

US may fund research to create mixed human-animal embryos

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Research that mixes human cells into animal embryos could get US government funds for the first time under a new proposal that has stoked concerns about ethics and the limits of science.

Some say the research has the potential to spark major medical breakthroughs in diseases like Alzheimer's and Parkinson's or conditions like infertility, and could help grow organs for [human](#) transplant, which are in short supply.

Critics, however, worry that these mixtures, or chimeras—named after the monster in Greek mythology with a lion's head, goat's body and dragon's tail—raise complex moral questions and go beyond what is acceptable in modern society.

One year ago, the US National Institutes of Health placed a moratorium on research proposing to introduce human [pluripotent stem cells](#) into animal embryos, deeming it too controversial.

Since then, experts have met to discuss the state of the science.

Now, the NIH is offering to fund research introducing [human cells](#) into certain kinds of animals.

That could include experiments "where there could be either a substantial contribution or a substantial functional modification to the animal brain by the human cells," said a statement on Thursday.

The NIH will seek public comment for 30 days on the proposed scope of the research.

Oversight on funding decisions will be provided by an internal NIH steering committee, it said.

"I am confident that these proposed changes will enable the NIH research community to move this promising area of science forward in a responsible manner," wrote Carrie Wolinetz, NIH associate director for science policy, in a blog post.

Brain modifications

The prospect of altering an animal's brain to make it more human alarms some experts.

"Let's say that we have pigs with [human brains](#) and they are wondering why we are doing experiments on them," said Stuart Newman, a researcher at New York Medical College.

"And then, what if we had human bodies with animal brains, and then you say, 'Well they are not really humans, we can do experiments on them and harvest organs from them,'" he told AFP.

"I am coming up with extreme scenarios, but just making these chimeric embryos 15 or 20 years ago was considered an extreme scenario."

Indeed, Newman filed for a patent on a human-animal chimera almost two decades ago—not because he wanted to make such a creature, but to make the point that such dangers lay ahead.

The US Patent Office rejected his application in 2005, which Newman saw as a victory of sorts.

But now, he fears his warnings are going unheeded.

"People get used to things gradually," he said.

Even though the NIH is starting small, and probably doesn't intend to allow animals with full human brains, "we don't have any laws in this country that would stop doing those things," he said.

"I think it is just a road that we should not go down."

Potential benefits

For some, the notion of brain experiments offers both the greatest promise and the most serious danger.

"If we want to do research on schizophrenia and Alzheimer's and depression, we can't readily do research on brain cells of humans with these diseases because we can't open up the brains of people while they are alive," said Robert Klitzman, director of Columbia University's Master's of bioethics program.

Klitzman said he views the NIH move as a "great step in the right direction" with "tremendous potential to help millions of people with various diseases."

Still, he urged the NIH to include ethicists on its funding oversight committee.

"We need to be careful with human brain cells," he said.

"What we don't want is a mouse or a chimp that suddenly has human-like qualities, because morally that creates a number of problems."

What rights would the creature have? How should it be treated? What if it escaped the lab and bred with wild animals?

"This is the stuff of science fiction," he said.

Far more tame research mixing human and animal cells has been going on for decades. Scientists regularly implant human tumors in mice, and heart valves from pigs and cows are commonly used in human heart patients.

"This area of research has been done in the United States for many, many years and certainly around the world it is commonplace," said Samuel Packer, chief of medical ethics at Northwell Health in New York.

Still, the notion of altering Earth's creatures may upset those who are religious, as well as those who support animal rights. Politics, too, may play a role in what gets funded and what does not.

The administration of President George W. Bush restricted federal funding for research using stem cells derived from human embryos. Bush believed the work devalued human life.

The NIH said its latest proposal is in line with the guidelines of the International Society for Stem Cell Research.

"There is a lot of infrastructure to this," said Packer.

"It is not as if, 'Oh my God, all of a sudden we are doing something that is crazy.'"

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