

Jon Fraser

Dr. Borah

ENGL 102H-002

5 Feb. 2012

Annotated Bibliography: Genetic Engineering

Genetic engineering is quickly becoming one of the most controversial topics of today's ethical, religious, and political worlds. Although most Americans know little about the topic, opinions regarding the ethical implications of genetic engineering are very extreme. While supporters believe that genetic manipulation can lead to the elimination of numerous deadly diseases, the opposition feels that genetic manipulation can lead to a division between the genetically engineered and those whose genes are determined naturally. I've decided to tackle this issue head on for the topic of my research paper. I first plan to define genetic engineering and outline the general processes through which genetic engineering occurs. Following this definition, I'll go into the ethical and moral issues and describe the beliefs of those who support and oppose genetic engineering. The exact questions for my research paper are as follows: What is the definition of genetic engineering? How is genetic engineering carried out? What are the main points of the ethical debate regarding genetic engineering? How does the controversy over the ethics of genetic engineering carry into the political, religious, legal, economical, and social world?

The purpose of this annotated bibliography is to organize and document the sources I have gathered and to note my thoughts and feelings towards these sources. I began my research on January 16th during one of the prewrites that required me to explore potential topics for my research paper. Although this initial stage of research only covered a few Internet resources, I

still stumbled upon some interesting and useful information. I gathered the majority of my sources on January 24th during a class period in Langsam Library when my class was allowed to research freely using the Library's database of sources. Because the topic of my research is fairly broad, I experienced no difficulty finding sources to use. My collection of sources includes articles, journals, book chapters, Internet sources, and newspaper spreads. For a primary source, I conducted a survey through Facebook that asked responders questions about their knowledge of genetic engineering and their ethical views on the subject. I'll continue to gather more research as I begin preparing and writing the first draft of my research paper.

Baird, Stephen L. "Designer Babies: Eugenics Repackaged or Consumer Options?" *Technology Teacher* 66.7 (2007): 12-16. *Academic Search Complete*. Web. 24 Jan. 2012.

Baird outlines and explains in great detail the process of genetic engineering through in vitro fertilization (IVF), preimplantation genetic diagnosis (PGD), and germ line engineering. In IVF and PGD, doctors take a large number of a couple's fertilized eggs and test them for certain undesirable traits or diseases. Those that are approved are then placed in the womb and the rest are discarded. In germ line engineering, doctors alter the DNA of a sperm or egg so that any offspring of these manipulated sex cells display the change. Towards the end of this article, Baird touches on some potential ethical issues of genetic engineering and gene manipulation.

This source is very valuable to the backbone of a solid researcher paper. Because Baird summarizes the processes of IVF, PGD, and germ line engineering so well, I can use his work as a basis from which to do further research so I can include more detail in my paper. He talks briefly about the first "test-tube" baby, Louise Brown, which I could use as supporting evidence

for a certain point or topic. Baird also vaguely discusses some uses for genetic engineering that I could further research to enhance the quality and breadth of my research paper.

MacDonald, Linda. "Ethical Issues in Genetic Engineering and Transgenics." *Action Bioscience*, 2004. Web. 27 Jan. 2012. <<http://www.actionbioscience.org/biotech/glenn.html>>.

This Internet article focuses on the subtopic of transgenics within genetic engineering and any ethical issues that may arise from the mixture of plant, animal, and human genes.

MacDonald outlines the three types of transgenics (animal-plant-human, animal-plant, and animal-human) and exemplifies how all three can be used to improve the medical and biological fields. She then goes into the ethical dilemmas of transgenics concerning the definition of a human being, the potential of a slave race, and new diseases that may result from the mixture of genes. Finally, the article lays out some instances in which genetic engineering may be used in the future to alter human beings.

This source has a good deal of tangible information about genetic engineering and definitely describes transgenics in appropriate detail. The subject of transgenics is an interesting area of genetic engineering that could be a critical point in some people's feelings on genetic engineering. This article could serve as a good source for a paragraph or two explaining one of the applications of genetic engineering and also as an avenue to discuss some of the ethical issues that surround genetic engineering. The author of the text has been a professor at a variety of reputable medical colleges and has a degree in Biomedical Ethics, making her findings and claims credible.

Pollack, Andrew. "Engineering by Scientists on Embryo Stirs Criticism." *New York Times* 13 May 2008: 14. *Academic Search Complete*. Web. 27 Jan. 2012.

This newspaper article from a 2008 issue of the *New York Times* discusses an attempt by Cornell University to create what is believed to be the first genetically engineered human embryo. Researchers put a gene for a fluorescent protein into an abnormal single-celled embryo that never could have grown into a baby. The intent of the study was to observe if the fluorescent marker would carry into the daughter cells, allowing genetic changes to be traced during cell division. Although many scientists were concerned that this experiment violated ethics regulations, the National Institutes of Health clarified that the study was not under review since the scientists used a test-tube embryo and not an actual fetus.

Although this source was barely a page long, it can be helpful in my paper by providing an anecdote to illustrate what type of experimentation and research is already happening with genetic engineering and gene manipulation. This article also briefly breached the topic of ethics in genetic engineering since the scientists at Cornell didn't obtain explicit permission to perform the tests they did. This article doesn't include as much detail as would be needed to use for factual information, but when it comes to a supporting example, it's perfect.

Suter, Sonia M. "A Brave New World of Designer Babies?" *Berkeley Technology Law Journal* 22.2 (2007): 897-969. *Academic Search Complete*. Web. 24 Jan. 2012.

In this excerpt from the *Berkeley Technology Law Journal*, the author discusses the differences between old and new eugenics. She begins by explaining the different processes, techniques, and uses of genetic engineering, including PGD and in vitro fertilization. Following her outline of genetic manipulation, the author summarizes some ethical issues surrounding the topic, all the while linking back to the idea that genetic manipulation will create superior and inferior races. Then, in an interesting evaluation, Suter compares and contrasts the societal,

ethical, and political differences between the eugenics of the twentieth century with today's genetically altered version of selective breeding.

This source can be very helpful for the discussion of the societal effects of genetic engineering in my research paper. The idea that genetic manipulation could allow the creation of a race of superior beings is very important to the debate between those who support and oppose genetic engineering. This source is a chapter section from a larger scholarly book that contains somewhat unclear diction and syntax in an attempt to sound more sophisticated. However, the information this source provides is useful to strengthen my research paper and any discussion of eugenics that it may include.

Thompson, Dick, "Designer Babies." *Time* 153.1 (1999): 64. *Academic Search Complete*. Web. 24 Jan. 2012.

This 1999 TIME article begins with a short story about a couple that selected their offspring's gender using genetic testing techniques. Although the couple did not manipulate the genes of their baby boy, they did test a number of fertilized eggs to find one that was not a female before implanting the egg into the mother. Following this anecdote, the author goes into a long discussion of the potential uses for genetic engineering, many of which scientists actually employ today. The article concludes with an interesting array of survey results regarding a person's likeliness to use certain genetic therapy techniques on their children.

Although this article was written over a decade ago, it still provides an interesting perspective on the topic of genetic engineering. Especially since the author poses many predictions and questions about the future of genetic engineering, I can use his ideas to show how much of the technology currently used for genetic engineering did not exist even ten years

ago. This article also focused a lot on gender manipulation in gene therapy, providing further areas for me to discuss in a paper. The author briefly discussed ethics in genetic engineering, but not in the amount of detail required to make this article a major source for any information regarding ethics.