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Gene-Edited Twins Call for a Moratorium

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Opinion Piece

What better way to start off an International Summit on Human Genome Editing than to tell everyone that you had just created the world's first and only gene-edited twins. This is exactly what Chinese Scientist Jiankui He did. He, who has been on unpaid leave since February, worked with the Southern University of Science and Technology in Shenzhen, China. In a video announcement posted to [YouTube](#), He describes the general process that occurred with the conception of the gene-edited twins, who are being called "Lulu" and "Nana". In the video He also likens the gene-editing procedure to an advancement for In Vitro Fertilization or IVF, which received similar reactions from the scientific community and general populace back in 1977. He says "The media hyped panic about Louise Brown's birth as the first IVF baby. But, for forty years, regulations and morals have developed together with IVF ensuring only therapeutic applications to help more than 8 million children come into this world. Gene surgery is another IVF advancement...".

This news certainly came as a surprise to the scientific and bioethical community, as eugenics, which is the science of controlled breeding to improve certain qualities, has long had a negative connotation. Most scientists and bioethicists believe that what went down in the He lab was premature. Yet, this was also said about IVF, which has brought about 8 million people into the world since its debut. Both IVF and gene-editing are unnatural practices. IVF is used to overcome infertility in women and consists of fusing a male and female gamete in a petri dish. After they grow and mature in a controlled environment the embryo is then implanted into the uterus, and the development of the child is mirrored to a In Vivo Fertilization. He's gene editing consisted of the same procedures done with IVF, except he edited the DNA to disable the *CCR5* gene that produces a protein that allows the HIV virus to enter the cell. On paper this experiment sounds acceptable, but the fact that it was not done as a lifesaving method for the IVF twins makes the act even more condemnable by the community.

He's gene editing experiment has been associated with the uprising of producing designer babies, which are human embryos that have been genetically modified to produce children with desirable traits. This practice is considered ethically immoral by most of the general public. Shortly after He's announcement on the gene-edited twins,

Feng Zhang, a gene-editing researcher at the Broad Institute at MIT, stated “Given the current state of the technology, I’m in favor of a moratorium on implantation of edited embryos”. Many other prominent biochemists and bioethicists are also calling for regulations and safety requirements regarding gene-editing. We can be expecting more statements about, and possibly more results, on what took place in He’s lab in the coming months.

As a student with an amateur interest in bioethics, I find Jiankui He’s actions to be brave. He has reignited the conversation on gene-editing and, subsequently, on designer babies. I believe that if the technology is there, and there are no regulations or restrictions to its use, then how are we to stop such practices from occurring? By creating the gene-edited twins, he has allowed for open and immediate discussion on the development of regulations. This could mean that we may be seeing more babies born with edited genes, or that we will never again have more than two humans on Earth who were a product of not only IVF, but gene-editing. I am not and will most likely never be in favor of designer babies or editing the genes of embryos to gain desired traits, even if they are beneficial to humans. Therefore, although He’s actions are questionable, I appreciate his bringing the topic to the surface. I firmly believe that a moratorium of edited embryos will give scientists and bioethicists time to discuss what should and should not be done in the field of gene-editing and eugenics.

REFERENCES

1. <https://www.sciencenewsforstudents.org/article/scientist-reports-first-gene-editing-humans>

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