Animal to Human Transplants (Xenotransplantation)

Why in News

Recently, in a medical first, doctors transplanted a pig heart into a patient in a last-ditch effort to save his life in the US.

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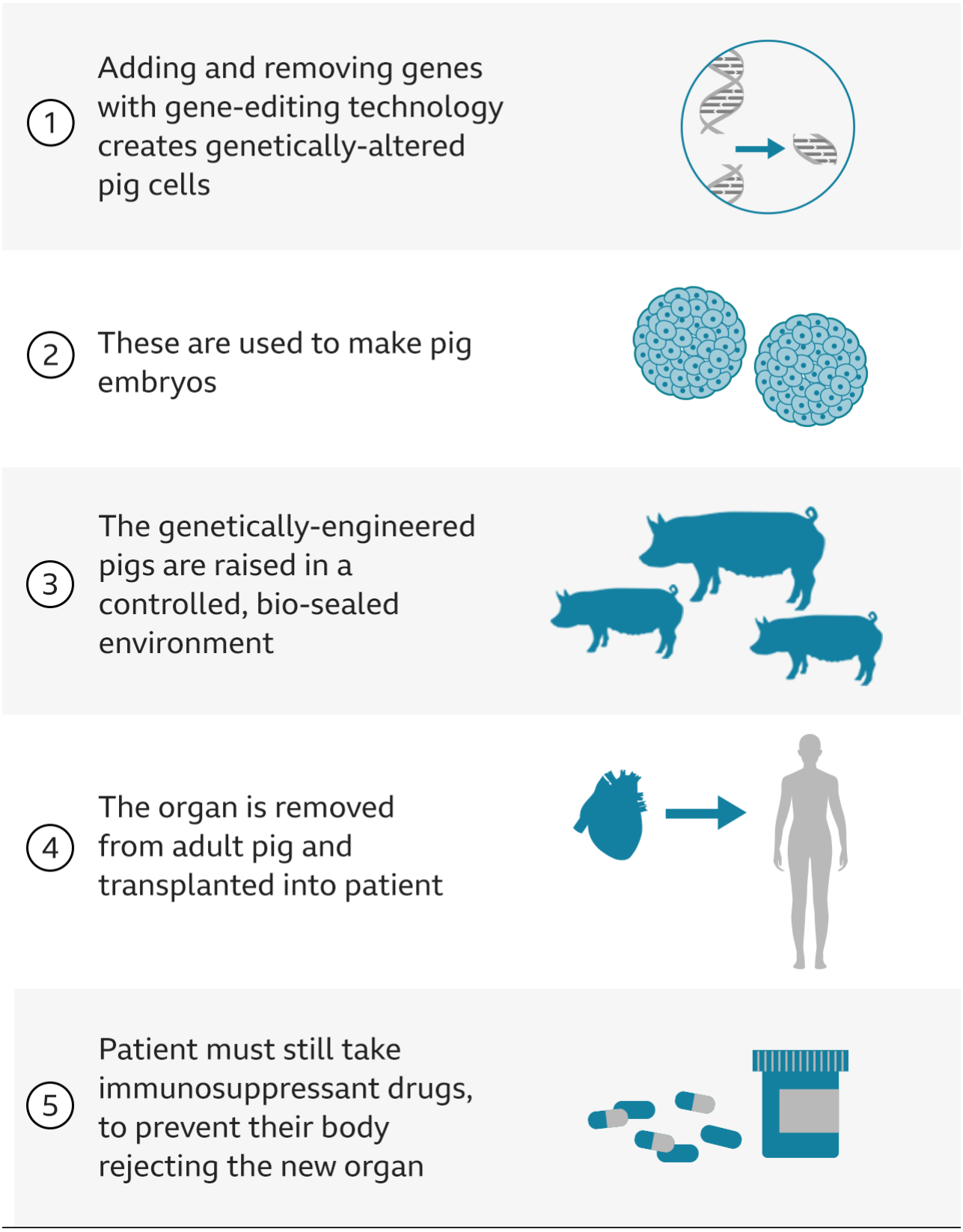

Key Points

- **About:**
  - Xenotransplantation involves the transplantation of nonhuman tissues or organs into

human recipients.
    - This is the first successful transplant of a pig's heart into a human being. However, it's too soon to know if the operation really will work.
    - This time, a heart from a pig that had **undergone gene-editing** has been used to remove a sugar in its cells that's responsible for that hyper-fast organ rejection.
        - Genome editing (also called **gene editing**) is a group of technologies that give scientists the ability to change an organism's **Deoxy-Ribonucleic Acid (DNA).**
    - Prior attempts at such transplants — or xenotransplantation have failed. One of the **biggest obstacles** to transplantation is **organ rejection.**
    - This has **re-sparked a debate over the use of pigs for human transplants**, which many animal rights groups oppose.
- **Significance:**
    - This development could bring us one step closer to solving the global organ shortage.
        - In India, patients need 25,000-30,000 liver transplants annually. But only about 1,500 end up receiving them.
    - Pigs are increasingly becoming popular candidates for organ transplantation.
        - Pigs offer **advantages over primates for organ procurements**, because they are easier to raise and achieve adult human size in six months.
        - Pig heart valves are routinely transplanted into humans, and some patients with diabetes have received porcine pancreas cells.

Source: DTE