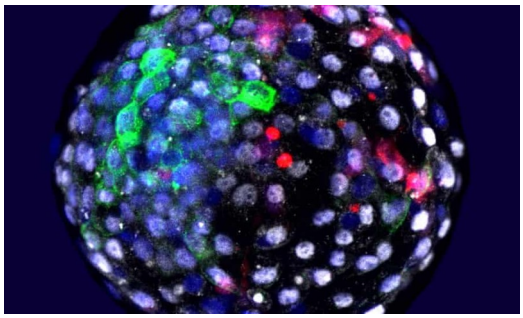
Human cells grown in monkey embryos reignite ethics debate

By Nicola Davis Thu 15 Apr 2021 16.30 BST



A photo issued by the Salk Institute shows human cells grown in an early stage monkey embryo.
Photograph: Weizhi Ji/Kunming University of Science and Technology/PA

Monkey embryos containing human cells have been produced in a laboratory, a study has confirmed, spurring fresh debate into the ethics of such experiments.

The embryos are known as chimeras, organisms whose cells come from two or more "individuals", and in this case, different species: a long-tailed macaque and a human.

In recent years researchers have produced pig embryos and sheep embryos that contain human cells – research they say is important as it could one day allow them to grow human organs inside other animals, increasing the number of organs available for transplant.

Now scientists have confirmed they have produced macaque embryos that contain human cells, revealing the cells could survive and even multiply. (…)

The embryos were allowed to develop in petri dishes and were terminated 19 days after the stem cells were injected. In order to check whether the embryos contained human cells, the team engineered the human stem cells to produce a fluorescent protein. (…)

"We demonstrated that the human stem cells survived and generated additional cells, as would happen normally as primate embryos develop and form the layers of cells that eventually lead to all of an animal's organs," Belmonte said. (…)

Dr Jun Wu, a co-author of the research, said they hoped the research would help develop "transplantable human tissues and organs in pigs to help overcome the shortages of donor organs worldwide".

While not the first attempt at making human-monkey chimeras, the new study has reignited concerns. Prof Julian Savulescu, from the University of Oxford, said the research had opened a Pandora's box to human-nonhuman chimeras.

"These embryos were destroyed at 20 days of development but it is only a matter of time before human-nonhuman chimeras are successfully developed, perhaps as a source of organs for humans," he said, adding that a key ethical question is over the moral status of such creatures.

"Before any experiments are performed on live-born chimeras, or their organs extracted, it is essential that their mental capacities and lives are properly assessed. What looks like a nonhuman animal may mentally be close to a human," he said. "We will need new ways to understand animals, their mental lives and relationships before they are used for human benefit."

Adapted from https://www.theguardian.com/science/2021/apr/15/human-cells-grown-monkey-embryos-reignite-ethics-debate