

China's win-at-all-costs approach suggests it will follow its own dangerous path in biomedicine

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In January 2018, Chinese scientists claimed they'd made the first primate clones. Credit: [Qiang Sun and Mu-ming Poo/Chinese Academy of Sciences via AP](#)

The world was shocked by [Chinese scientist He Jiankui's recent claim](#) that he'd brought to term twin babies whose genes – inheritable by their own potential descendants – he had modified as embryos. The genetic

edit, He said, was meant to make the girls resistant to HIV infection.

Scientists within China and across the world responded to the announcement [with a mixture of incredulity and alarm](#).

But as a [historian of biology](#) who has closely followed biomedicine in China over the past few years, I was less surprised by these developments. Set within the context of China's [approach to biomedical ethics](#) and its rampant global ambitions, He's actions fit into a wider pattern of dangerous excess.

Since He did not publish any of his results in scientific journals there's no way of knowing yet whether his claims are true, [false](#) or exaggerated in some way. But what seems the most surprising outside of China is that He believed – gambled, perhaps – that his announcement would be met with congratulations and acclaim. Didn't he know that he'd be condemned? Why take such a risk?

Different history frames what's acceptable

China's relationship to biomedical ethics is [very different from that of the West](#).

In the West, after-the-fact condemnation of Nazi [medical experiments](#), the [Tuskegee syphilis experiment](#) and other patient abuses led to the rise of [Institutional Review Boards](#) that carefully regulate medical experimentation on humans. China has its own history of dubious medical research, including by [Japanese scientists during World War II](#), but it didn't result in the development of similar kinds of home-grown bioethics institutions. Although many hospitals and universities in China do now have Institutional Review Boards, they're [not nearly as established](#) – or consistent in their practices – as those in the U.S. and Europe.

This does not excuse He's actions. After all, he was trained in the U.S. and was surely aware of Western norms. But He's willingness to engage in undoubtedly risky and dangerous actions suggests that he was working in a very different ethical context.

Apart from merely an absence of compelling ethical oversight, the broader attitudes toward biomedical research in China are important in explaining He's announcement. In the West, the potential benefits of biomedicine and biotechnologies are often [weighed against potential harms](#). In Europe and the U.S., many people view genetically modified foods with caution and treat cloning and [stem cells](#) with outright distrust.

China came to biotech late in the game, [scraping into the Human Genome Project](#) in the 1990s. Even so, both the Chinese state and Chinese scientists saw the field as an area in which [China had a good chance of catching up to the West](#). As such, it gambled heavily and has [invested much in biotech](#) and biomedicine. [Having followed one of China's most prominent biotech companies](#) for years, I can attest that these fields are seen as critical to sustaining China's growing population: feeding people through agricultural technologies and keeping people healthy through new medicines and therapies.

The upshot of all this is that Chinese view biomedicine in dramatically positive terms. Advances in biomedicine can have an [almost heroic status within China](#).

He's claims about [genetic modification](#) fit this model. He has represented his use of genetic modification as a bold intervention to save the lives of twin girls and eliminate discrimination against HIV patients. He himself is (or at least was) somewhat of a heroic figure. He completed his Ph.D. at Rice University and postdoctoral training at Stanford before being sponsored by the Chinese government to return to his homeland under the "[Thousand Talents Plan](#)," which aims to recruit

top scientists back to Chinese universities. In 2018, he was [nominated for the China Youth Science and Technology Award](#). He was a rising star.

Moving fast and breaking things

In 2012, back from the U.S., He Jiankui joined [Southern University of Science and Technology](#), an institution set up in Shenzhen in 2011. This local setting is important too. Shenzhen, the city that sprang up from China's first [Special Economic Zone](#), was an experiment in China's reform and opening. Since 1980, Shenzhen has been a [zone of experimentation](#), a place of high risk and high reward. Both penniless farmers and entrepreneurs have gone there to [make their fortune](#).

This has resulted in some great successes: Shenzhen is the home of Huawei, Tencent, BGI, BYD, and hundreds of other [thriving companies](#). But such experiments have also generated problems. The capitalist excesses that have come with reform and opening up – [doctored milk](#), [fake vaccines](#) and [gutter oil](#) – are now well known. And Shenzhen is a place where such excesses – particularly [violations of intellectual property rules](#) – have been particularly rampant.

He's reckless experimentation looks like the result of such an attitude, as applied to biomedicine. It is not just scientific competition and a "[drive to succeed](#)," but arguably a wider atmosphere of success through excess. The release of a [YouTube video](#) alongside He's announcement suggests that his actions are motivated by personal aggrandizement and fame- and fortune-seeking.

Like those other scandals involving tainted products, He's genetic modification is yet another failure by the Chinese government to protect its vulnerable citizens – in this case, unborn children – from predatory individuals and companies.

From an even broader perspective, such excesses might be seen as collateral damage from global competition and rapid development. In developing "[socialism with Chinese characteristics](#)" and in its reform and opening up, China has followed its own political path, often proving [unwilling to follow international norms](#). And Shenzhen – the world's capital of tech hardware development – has found its [own models of innovation](#) that now rival Silicon Valley's. Catching up with – and surpassing – the West has motivated divergent, and sometimes ugly, actions. Take the [recent scandal involving Huawei](#), for instance.

China may decide to forge its own path in science, too, following trajectories that would not be possible in the West. For now, He [remains shunned within China](#). But if his reckless experiments do turn out to be a world first, Chinese scientists may embrace them – and him.

Science and public policy scholar [Caroline Wagner](#) has argued that He's actions will [threaten China's position in the global scientific order](#) by undermining the willingness of scientists elsewhere to collaborate with them: "A global system that works by reputation will shun those who do not play by the rules." But these rules are Western ones. And China may decide it can go its own way.

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