Moonshot genomics: How CRISPR is opening the door to reshaping life itself

It’s a moonshot idea. If the genome is a book, gene editing is like copy editing—changing a typo here and there, or fixing multiple grammatical errors with carefully-placed tweaks.

Chromosome-level engineering is a completely different beast: it’s like rearranging multiple paragraphs or shifting complete sections of an article and simultaneously hoping the changes add capabilities that can be passed onto the next generation.

[A] new study, published in *Science*, made the technology possible for mice.

The team artificially fused together chunks from mice chromosomes. One fused pair made from chromosomes four and five was able to support embryos that developed into healthy—if somewhat strangely behaved—mice. Remarkably, even with this tectonic shift to their normal genetics, the mice could reproduce and pass on their engineered genetic quirks to a second generation of offspring.

In a way, the technique mimics evolution at break-neck speed. Based on existing data on mutation rates, the type of genetic swap introduced here would generally take millions of years to achieve naturally.

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