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Q37

In the context of recent advances in human reproductive technology. "Pronuclear Transfer" is used for (a) fertilization of egg in vitro by the donor sperm (b) genetic modification of sperm producing cells (c) development of stem cells into functional embryos (d) prevention of mitochondrial diseases in offspring
Official key: D.

UPSC Civil Services Prelims 2020 · General Studies · 2 marks · Science and Technology
Science, technology, space, defence, IT - Prelims GS Paper I.

Explanation

(a)

IVF with donor sperm. Ordinary IVF, not pronuclear transfer.

(b)

Genetic modification of spermatogonia. Different technique.

(c)

Stem cells to embryos. Not PNT.

(d) Official key

Prevention of mitochondrial disease. Pronuclear transfer moves nuclear DNA into a donor egg with healthy mitochondria.

Summary

- **Official key is (d). Pronuclear transfer is a mitochondrial-replacement method:** the zygote's pronuclei are moved into an enucleated donor zygote so the child does not inherit mutant **mtDNA**.

Related possible facts

These can be asked in a future Prelims paper.

MRT

Pronuclear or spindle transfer; UK 'three-person' IVF.

mtDNA

Maternal; disease line PNT breaks.

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