

Cloned Cow-calf

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About Cloned Cow-calf:

- It is India's first cloned Gir female calf named Ganga.
- To clone the Gir, **oocytes** are isolated from live animals using ultrasound-guided needles, and then, matured for 24 hours under control conditions.
- The **somatic cells of elite** cows are used as donor genomes, which are fused with OPU-derived enucleated oocytes. Following chemical activation and in-vitro culture, the developed blastocysts are transferred into recipient mothers to deliver the Gir calf.

What is cloning?

- The term cloning describes a number of different processes that can be used to produce **genetically identical copies of a biological entity**.
- Cloning can be **natural or artificial**. Examples of cloning that occur naturally are as follows:
 - **Vegetative reproduction** in plants, e.g. water hyacinth producing multiple copies of genetically identical plants through apomixis
 - Binary fission in bacteria.
- Clones can also be produced through artificial means. Biotechnological methods are employed to produce such clones.
 - **Molecular cloning**, where copies of specific gene fragments are produced
 - **Cellular cloning**, where single-celled organisms with the exact genetic content of the original cell are produced in cell cultures.
 - **Organism cloning**, or reproductive cloning, where a multicellular clone is created generally through somatic cell nuclear transfer

What are somatic cells?

- The word “somatic” is derived from the Greek word soma, meaning “body”. Hence, all body cells of an organism – apart from the sperm and egg cells, the cells from which they arise (gametocytes) and undifferentiated stem cells – are somatic cell.

Q1) What is vegetative reproduction?

Vegetative reproduction is any form of asexual reproduction occurring in plants in which a new plant grows from a fragment of the parent plant or grows from a specialized reproductive structure (such as a stolon, rhizome, tuber, corm, or bulb).

Source: [Haryana: India's first cloned desi Gir female calf, Ganga produced at NDRI](#)

Source: <https://vajiramandravi.com/current-affairs/cloned-cow-calf/>

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