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1. Chinese scientist defends 'world's first gene-edited babies'

- What did the scientist claim about recent gene edited babies?
- Why is it this controversial?
- What is CRISPR-Cas9 technology?
- What are the ethical issues associated with the Gene editing among the babies?

GS paper 3 (Science and technology, Biotechnology)

In this video, you can find detailed answers for all the above questions.

The above article has been retrieved from:

Express News Service. (2018, November , 28). InSight on Mars: where, how and why. Indian Express. Retrieved from <https://indianexpress.com/article/explained/nasa-spacecraft-insight-on-mars-where-how-and-why-5466020/>

What is the context about?

- A Chinese scientist who claims to have created the world's first genetically edited babies has defended his work.
- Speaking at a genome summit in Hong Kong, He Jiankui said he was "proud" of altering the genes of twin girls so they cannot contract HIV.

- ❑ Many scientists have condemned his announcement, with one labelling it monstrous. Such gene-editing work is banned in most countries.



What did the scientist claim about recent gene edited babies?

- ❑ Prof He announced earlier this week that, he had altered the DNA of embryos - twin girls - to prevent them from contracting HIV.
- ❑ He revealed that the twin girls - known as "Lulu" and "Nana" - were "born normal and healthy", adding that there were plans to monitor the twins over the next 18 years.
- ❑ He explained that eight couples - comprised of HIV-positive fathers and HIV-negative mothers - had signed up voluntarily for the experiment; one couple later dropped out.

Why is it this controversial?

- ❑ The Crispr gene editing tool he claims to have used is not new to the scientific world, and was first discovered in 2012.
- ❑ It works by using "molecular scissors" to alter a very specific strand of DNA - either cutting it out, replacing it or tweaking it.
- ❑ Gene editing could potentially help avoid heritable diseases by deleting or changing troublesome coding in embryos. But experts worry meddling with the genome of an embryo could cause harm not only to the individual but also future generations that inherit these same changes.

What is CRISPR-Cas9 technology?

- ❑ CRISPR-Cas9 technology behaves like a cut-and-paste mechanism on DNA strands that contain genetic information.
- ❑ The specific location of the genetic codes that need to be changed, or "edited", is identified on the DNA strand, and then, using the Cas9 protein, which acts like a pair of scissors, that location is cut off from the strand.
- ❑ A DNA strand, when broken, has a natural tendency to repair itself. Scientists intervene during this auto-repair process, supplying the desired sequence of genetic codes that binds itself with the broken DNA strand.

What are the ethical issues associated with the Gene editing among the babies?

- ❑ If true, this experiment is monstrous. Gene editing itself is experimental and is still associated with off-target mutations, capable of causing genetic problems early and later in life, including the development of cancer.
- ❑ This experiment exposes healthy normal children to risks of gene editing for no real necessary benefit.
- ❑ The technology is extremely precise, but not 100% precise every time. There is a possibility that some other genes also get targeted. In such scenarios, unintended impacts cannot be ruled out.