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HEALTH

China baby gene editing claim 'dubious' Significant doubts have emerged about claims from a Chinese scientist that he has helped make the world's first genetically edited babies.



Prof He Jiankui says the twin girls, born a few weeks ago, had their DNA altered as embryos to prevent them from contracting HIV. His claims, filmed by Associated Press, are unverified and have sparked outrage from other scientists, who have called the idea monstrous. Such work is banned in most countries. **Future**

generations 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. And many countries, including the UK, have laws that prevent the use of genome editing in embryos for assisted reproduction in humans. Scientists can do gene editing research on discarded IVF embryos, as long as they are destroyed immediately afterwards and not used to make a baby. **'Designer babies'** But Prof He, who was educated at Stanford in the US and works from a lab in the southern Chinese city of Shenzhen, says he used gene-editing tools to make two twin baby girls, known as "Lulu" and "Nana". In a video, he claims to have eliminated a gene called CCR5 to make the girls resistant to HIV should they ever come into contact with the virus. He says his work is about creating children who would not suffer from diseases, rather than making designer babies with bespoke eye colour or a high IQ. "I understand my work will be controversial - but I believe families need this technology and I'm willing to take the criticism for them," he says in the video. **'Highly treatable'** However, several organisations, including a hospital, linked to the claim have denied any involvement. The Southern University of Science and Technology in Shenzhen said it had been unaware of the research project and will now launch an investigation. And other scientists say if the reports are true, Prof He has gone too far, experimenting on healthy embryos without justification. Prof Robert Winston, Emeritus Professor of Fertility Studies and Professor of Science and Society at Imperial College London, said: "If this is a false report, it is scientific misconduct and deeply irresponsible. "If true, it is still scientific misconduct." Dr Dusko Ilic, an expert in stem cell science at King's College London, said: "If this can be called ethical, then their perception of ethics is very different to the rest of the world's." He argues that HIV is highly treatable and that if the infection is kept under control with drugs, then there is almost no risk of the parents passing it on to the baby anyway. **Too risky** Prof Julian Savulescu, an expert in ethics at the University of Oxford, said: "If true, this experiment is monstrous. The embryos were healthy - no known diseases. "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." Scientists say baby gene editing may one day be justifiable, but that more checks and measures are needed before allowing it. Dr Yalda Jamshidi, an expert in human genetics at St George's, University of London, said: "We know very little about the long term effects, and most people would agree that experimentation on humans for an avoidable condition just to improve our knowledge is morally and ethically unacceptable. "Whether the results stand up to scrutiny or not we need as a society to think hard and fast about when and where we are willing to take the risks that come with any new therapeutic treatment, particularly ones that could affect future generations." *BBC*

From the "TRIVIA BOOK"

Although identified with Scotland, bagpipes were actually introduced into the British Isles by the Romans.

HEALTH

Sugary supplement mannose could help fight cancer A nutritional supplement may be able to slow the development of some cancers and enhance the effects of treatment, a study in mice suggests.



Mice with pancreatic, lung or skin cancer were given mannose, a sugar also found in cranberries and other fruits. It significantly slowed the growth of their tumours, with no obvious side-effects, researchers found. However, patients are being told not to start supplementing with mannose because of the risk of side-effects. Scientists hope to test the supplement in people soon. Mannose, which can be bought in health food shops and is sometimes used to treat urinary tract infections, is thought to interfere with the ability of tumours to use glucose to grow. 'Perfect balance' Scientists also looked at how mannose might affect cancer treatment by giving it to mice that had been treated with two of the most widely used chemotherapy drugs, cisplatin and doxorubicin. They found it enhanced the effects of chemotherapy, slowing the growth of tumours and reducing their size. It also increased the lifespan of some mice. In further tests, cells from other types of cancer, including leukaemia, osteosarcoma (bone cancer), ovarian and bowel cancer were exposed to mannose in the laboratory. Some cells responded well, while others did not. How well the cells responded appeared to depend on the levels they had of an enzyme that breaks down mannose. Lead author Prof Kevin Ryan, from the Cancer Research UK Beatson Institute, said his team had found a dosage of mannose that "could block enough glucose to slow tumour growth in mice but not so much that normal tissues were affected". Bodies require glucose for energy but cancerous tumours also use it to fuel their growth. "This is early research but it is hoped that finding this perfect balance means that, in the future, mannose could be given to cancer patients to enhance chemotherapy without damaging their overall health," he said. Supplement warning One advantage of mannose is that it is cheaper than drugs produced by pharmaceutical companies. And Prof Ryan said he hoped tests in people could begin soon. However, he and other experts warn that the findings do not mean people with cancer should start supplementing with mannose. Martin Ledwick, Cancer Research UK's head nurse, said: "Although these results are very promising for the future of some cancer treatments, this is very early research and has not yet been tested in humans. "Patients should not self-prescribe mannose, as there is a real risk of negative side-effects that haven't been tested for yet. "It's important to consult with a doctor before drastically changing your diet or taking new supplements." Prof Ryan said his team would next seek to investigate why mannose worked in some cancer cells and not others, so they could work out which patients might benefit the most. *BBC*

From the "TRIVIA BOOK"

A bride stands to the groom's left at a wedding so that his sword hand would be free. Apparently Anglo-Saxon brides were often kidnapped before a wedding and brawls were common. That's also why the best man stands with the groom; the tribe's warrior was there to help the groom defend the bride.

From the "TRIVIA BOOK"

In the Middle Ages, young men and women drew names from a bowl to see who their valentines would be. They would wear these names on their sleeves for one week. To wear your heart on your sleeve now means that it is easy for other people to know how you are feeling.