

Mice with two biological fathers

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In news- Japanese scientists have created mice with two biological fathers recently.

About the mice-

- It was **created after they generated eggs from male cells for the first time** – an advancement which has the potential to radically alter the course of reproductive biology.
- The **research was led by Katsuhiko Hayashi of Kyushu University** (Japan) and his team of 15 other scientists.
- Notably, the **breakthrough has opened new possibilities for gay-male couples or even single men to have their biological child without needing a female egg.**
- However, scientists involved in the study pointed out that the research is in a very early stage.
- For the experiment, the scientists first took skin cells from the tail of a male mouse, which, just like male humans, contained both an X and Y chromosome, and then converted them into **induced pluripotent stem cells or iPSCs**, they can be transformed into any kind of cell.
- During this process, a slight percentage of the cells lost their Y chromosome, generating “X0” cells.
- The scientists then cultured the X0 cells in the lab and treated them with a drug called reversine. This helped them duplicate the existing X chromosome in these cells, creating an XX set.
- Hayashi and his team then embedded the XX cells in an artificial ovary also created by the use of stem cells to generate eggs, which were fertilised with the sperm of another male mouse to obtain hundreds of embryos that were implanted into the uterus of surrogate female mice.

- Only seven out of 630 implanted embryos produced living pups. According to the scientists, the baby mice had a normal lifespan and they went on to have their own babies as adults.

Can the technique be used in humans?

- Given the one per cent success rate of the method used by the scientists to create mice with two biological fathers, scientists said although it is **theoretically possible to produce babies from male human couples, it would take around a decade to do so.**
- Besides the technical aspect, the technique being used in the case of humans also **poses a wide range of ethical questions.**