra* note 2, at 102.

[40] *Id.* at 111.

[41] *Id.* at 113.

[42] *Id.* at 105.

[43] *Id.* at 116.

[44] Furcht, *supra* note 2, at 116.

disappearing. The next step in stem cell research is essentially for legislators and politicians to decide.[45]

Of particular interest is stem cells and how they relate to the law. One crucial question to confront is how the law will deal with human embryos created outside of the body.[46] Will they be afforded the full protection of the law just like any citizen? How, if at all, will constitutional rights to privacy, equality, and free expression come into play? Should the research be funded by the government? Should the embryos be able to be donated? Should the donors receive payment for such a donation? Who, if anyone, should be held liable if stem cells used prove to be ineffective or detrimental?[47] Such questions are currently unanswered and there is no promise of definitive answers in the near future.

Another controversial issue, which has been addressed in the past by the Supreme Court, is whether human life is patentable. In *Diamond v. Chakrabarty*, the Supreme Court held that "anything under the sun made by the hand of man" could be patented.[48] However, the passing of the Thirteenth Amendment of the U.S. Constitution dictated that one human being could not hold a property right in another human being. A patent is a

[45] Furcht, *supra* note 2, at 126.

[46] *Id.* at 135.

[47] *Id.* at 135-36.

[48] *Id.* at 138.

property right.[49] So is human life patentable? It is clear that all of these questions need resolving, which will be a difficult task on moral and legal grounds.

Chapter Five: Objects of Competition

- **Chapter Summary:** This chapter raises the issue of whether such a controversy should essentially stifle scientific research and technology.
- **Chapter Discussion:** Stem cell research is full of ethical, cultural, and religious diversity. It is also a field that the government and research universities are looking to seize for their own competitive edge.[50] But is the United States a competitor? President Bush made it glaringly clear that the United State would not be competing with the rest of the world.[51] He called for legislation that outlawed human cloning in all forms.[52] He also vetoed the Stem Cell Research Enhancement Act of 2005, HR 810, that would have made more funding available for such research and would have relaxed restrictions.[53] He also vetoed similar legislation passed by Congress.[54] The United States thus was not a contender in the stem cell race. Not only was the country out of the stem cell race but also out of the greater race of science. Such is unexpected of a country that has amassed

[49] Furcht, *supra* note 2, at 139.

[50] *Id.* at 146-47.

[51] *Id.* at 150.

[52] *Id.*

[53] *Id.*

[54] Furcht, *supra* note 2, at 150.

numerous Nobel Awards and spends upward of $100 billion in research and development expenditures.[55]

Chapter Six: Harbingers of Destruction

- **Chapter Summary:** The authors end their book offering a glimpse into the potential dangers that could face the world as a result of growing research and understanding of stem cells.
- **Chapter Discussion:** There is obvious opposition to stem cell research. In addition to this opposition is fear. Will stem cells have any consequences in global pandemics and biowarfare? Can stem cells be used for evil and turn into biological weapons capable of killing?[56] Bioterrorism is now, more than ever, a reality that confronts today's world. A chance of survival depends upon the health of human immune systems. Stem cell research, biotechnology, and nanotechnology have all shed light on the complexity of the immune system. We currently face a time where it is of utmost importance to understand the immune system and these technologies.[57] Perhaps designer babies should not be feared, but instead the engineering of biology for annihilation.[58] With a rapidly growing understanding of science and biotechnology,[59] it becomes a real possibility that people

[55] Furcht, *supra* note 2, at 150-51.

[56] *Id.* at 196.

[57] *Id.* at 198.

[58] *Id.* at 224.

[59] *Id.* at 225-27.

with evil intentions harbor this knowledge and can be potentially capable of destruction.[60] The authors note that "stem cells are the opening act and may close the final act."[61] While this is an undeniably terrifying idea, does it mean that such research should entirely come to a halt? Many would answer that "No, it should not." The "intrinsic content of science" is not what causes danger; it is human choice.[62] People with ill intent should not be responsible for the suppression of research that holds a lot of promise for many people. It is up to us to decide whether stem cells will be used for good or evil.[63]

[60] Furcht, *supra* note 2, at 227.

[61] *Id.* at 225.

[62] *Id.* at 228.

[63] *Id.* at 232.