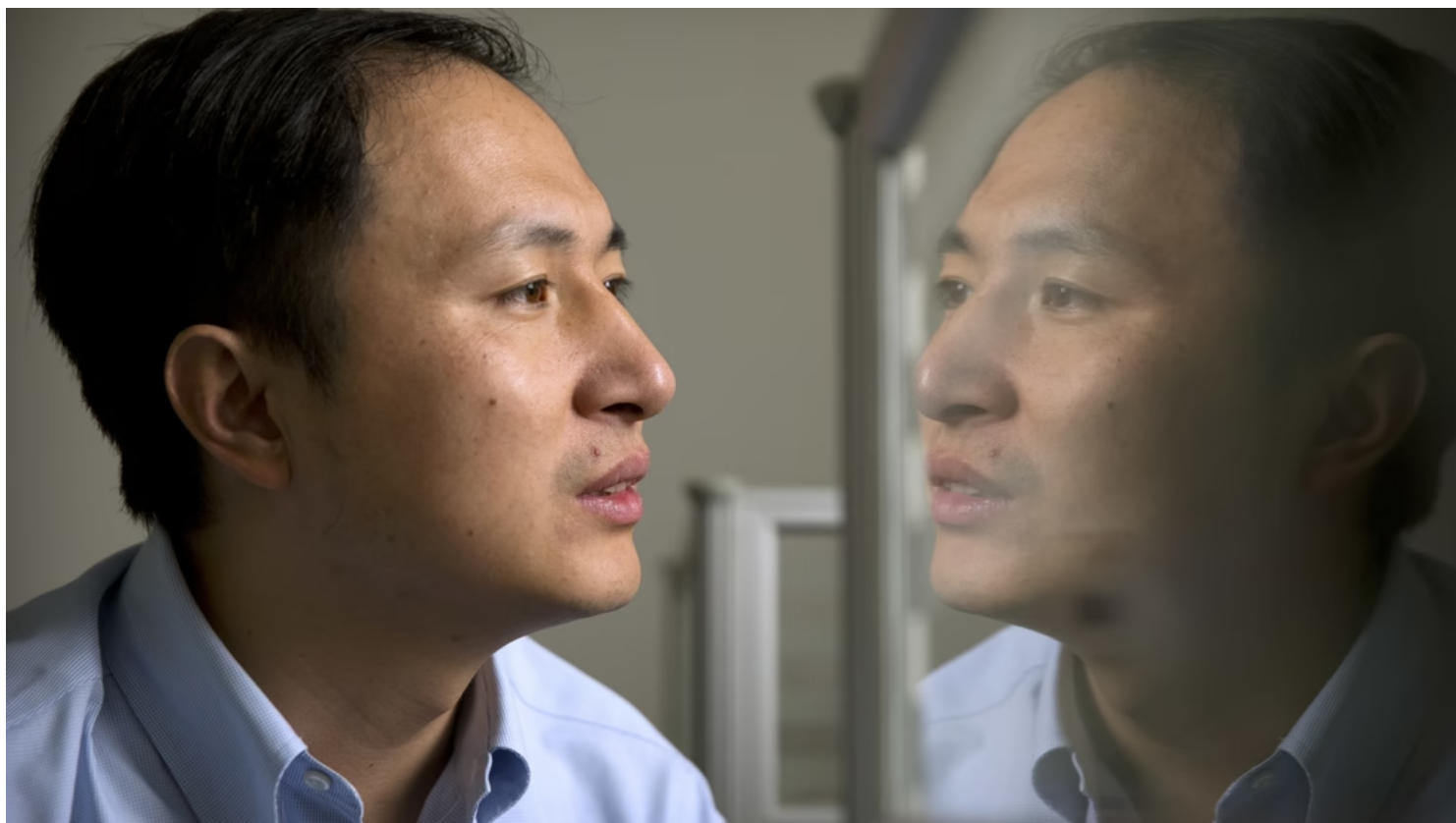


SCIENCE

# Chinese Scientists Are Outraged by Reports of Gene-Edited Babies



Researchers fear that the controversial study will be a stain on China's scientific reputation.

By Sarah Zhang



Jiankui He photographed in a laboratory in Shenzhen, China (Mark Schiefelbein / AP)

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China has spent billions turning itself into a scientific powerhouse, but it still struggles with the perception that its scientists do not take ethics seriously. In 2015, when Chinese scientists raced ahead to use CRISPR to edit genes in human embryos, an international outcry ensued. But the study's defenders argued that because it was done in embryos that were not viable and were never meant to be implanted into a womb, the research was in fact incremental and responsible. After all, no one was making CRISPR-edited embryos to be born as babies.

