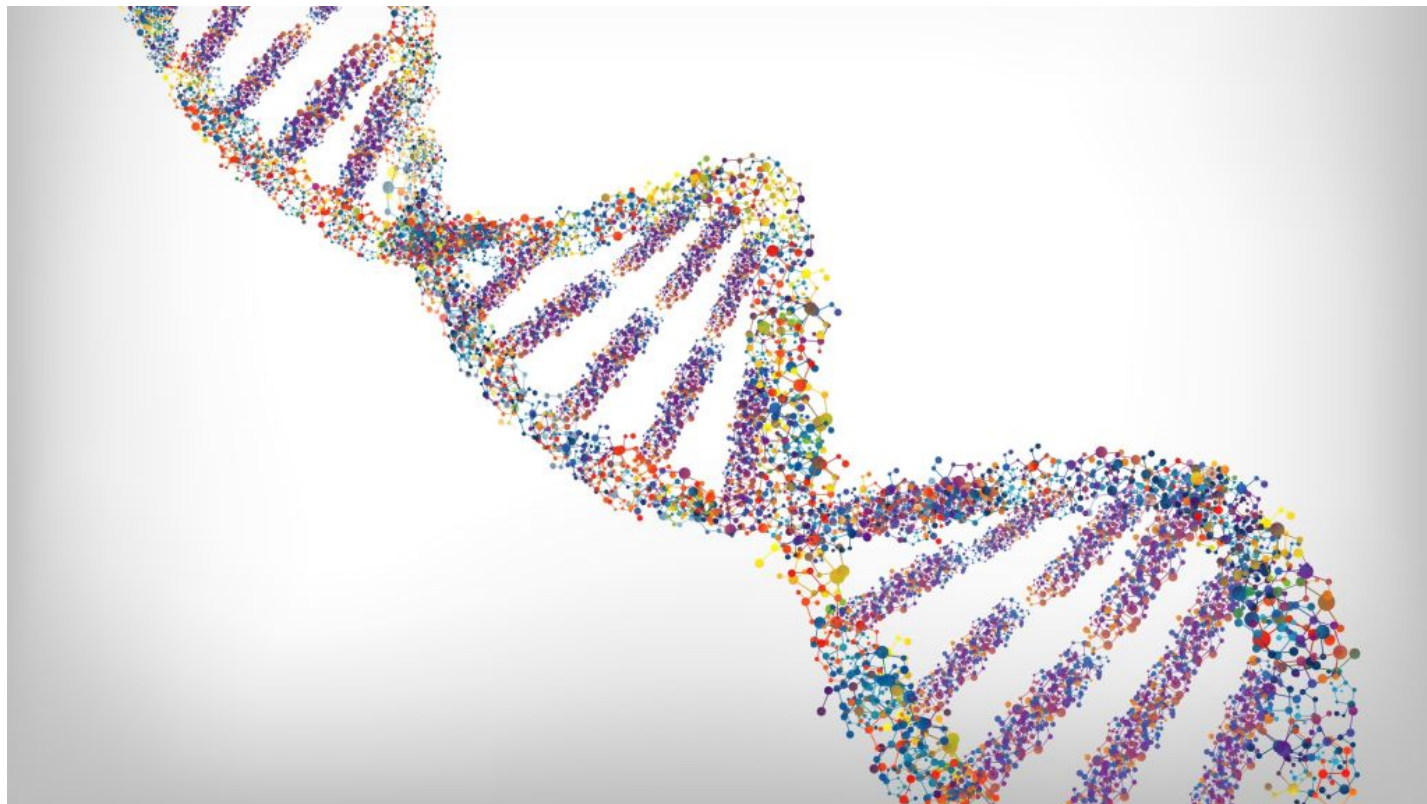


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Scientists have created stem cells that have just half of a genome but can still divide and differentiate.

By [Megan Thielking @meggophone](#)

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Scientists have created stem cells that have just half of a genome but can still divide and differentiate — a pretty impressive feat. There are only two types of so-called haploid human cells, or those that have just 23 chromosomes: sperm and egg cells. And they can't divide. But haploid stem cells could make testing drugs a lot easier. Here's what researcher Ido Sagi of Hebrew University said about the work, published in [Nature](#).

How did you create these stem cells?

We generated haploid human embryonic stem cells by taking haploid human eggs and triggering them to divide into embryonic cells without fertilization. These embryonic cells included cells that remained haploid, just like the egg cell itself. And after detecting these cells in embryonic stem cell cultures, we could also isolate the haploid cells by labeling their DNA.

How could those stem cells be used?

As pluripotent cells, these haploid stem cells could be differentiated into many cell types of the body, including nerve cells, heart muscle cells, and gut cells. ... The most important application of haploid human stem cells has to do with genetic screens. In diploid cells, mutating just one copy of a gene usually does not produce a biological effect because there is always a second copy that serves a "backup." Learning about the genetic basis of how drugs work in treating certain diseases requires a haploid genome with only one copy of each gene — where every mutation would have an effect that we will be able to learn something from.

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