

Second woman carrying gene-edited baby in China: state media

January 21 2019



He Jiankui shocked the scientific community last year after announcing he had successfully altered the genes of twin girls born in November to prevent them from contracting HIV

A researcher who claimed to have created the world's first genetically-edited babies will face a Chinese police investigation, state media said

Monday, as authorities confirmed that a second woman fell pregnant during the experiment.

He Jiankui shocked the scientific community last year after announcing he had successfully altered the genes of twin girls born in November to prevent them from contracting HIV.

He had told a human genome forum in Hong Kong that there had been "another potential pregnancy" involving a second couple.

A provincial government investigation has since confirmed the existence of the second mother and that the woman was still pregnant, the official Xinhua news agency reported.

The expectant mother and the twin girls from the first pregnancy will be put under medical observation, an investigator told Xinhua.

The provincial government probe found He had "forged ethical review papers" and "deliberately evaded supervision," according to Xinhua.

He had "privately" organised a project team that included foreign staff and used "technology of uncertain safety and effectiveness" for illegal human embryo gene-editing, it said.

Investigators told Xinhua that the scientist was "pursuing personal fame" and used "self-raised funds" for the controversial experiment.

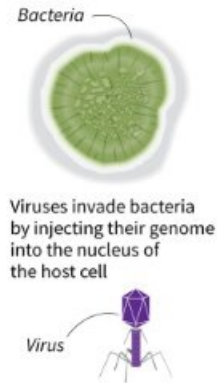
Eight volunteer couples—HIV-positive fathers and HIV-negative mothers—signed up to He's trial, investigators found, with one couple later dropping out.

Gene-editing with CRISPR/Cas9

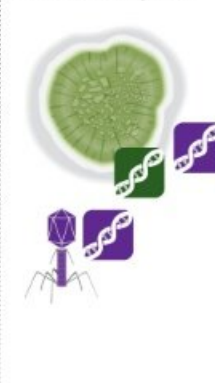
The technique which vastly cuts down the time needed for genetic experiments derives from a bacteria's natural defense against viruses

In nature

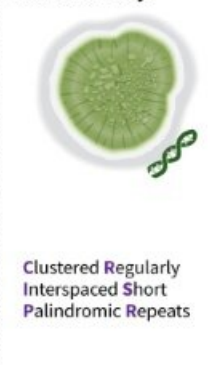
Bacteria have a natural defence against viruses



In defence bacteria can **capture snippets of DNA** from an invading virus



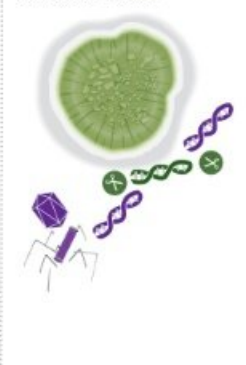
The bacteria keep the DNA snippets and arrange them in segments known as **CRISPR arrays**



CRISPR arrays allow the bacteria to **"remember"** the attacking virus

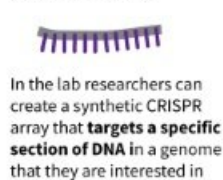


The bacteria then use an enzyme called **Cas9** to cut the invading DNA apart and **disable** the virus

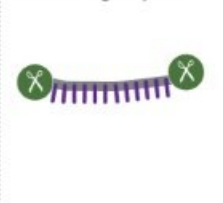


In the lab

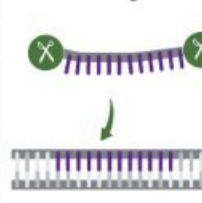
Scientists have turned this natural defence process into a customised **gene-splicing tool**



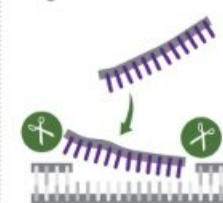
The **target-seeking CRISPR** array is then attached to **Cas9 cutting enzymes**



The modified array **seeks out and identifies** the relevant DNA segment



Having reached the target, the **Cas9 enzymes cut into** the genome



Once the cut is made researchers can add or delete genetic material, or make changes with customised sequences



Source : <https://ghr.nlm.nih.gov/primer/genomicresearch/genomeediting>

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The origins of the CRISPR genome editing technique

Immediate backlash

Details of the experiment—which has not been independently verified—triggered an immediate backlash from the global scientific community and the Chinese government ordered a halt to He's research work days after it was publicly announced.

Such gene-editing work is banned in most countries, including China.

He will be "dealt with seriously according to the law," and his case will be "handed over to public security organs for handling," Xinhua said.

Speaking at the genome summit in Hong Kong in November, He said he was "proud" of altering the genes of the babies, given the stigma affecting AIDS patients in the country.

The public outcry over his experiment also drew attention to the growing HIV epidemic in China, which has seen a drastic surge in new cases in recent years.

The scientist was educated at Stanford University in the US and recruited back to China as part of Beijing's "Thousand Talents Plan" to reverse brain drain, according to a copy of He's resume published on the website of the Southern University of Science and Technology (SUSTech) in Shenzhen.

SUSTech said in a statement Monday it had terminated the researcher's employment after earlier saying He's work had "seriously violated academic ethics".

He said the twins' DNA was modified using CRISPR, a technique which allows scientists to remove and replace a strand with pinpoint precision.

Experts worry meddling with the genome of an embryo could cause harm not only to the individual but also future generations that inherit the same changes, and say there are too many scientific and technical uncertainties to permit clinical trials.

Following the storm sparked by He's announcement, scientists have called for an international treaty on gene-editing.

Citation: Second woman carrying gene-edited baby in China: state media (2019, January 21)
retrieved 2 May 2024 from

<https://phys.org/news/2019-01-woman-gene-edited-baby-china-state.html>

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