

Genetic engineering: ethics essay



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Genetic Engineering is all about genes, which are made of DNA; the chemical inside the nucleus of a cell that carries the genetic instructions for making living organisms. It is a very broad term that covers a range of techniques that allow for the artificial addition, deletion or rearrangement of sequences of bases in DNA in order to alter the observable form and function of an organism. (Science Group, 2014). Genetic Engineering was first discovered in the 1970s when scientist discovered how to move pieces of genetic material from one species to another. It has since had questions raised regarding its continuous scientific advancements; showing uncertainty in how this kind of biotechnology will affect human, animal and plant life in the future. While the continuous advancements within the field of genetic engineering are celebrated by some, there are others who are undecided and even strongly against it; deeming such practices as therapeutic uses of embryonic stem cells and the genetic modification of animals to be wholly unethical. The way in which society deems something to right or wrong, or good or bad is through a system of moral principles known as ethics. Ethics are defined as moral principles that govern a person's behaviour or the conducting of an activity and are a system of moral principles which affects how people make decisions and lead their lives. This branch of philosophy defines what is good for individuals and society. (BBC, 2014).

For centuries, philosophers have come up with guidelines about how humans should live, act and know between what is right and what is wrong. These are usually in the form of ethical theories. (Panza and Potthast, 2014). Ethics have been implemented as a moral compass for humanity and applied to various situations as a way of informing the way humans think to support the

more difficult decisions that are made in life. On such ethical theory, known as Utilitarianism, an ethical theory that was founded by the 18th century philosopher and social reformer Jeremy Bentham who is currently known as the father of modern Utilitarianism. This theory is best understood as a risk-benefit analysis in which the good brought about by a certain action is weighed against the harm caused by that action. It was Bentham (1789) who quoted that Utilitarianism is about “ the greatest good for the greatest number” and should be the measure of what is right and wrong. Another ethical theory that can be applied to ‘ Saviour Siblings’ is Kantian Ethics. Kantian Ethics refers to deontological ethical theory founded by scientist and philosopher Immanuel Kant. His theory differs from the utilitarian theory that it focuses more on the actual action and the morality of the action as opposed to its consequences.

One such medical practice that has proved to be controversial is ‘ Saviour Siblings’. The term Saviour Sibling refers to a child that is conceived through In vitro fertilization (IVF) so that, when born, stem cells could be provided from the umbilical cord – as well as tissue or bone marrow – and then donated to be used to help treat an older sibling with a serious medical condition. (Embryo Ethics, 2014). This has raised a lot of debate as to whether such a process is ethical. The ethical theory Utilitarianism can be applied to this type of genetic engineering as it is the basis on which the decision is made by the parents; that creating a saviour sibling is, as Bentham (1789) says, “ the greatest good for the greatest number of people”, in that they are bringing a new life into the world, that they can love for doing something for their sibling that no one else can. There are many

who are against this, however. It is argued that there are concerns for the child psychological wellbeing later in life, upon discovering that the reason for their being brought into the world was for the sole purpose of saving someone else and not necessarily because they were wanted for him/herself. (Sheldon and Wilkinson, 2004). In terms of Kantian Ethics, there are two similar cases of ‘Saviour Siblings’ in the UK to which this theory can be applied. The cases are those of the Hashmi family and Whitaker family. (BBC 2004). Both families had children had genetic disorders and wanted to produce a sibling who’s blood could be taken from the umbilical cord to help cure their elder sibling. The Hashmis were granted permission to do this, however, the Whitakers were not. The reason being is that the Hashmis carried an inherited disorder that could be passed on to their child, so screening would prevent a new child with a genetic defect being born. Whereas, the Whitakers genetic disorder was not inherited, thus the production of a new child would not be beneficial and would even carry some risk. Kantian theory would disagree with this decision as it could be argued that the potential embryo was not yet human and therefore had no human rights. In addition, others could be against the Hashmis as they could have been seen as using their new child as a means to an end.

When it comes to Saviour Siblings, it is the responsibility of the Human Fertilisation and Embryology Authority (HFEA) – a public body of the Department of Health – to regulate and decide whether the deliberate creation of a saviour sibling is the right thing in each individual case. There is always an ethical dilemma in terms of the child’s rights and autonomy, i. e. when does the child gain rights over their own body? And will they ever have

the right to refuse donations; going against the very reason they were brought into the world? There may come a time when the elder sibling may relapse and need further an organ donation from the younger sibling. The Human Fertilisation and Embryology Act (2008) states that cells from the umbilical cord may be used, and bone marrow to be donated, however, it outlaws tissue matching for whole organ donations. Therefore, once the child has reached the age of 18, they are legally responsible for themselves and can refuse further donations.

Another medical practice that has raised serious debate is the Xenotransplantation of genetic engineered animals. Xenotransplantation is the transplantation of cells, tissue or organs from one species to another. “Xeno-” derives from the Greek word ‘xenos’, meaning ‘foreign’. (Martin, 2008). Xenotransplantation offers the potential of transplanting an animal organ, such as a pig’s heart genetically altered with human genes, into a human’s body. The ethical theory Utilitarianism can also be applied in this instance as it is believed that xenotransplantation has the potential to one day not only solve the present organ donor shortage, but also to help address many devastating illnesses such as Parkinson’s disease, childhood diabetes and Huntington’s disease. (Olanami, 2006). This conforms with the utilitarian theory that happiness can be maximised to a greater number of people. However, ethical arguments against this suggest that there is considerable risk for infection and for patients to later reject the transplant due to genetic differences, thus potentially causing more harm than good. In contrast, Kantian Ethics can be applied by using Kant’s notion that humans should do what is intrinsically right and not make decisions based on

emotions and feelings. In terms of xenotransplantation, it is deemed morally right to use animals this way as animals are not self-conscious or rational so, therefore, they have no moral standing and exist only as a means to an end. However, it is believed that because our behaviour towards animals is similar to that of humans, animals must be treated with respect. Thus, the killing of animals for medical experimentation is permitted, providing animals don't suffer unnecessarily.

Such theories raise the issue of animal rights by modern day advocates such as People for the Ethical Treatment of Animals (PETA) who deem the act of using animals for the benefit of human beings as unethical. When talking about animal rights, Jeremy Bentham (1789) says; “ The question is not, Can they *reason* ? nor, Can they *talk* ? But, can they *suffer* ?” However, he goes on to say that he has no objection to putting animals in pain for the purpose of medical experiments, providing that experiment is beneficial to mankind.

In conclusion, Genetic Engineering is something that is continuously advancing and could potentially save thousands of lives. It is part of the evolution of mankind to want to develop, be smarter, and be stronger and healthier. There will also be those who feel it is best to leave some things untouched. Despite all the advancements and improvements, there will always be controversy surrounding genetic engineering and there will always be people for and against it. However, ethical theories will always be the moral compass that guides humanity into doing what is right and preventing what is wrong. Kantian ethics and Utilitarian ethics are examples of ethical theories that give different answers to which different procedures are

ethically justifiable. Utilitarianism looks at the consequences of an action, whilst Kantian ethics looks at the act itself.