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# UK embryo licence draws global attention

Scientists in Britain have been granted permission to perform controversial experiments that will create human embryos using genetic material from three people. Teams carrying out similar research in the United States and China have been forced to shut down their experiments, and say that they hope the UK decision will help push the work forward around the world.

The UK Human Fertilisation and Embryology Authority (HFEA) said on 8 September that it will allow scientists at the University of Newcastle upon Tyne to transfer the nucleus of a fertilized egg into an egg donated by a second woman. The second egg's own nucleus will be removed before the transfer occurs, but it will still contain genetic material in certain structures outside the nucleus. These structures, called mitochondria, generate energy and carry their own genes. So the Newcastle scientists will be creating embryos that contain genes from three people: the biological mother, the biological father and an unrelated egg donor. That makes the experiments highly controversial.

The embryos that will be created in Newcastle will not be transferred into women. But advocates of the technique say that if the experiments work, they could eventually prevent mothers from passing on diseases caused by mitochondrial defects to their children.

Similar experiments were being done in the United States by James Grifo, a reproductive endocrinologist at New York University Medical Center. But in the late 1990s the US Food and Drug Administration (FDA) halted Grifo's experiments after he had created only a few embryos, because it was worried that the health of the fetuses could not be guaranteed. Grifo's postdoctoral fellow, John Zhang, con-

tinued the experiments in China, where altered embryos were transferred into two patients before an international outcry shut those experiments down too. Grifo, who has since been pleading with the FDA to allow him to restart the experiments, told *Nature* that he is encouraged by the HFEA's decision.

"I'm glad that at least one country in the world is pioneering and smart enough to do this, and hopefully it will help patients with mitochondrial diseases," Grifo says.

He predicts that the British move will eventually spur action elsewhere, including in the United States. "Once there's some

semblance of success over there, they'll say 'OK, now we can do it.' Traditionally, that's how things go."

More than 30 children have already been born thanks to a related technique that is used to boost fertility. The method does not involve nuclear transfer — instead, scientists transfer some of the cytoplasm that surrounds a cell's nucleus from a donor egg to the fertilized egg. But that method has also been halted in the United States, leaving the Newcastle researchers at the head of the field, for the moment at least. ■

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**Egged on:**  
researchers in Newcastle will be allowed to create an embryo that contains genes from three people.

use on children. And there are sticky ethical issues, such as deciding who gives informed consent when parents are divorced, or what happens when the parents say one thing and the child another.

But the main obstacle, says Sharon Conroy, a paediatric pharmacologist at the University of Nottingham, UK, is the time and money it takes to do the extra tests. Especially as children are relatively healthy, so pharmaceutical companies do not stand to gain much from investing in research on drugs for them.

As an incentive to companies, the

European Parliament and the Council of Ministers are supporting a six-month extension on existing patents, similar to measures offered by the US Food and Drug Administration since 1998.

The European Generic Medicines Association supports the directive in principle, but says the extension may delay the provision of affordable medications for those in financial need.

Mark Schreiner, chairman of the Committees for the Protection of Human Subjects at the Children's Hospital of Philadelphia, points out that the equivalent

regulation in the United States has been of tremendous benefit to research. "We've learned how different children are from adults," he says. For example, Viagra is good for treating lung conditions in children. "We never would have discovered this if drug companies had not been required to carry out rigorous tests with kids," he says.

The parliament's vote is a major step towards enforcing the regulation legally. The proposal was first put forward last September and is expected to become law when the parliament next meets, in 2006. ■  
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