Chinese Scientist Claims to Have Edited Embryos to Make Children HIV Resistant

A pair of twin girls have been born as a part of his efforts, greatly alarming the worldwide research community.

November 27, 2018 By Benjamin Ryan

Sparking considerable controversy, a Chinese researcher claims to have edited the genes of embryos to make children naturally resistant to HIV, the Associated Press reports. His research efforts have apparently led to the birth of twin girls, an outcome that has greatly alarmed the worldwide research community.

Genetic editing of human embryos is illegal in the United States but not in China.

The researcher, He Jiankui, of the Southern University of Science and Technology of China in Shenzhen, has not published his research in a peer-reviewed journal, so it is not possible to verify his claims at this time.

At first, He experimented with editing the genes of mice, monkeys and human embryos in the laboratory, using the CRISPR-Cas9 method to edit a gene called CCR5. A small number of people are born with a defective CCR5 gene, meaning that they lack a functioning CCR5 coreceptor on the surface of immune cells. Most copies of HIV attach to this coreceptor to begin the process of infecting a cell; those who lack the CCR5 gene become naturally resistant to the virus.

The investigator ultimately engaged in a study heterosexual couples in which only the male partner was HIV positive. He washed the men's sperm to isolate it from the semen and then placed one sperm into a single egg. Then he used the gene-editing system to disrupt one or both pairs of CCR5 genes in these embryos.

Sixteen of 22 embryos received such editing; 11 of these were used for six attempts to implant them into the uterus. Thus far, a pair of twins have been born out of these efforts, He says.

According to He, one of the twins had both CCR5 genes altered while the other twin had just one pair altered. The researcher says this did not lead to harms to other genes, a claim the other scientists have disputed as impossible to confirm based on the tests conducted thus far.

Such skeptics also point to evidence that He's gene editing was incomplete in these twins, meaning that at least one of them was born with uneven changes across cells.

According to the AP, the Southern University of Science and Technology has stated that He's research has "seriously violated academic ethics and standards," and has planned an investigation of his efforts.

To read the AP article, click here.

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