Cathespsin B

Prelims: *Current events of National and International Importance | Health*

Why in News?

Researchers at the National Institute of Animal Biotechnology (NIAB) have made a significant discovery that could lead to new strategies for extending female fertility.

- **Recent Findings -** The team has uncovered a molecular clue that appears to slow down reproductive aging.
- Using both live mouse models and cultured goat ovaries, they found that reducing the activity of a cellular protein called 'Cathepsin B' (Cat B) helps preserve the ovarian reserve.
- **Ovarian reserve** - It is the finite pool of egg cells (oocytes) that female mammals are born with.
- Unlike sperm, these crucial egg cells *cannot be regenerated*.
- **Declining factors** - Over time, the quantity and quality of the eggs naturally decline because of oxidative stress, inflammation, and general cellular wear, and it accelerates with age.
- **Process -** 'Cat B,' a protein-degrading enzyme, seems to be a key driver of this decline.
- By lowering its levels, the egg loss may be delayed, effectively extending fertility naturally.
- For farmers, a simple intervention to extend the reproductive lifespan of livestock could
    - Improve herd productivity,
    - Reduce stray cattle populations, and
    - Support the incomes of smallholder farmers.
- **Advantages** – It navigates the twin challenges of rural sustainability and reproductive health.

Reference

The Hindu | 'Cathepsin B' (Cat B)