

# Genome editing in human cells

March 29 2017

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New techniques in molecular biology that enable targeted interventions in the genome are opening up promising new possibilities for research and application. The ethical and legal ramifications of these methods, known as "genome editing" and "genome surgery," need to be discussed throughout society, particularly with regard to research on human cells. The German Embryo Protection Act prohibits research on human embryos in Germany. However, the act, last amended in 2011, does not cover all issues raised by these new methods in genome surgery. To foster discussion on these issues in Germany, an interdisciplinary group of experts from the German National Academy of Sciences Leopoldina has written a Discussion Paper titled "Ethical and legal assessment of genome editing in research on human cells," which is published today.

The authors have published the Discussion Paper to highlight the urgent need for broad public debate on [genome editing](#) in medical research. The paper is intended to stimulate this debate, which is already being extensively conducted on an international level. In the opinion of the authors, the use of genome editing in research on human embryonic development is useful because there are significant differences in the embryogenesis of humans and animals. The authors also advocate relevant basic research to enable evidence-based assessment of the benefits and risks associated with germline therapies and germline effects.

The scientists nonetheless narrowly limit the scope of implementation of such research projects. They propose that only embryos from reproduction medicine that are no longer going to be used and therefore

do not have a realistic chance of life should be made available for research. The paper rejects efforts to use genome editing for enhancement as this involves incalculable risks and raises fundamental ethical and social questions.

The Leopoldina has already addressed the topic of genome surgery in several publications and events over the last few years. Together with acatech and the German Research Foundation (DFG), the German National Academy of Sciences Leopoldina published a statement on "The opportunities and limits of genome editing" in 2015. A Leopoldina statement on the topic of molecular plant breeding was published the same year. In September this year, the Annual Assembly of the Leopoldina will be intensively addressing the topic of [genome](#) editing.

**More information:** "Ethical and legal assessment of genome editing in research on human cells." [www.leopoldina.org/en/genomchirurgie](http://www.leopoldina.org/en/genomchirurgie)

Provided by Leopoldina

Citation: Genome editing in human cells (2017, March 29) retrieved 18 April 2024 from <https://phys.org/news/2017-03-genome-human-cells.html>

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