



# Saviour pigs: Growing human organs in pigs

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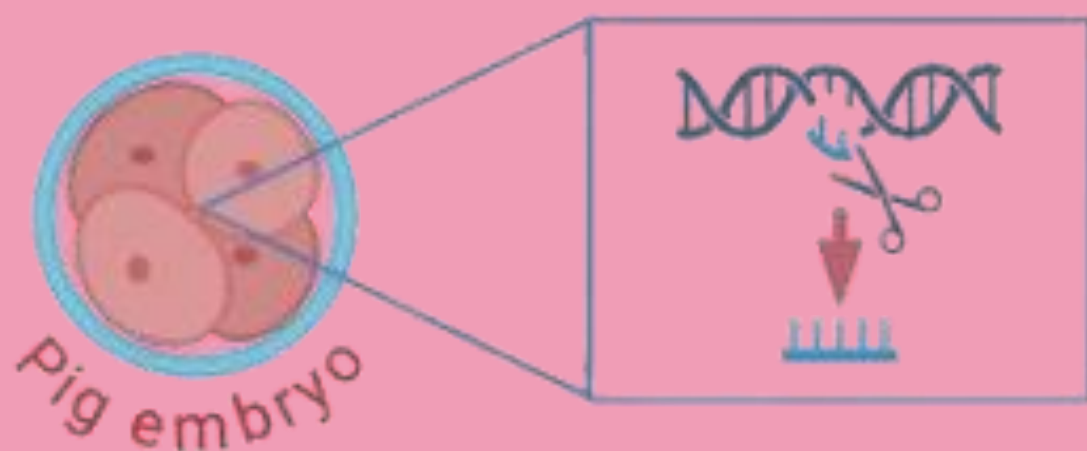


## A new solution?

There is a shortage of human organs, and many patients die waiting for transplants. In an effort to find a solution to this problem, there have been research into alternative ways to create new organs. In 2023, scientists successfully grew an early-stage human kidney in a pig embryo, terminated after 28 days. This promising breakthrough raises ethical questions about animal welfare and combining human-animal tissues, challenging us to balance innovation and ethics.



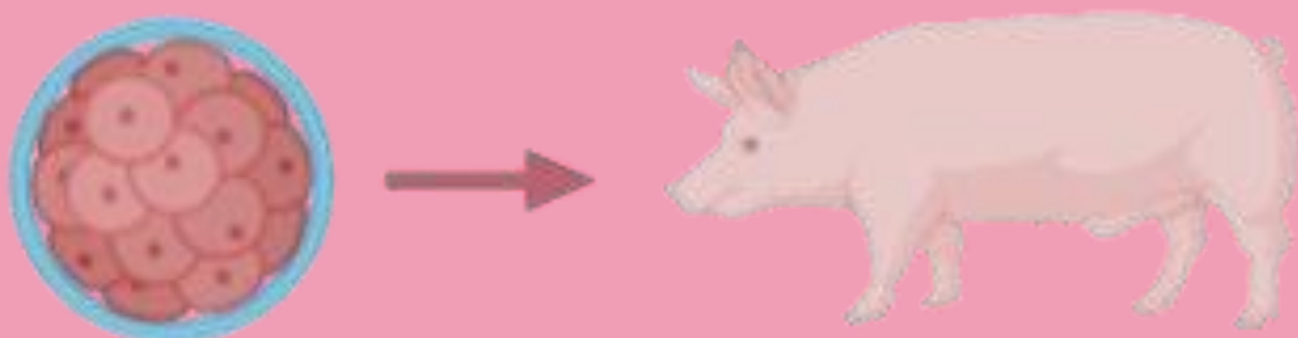
## Method



1. Pig embryo (day 1) is edited with CRISPR to remove part of DNA encoding an organ.



2. Human pluripotent stem cells are injected into the pig embryo, they will replace the lost DNA.



3. The embryo is implated into surregate pig and developes, hopefully resulting in a pig fetus with a human organ.

Figure 1: Method for interspecies organogenesis with human stem cells and pig embryo.

## Ethical dilemmas

Human cells have been found in the brain and other organs in the pig embryo.

- Does this make the pig more human?
- Is it fair for the pig to be used as a host for our organs?

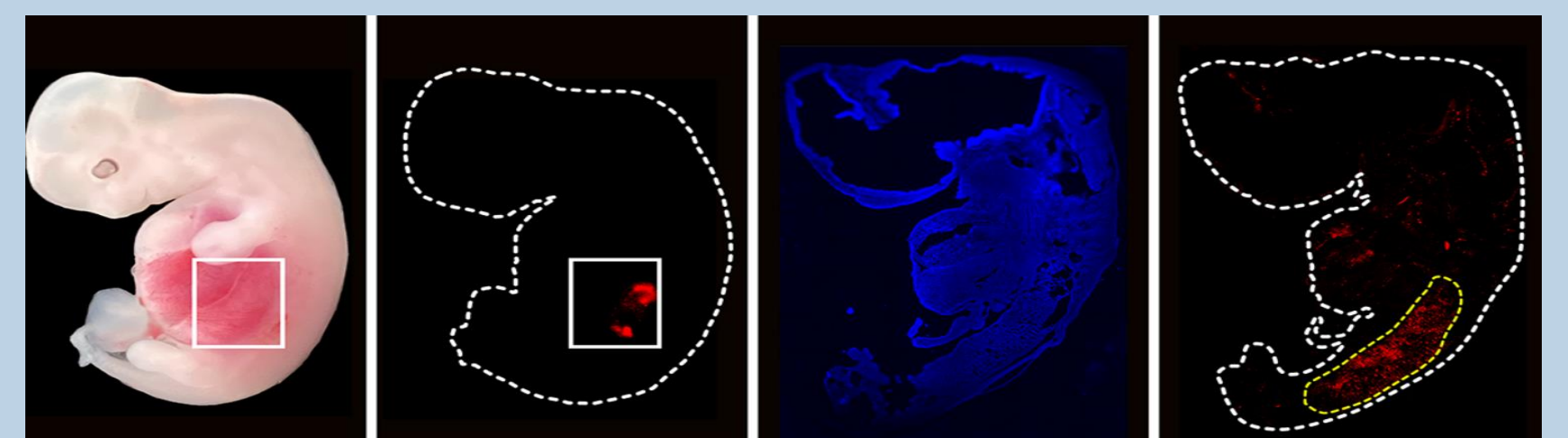


Figure 2: Pig embryo with human cells shown in red.



## Pros

- Increase availability of organs for human transplantation
- Fewer people die in the que waiting for an organ
- New industry and more jobs

## Cons

- Possibility of the patient rejecting the new organ.
- Mutations creating new viruses.
- Risk of autoimmune inflammation.



### References:

Wang, J., et al (2023). Generation of a humanized mesonephros in pigs from induced pluripotent stem cells via embryo complementation. *Cell Stem Cell*.  
U.S. Department of Health & Human Services. (2025). *Organ Donation Statistics*. [organdonor.gov](https://www.organdonor.gov).

