

# THIS WEEK

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## Act now on CRISPR babies

*Another researcher has announced a controversial proposal to produce germline gene-edited babies. The scientific community must intervene.*

A researcher steps forward and says he has plans to edit the genes of babies. He wants to alter a gene called *CCR5* to protect children from HIV. He seems to have the skills, tools and position to do so — and he starts to tell other scientists about his plans.

When Chinese scientist He Jiankui did this, the story went famously wrong. Jiankui pushed ahead with his work quietly, and last November announced the birth of the world's first gene-edited babies. He was quickly and universally condemned for acting recklessly and ignoring risks. Meanwhile, scientists whom He had told about the work beforehand were criticized for not raising the alarm.

Now this scenario is playing out again. *Nature* this week reports that molecular biologist Denis Rebrikov at the Pirogov Russian National Research Medical University in Moscow says that he plans to create babies with an edit of the same gene (see page 145). The proposals are controversial, and already scientists are raising doubts about the credibility of Rebrikov's claims and his understanding of the risks. But whether or not his plans go forwards, the proposal shows that He was not a lone rogue and that other scientists will move swiftly to pursue human germline gene editing in the clinic — making changes to DNA in sperm, eggs or embryos that will be inherited by future generations. That steps up pressure on the scientific community to intervene.

He's announcement triggered a worldwide debate. Some scientists and stakeholders have called for a global moratorium on human germline editing to make genetically modified children, until agreement can be reached on whether safe, acceptable uses exist. Others, including an advisory committee to the World Health Organization (WHO), and this journal, have called for proposals for experiments involving gene editing of embryos or gametes to be deposited in an open global registry. An international commission involving many national academies is examining the issues. The one thing that almost everyone agrees on is that, right now, it is irresponsible to pursue further human germline editing to make babies.

So where does this leave Rebrikov, who wants to start down that road? He has at least been willing to discuss his plans ahead of transferring any edited embryos into women.

Rebrikov acknowledges that there are only rare situations in which the benefits offered by gene editing of human embryos for reproduction clearly outweigh the risks. One of them, he argues, is the group of patients he wants to target: women who are infected with HIV but do not respond well to anti-HIV drugs and thus stand a considerable chance of passing the virus on to their children. But other scientists have been highly critical of Rebrikov's plans and say the risks are too high to proceed. Having two disabled copies of the *CCR5* gene comes with a range of health risks; a study published this month suggesting it is linked to a shortened lifespan (X. Wei and R. Nielsen *Nature Med.* **25**, 909–910; 2019) has triggered much discussion.

The scientific community now has an opportunity to do what they couldn't with He — work with Rebrikov to identify and discuss the risks. That's better done by engaging with him than by branding him

a maverick. And Rebrikov must not move forward until the dangers are assessed.

Time is of the essence. The committee advising the WHO is not likely to issue its final recommendations on an international framework to govern the use of human-gene-editing technologies before 2020. Rebrikov says he might start his experiments this year. Plenty has been said about the need for debate, consensus and regulation on human germline gene editing, but that process has to keep up with the speed at which researchers can actually do the work. ■

## Finding consensus

*Eliciting the expertise of diverse specialists can reconcile conflicting views and evidence.*

Will the risk of armed conflict increase in a warmer world? This question is one of the most controversial in the study of interactions between the climate system and human society, and the answer is critical for estimating the economic and humanitarian toll of climate change.

This week, *Nature* publishes the results of an expert elicitation that addresses this issue (K. J. Mach *et al.* *Nature* <https://doi.org/10.1038/s41586-019-1300-6>; 2019). Expert elicitation has emerged as a method for gathering the collective expertise of diverse specialists to generate a synthesis of the evidence and the specialists' often conflicting views. The goal is not to generate definitive answers, but to quantify uncertainty and highlight areas of overlap.

In this case, 11 experts from various backgrounds, including economics, political science, geography and environmental science, came together for 3 days of interviews by elicitation leaders and for group discussions until a consensus was reached.

The conclusion: climate has already increased the risk of armed conflict, but the effect is small relative to the effects of other factors such as unexpected economic events and scarcity of natural resources such as food. The group estimates that future climate change might heighten conflict risk beyond historical patterns.

The outcome might not be surprising — but the deeper importance of the work lies in the approach, and in the recognition that common ground, however modest, can emerge from diverse and opposing lines of evidence.

Many of the most pressing questions that society faces are just as thorny and multidisciplinary. Expert elicitation offers one way to make sense of this complexity. It is already gaining ground in environmental risk assessment and public health. Other fields would do well to consider whether their hardest problems might be tackled in this way. ■