Until someone did.

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On Sunday, on the eve of an international summit in Hong Kong that was supposed to focus on theoretical human genome editing, a Chinese scientist named Jiankui He claimed that two gene-edited baby girls had already been born. He said he used CRISPR to knock out a gene in hopes of making the babies resistant to HIV.

The announcement was shocking in many ways: He made it via [YouTube video](#). He doesn't yet have a scientific paper to back up his claims. [He's a relative outsider](#) with little published gene-editing experience. [His own university now claims](#) it was kept in the dark about his incredibly controversial research. If you were trying to concoct a scenario that inflamed all the worst fears about Chinese science, could you do better than this?

The news, [first reported in \*MIT Technology Review\*](#), provoked shock and outrage around the world. As [my colleague Ed Yong noted](#), Western scientists and ethicists condemned the study as “monstrous,” “reckless,” and “[highly irresponsible](#).” But the backlash came from He's fellow Chinese scientists as well, many of whom saw the news not as a scientific coup but as a potential stain on China's reputation. He's own university called his actions a “serious violation of academic ethics and standards.” The Chinese Academy of Science said it planned to conduct a “thorough investigation.”

In [statements to Chinese media](#), one scientist after another criticized the study. “Irrational and unwise,” said Linqi Zhang, an AIDS researcher at Tsinghua University. “The follow-up risks that the two children face are beyond our imagination,” said Ying Liu of Peking University.

He's unusual choice of HIV prevention as the first application for gene editing in babies was a target of criticism. If deployed correctly, CRISPR has the potential to treat deadly genetic diseases that currently have no cure. Transmission of HIV is already easy to prevent without resorting to gene editing and its unknown risks. So why HIV? [In a video](#), He justified the use of CRISPR by citing the social stigma of HIV. But on the first day of the genome-editing summit, the Chinese bioethicist Renzong Qiu compared using CRISPR to prevent HIV transmission with “[to shot bird with cannon](#).” Is it really about the end result, or is it about showing off the cannon?

On the popular Chinese social-networking app WeChat, scientists also started to organize. By Monday, more than 120 of them had [signed a letter](#) condemning the study.

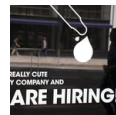
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“We can only use the word ‘crazy’ to describe the experiment conducted directly on human beings,” wrote the scientists. The original letter in Chinese has no fewer than six exclamation points. It quickly spread through the WeChat group for Chinese neuroscientists, one of the signatories, Lin Mei, told me. (Many of the signers were indeed neuroscientists. Most are in China, though a few are based at U.S. universities.) Mei, a professor at Case Western Reserve University, said he thinks that the whole episode has harmed the reputation of Chinese science. “You feel terrible about it,” he says. “People may assume there’s no regulations when there are regulations.” National guidance from 2003 prohibits transferring modified embryos into the womb in China, though it is not technically encoded in law.

After the outcry about the first gene-edited embryos in 2015, Chinese scientists made efforts to appear serious and responsible about human gene editing. The Chinese Academy of Sciences co-sponsored the first international summit on human gene editing in Washington, D.C., that December. (It was supposed to co-sponsor the second summit this week too, though STAT News reports that it mysteriously pulled out a year ago.) And Duanqing Pei, one of the organizers of the first summit, co-authored a piece with Douglas Sipp in Nature touting China as “no wild east.” “In fact,” they wrote, “China has shown care and restraint with respect to altering the genomes of human eggs, sperm or embryos, and in the use of human embryos in research more broadly.”

I asked Sipp if he still stood by that statement, in light of recent events. He said he'd been following the developments closely, including the recent reports of He working without oversight. "If this is the case, and it is the work of a single unsupervised lab," Sipp wrote in an email, "then I would not say that this incident indicates that China as a whole is being reckless." (Pei, who is also on the organizing committee for the current summit in Hong Kong, did not immediately reply to an inquiry.) A lot remains to be seen, Sipp added, such as whether the university and the government can run effective investigations and whether penalties will ultimately be imposed.

What He actually achieved is indeed unclear, but none of the scenarios look good. If He really did get approval, then it confirms suspicions about Chinese regulators' lackadaisical attitude toward ethics. If he went rogue on something so big, then it suggests that oversight institutions have little power to keep scientists in line. And if his claims ultimately turn out to be untrue, then it fits the narrative of rampant fraud and embellishment in Chinese science. The birth of the first gene-edited babies could be a major technical achievement, but it has turned into a disaster for China's scientific reputation.

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