Faulty genes in embryos corrected for first time

By **Henry Bodkin**

THE FIRST successful attempt to remove inherited disease by genetically modifying human embryos has reportedly taken place in the US.

Researchers at Oregon Health and Science University (OHSU) are understood to have altered the genetic composition of large numbers of single-cell embryos using an editing technique that replaces faulty genes.

Previous Chinese attempts using CRISPR gene editing have been only partially successful and led to accusations of "wild west" eugenics.

If confirmed in a forthcoming peer-reviewed journal, the research would constitute the first attempt at American gene-editing, a field which has so far been held back by fears of "designer babies".

Shoukhrat Mitalipov, head of the OHSU centre for embryonic cell and gene therapy, who led the study, declined to confirm the results ahead of publication. However, scientists on his team told *MIT Technology Review* they showed it was possible to correct defective genes causing inherited disease.

The embryos were allowed to develop for only a few days before being destroyed and there was never an intention to implant them into a womb.

The reported experiment may nevertheless mark a milestone towards genetically modified humans. In the last two years, scientific opinion in the US has grown more sympathetic to germline editing, where a genetically modified child can pass on changes to future generations.

In 2015, the National Academy of Scientists (NAS) declared it "irresponsible" to use gene editing technology in human embryos until safety issues were resolved. But earlier this year, NAS and the National Academy of Medicine said scientific advances had made the procedure a "realistic possibility that deserves serious consideration".

In the UK, the Francis Crick Institute has been granted permission to genetically modify human embryos, but for the purposes of investigating the deaths of babies in the womb rather than editing out inherited disease.

In the Chinese studies, the desired DNA changes were not taken up by the whole embryo, an effect called mosaicism. A scientist familiar with the Oregon research said it was "proof of principle that it can work".

he said: "I don't think it's the start of clinical trials yet, but it does take it further than anyone has before."

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