Xenotransplantation

Why in News?

Genetically modified pig heart took longer than usual to beat for human receiver in the **first-ever transplant of the gene-edited pig heart to human.** The human recipient **lived only for 61 days after the transplant.**

- **Prior attempts** at such transplants have **also failed.**

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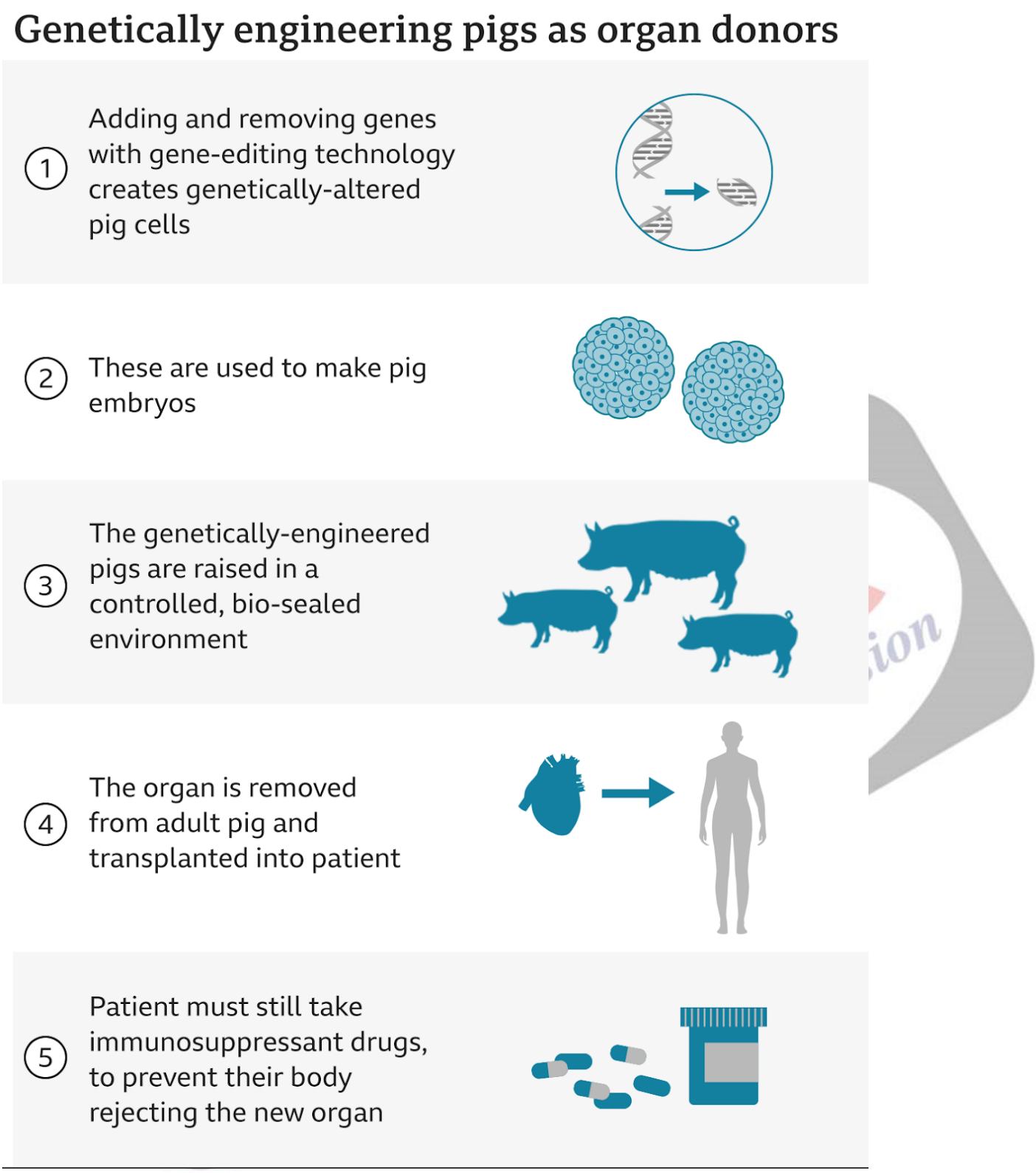

What is Xenotransplantation?

- **About:**
  - Xenotransplantation involves the **transplantation of nonhuman tissues** or organs **into human recipients.**
    - In the recent heart transplant from pig to human, **gene-editing** was adopted 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).

- One of the **biggest obstacles** to transplantation is **organ rejection.**

- **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.
      - The pig's anatomical and physiological parameters are similar to that of humans, and the breeding of pigs in farms is widespread and cost-effective.

Source: DTE