

## Scientists create a new type of stem cell with only half a human's usual 46 chromosomes

By [Ariana Eunjung Cha](#) March 16

Schoolchildren learn in Biology 101 that most human cells have two sets of 23 chromosomes — one from the mother and another from the father. The only exceptions are reproductive cells from sperm and eggs, which each have one set.

That arrangement is the basis for how human inheritance works, but it poses serious limitations for medical research. Because there are two copies of each gene it makes it challenging for scientists to find defective and edit mutations that may be leading to disease. In an effort to solve this problem, a team of scientists from Israel and the United States have created a new type of cell that doesn't exist in nature — human stem cells with only half of our naturally occurring chromosomes.

In a paper published in the journal [Nature](#) on Wednesday, they report that these are the first human cells that are capable of cell division with just one copy of a genome of a parent.

Scientists have previously created so-called haploid embryonic stem cells for mice.

This breakthrough has huge implications for progress in everything from gene editing to reproductive and regenerative medicine. The researchers from the Hebrew University of Jerusalem, Columbia University Medical Center and the New York Stem Cell Foundation Research Institute explained the implications of their work in this nifty video:

Researchers Nissim Benvenisty, a professor at the Hebrew University of Jerusalem and principal co-author of the study, and Ido Sagi, a PhD student, said in a statement that their work also provides a novel way to study human development and may help solve mysteries like why we reproduce sexually, while some other creatures can create offspring by themselves.

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Ariana Eunjung Cha is a national reporter. She has previously served as the Post's bureau chief in Shanghai and San Francisco, and as a correspondent in Baghdad.

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