

CLASSIFICATIONS SHOULD BE MADE TO BRING GENETIC ENGINEERING UNDER CONTROL

In 1883, the term Eugenics which means well-born was coined together by Francis Galton. Galton suggested selective breeding of those with desirable traits in order to produce the best offspring and sterilize those who were considered “*Feeble-minded*”. The purpose of [Eugenics](#) back in the days is to, basically, improve the human race through selective breeding. However, after various experiments, it was found that the human heredity is far more complex and it is not ideal to achieve the goal through selective breeding. Now, this field of study has been revolutionized by the presence of [CRISPR](#). Scientists nowadays can edit, delete, and replace genes to achieve desirable traits which are far more efficient than selective breeding. The question is: should scientists do it? With the existence of this revolutionizing technology, there should be classifications and limitations in which scientists should obey. By violating those protocols, scientists have committed an unjust crime that could potentially degrade the field of science forever.

Imagine having a baby of your dream, blue eyes, pale skin, and V-shape face; “*Designer babies*” is what we called it. However, imagine yourself stuck within the beauty standard. Imagine the idea of using science and this expensive tool to improve the cosmetology aspect of the society. Imagine we use science to set the beauty standard and reinforce stereotypical ideas such as *perfection*. Up until this point, the society is working very hard in order to quash the idea of “*who has better visual*” as beauty is not how one is defined. Furthermore, it takes mountains of money and capable scientists in order to edit genes. Economically, not everyone is able to afford that. So, imagine scientists edit genes to get desirable traits for certain opulent communities. By doing so, we would reinforce the discrimination and integrate various

stereotypes toward the rest of the communities which only doubles up the rate of the existed discrimination. Furthermore, our parents are supposed to love us for who we are, not until we look like what they have expected. The unconditional love, the love that one can only receive from their parents, will soon be forbidden as perfection takes over.

However, editing genes is not that easy. Before, scientists thought that a trait is controlled by a single gene when [Mendel](#) established his work on pea plants. Through various experiments, Thomas Hunt Morgan, a biologist at Columbia University and the first to discover the sex-linked chromosomes, found out that many genes can alter a single phenotype and that a single chromosome can carry many genes. Furthermore, those genes are also influenced by their external environment in which scientists called [Epigenetics](#) which literally means “*above genetics*”. For instance, a [study](#) has revealed that the body’s response to starvation can be inherited. According to one data, “*grandfathers who were over-nourished when their sperm were forming put their grandsons at risk of early death, and grandmothers who were undernourished in the womb—when their eggs were forming—put their granddaughters at risk.*” This indicates that the inheritance patterns do not rely solely on our genes but the surrounding environment as well. Therefore, if we edit genes with a certain expectation, we might not achieve the result that we expected due to the external environment intervention.

The human’s heredity is already complex enough, now imagine using a newly born technology to edit it. Scientists haven’t mastered the use of CRISPR yet. So, can we apply the use of it to humans? Should we risk editing one’s genome? Ideally, most scientists should be aware of the principle, “*Just because you can doesn’t mean you should.*” However, a [Chinese scientist](#) was willing to risk it all. Editing one’s genome is already risky enough, but this scientist claimed to have edited the germline of embryos and implanted it to the mother’s uterus in the purpose of making twin sisters resistant to HIV because the

father is HIV positive. The scientist used CRISPR to cause a genetic mutation that would disable a CCR5 gene—a gene that got exploited when HIV is infected. However, sometimes the CRISPR can cause unintended genetic mutations and those can cause unexpected changes in every single cell of the body. Furthermore, there are less risky ways to ensure that HIV won't be transmitted to the babies. The edited genome is now not only confined to the twin sisters but will be inherited through generations. So, what does that mean to the twin sisters' child, grandchild, and great-grandchild, do we have their consent in order to edit their genome? Somehow, this type of experiment is modeled after the Nuremberg tribunal case in which seven Nazi doctors were sentenced to death for unethical human experimentation without informed consent. Even sometimes without risk, there's no advancement; however, we shouldn't risk altering one's germline without ascertaining any possible outcomes.

Although some scientists and bioethicists might argue that we should maximize the use of this advanced technology, we should take risks, and we should be comfortable with uncertainty. But, taking risks and being comfortable with uncertainty are not always the case especially when it comes to toying with the genetic material that composed a person's life. Additionally, some might think that it is sensible to improve the human race. Improving the human race might mean, to them, creating a higher chance of survivability to the population, becoming a more advanced world, making smarter babies, [isolating the human species from the animal kingdom](#), fewer diseases, but we shouldn't do so without ensuring any possible consequences. Even though we can ensure the outcomes, but in some circumstances, we still shouldn't do it for the sake of humanity. The world has its values and morals, so by not violating it, we allow science and humanity to coexist and flourish together.

To sum up, unless we're using the technology in appropriate manners to achieve reasonable goals and have ensured the possible outcomes, we should encourage the scientists to spend money and energy on different fields of study or on maximizing their understanding on these gene-editing techniques before any applications.

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