Lab-Grown Cultured Meat

Why in news?

Recently, an Australian startup unveiledlab-grown cultured meat using the genetic sequence from the long-extinct woolly mammoth.

What is cultured meat?

- Cultured meat also called cell-based meat or cultivated meat is genuine animal meat (including seafood and organ meats) that is produced by cultivating animal cells directly.
- The livestock does not need to be killed in order to produce it.
- It uses animal DNA to recreate in a lab the taste and texture of meat.

Singapore is the only country to have approved cell-based meat for consumption.

How a lab grown meat is made?

- **Harvesting stem cells**–Stem cells are harvested through biopsy from fresh piece of meat.
- **Isolation** -Isolate different types of cells (for instance muscle and fat cells).
- **Growth** -The cells are put in bioreactor that uses the principals of *cell cultivation* and *tissue engineering* for growth and reproduction.
- **Differentiation -** The cells are distributed onto "moulds" (scaffolds) to stimulate them to differentiate into connective tissues, muscles and fats giving the final product.

What are the impacts of meat industry?

- Produces carbon dioxide, methane and nitrous oxide.
- Inhumane treatment to animals.
- Usage of toxic pesticides to grow animal food.
- Prone to diseases.
- Deforestation and reducing agricultural lands.
- Consumption of more water.

According to the Food and Agriculture Organization of the United Nations (FAO) roughly 14.5% of global emissions of greenhouse gases are attributable to livestock farming

What is the significance of cultured meat?

- **Reduce environmental impact**-It could vastly reduce the environmental impact of global meat production in the future.
- **Reduce emissions**-Emissions from conventional animal agriculture could be reduced.
- **Uses less water**-It uses much less land and water than livestock.
- **Renewable energy**-It can run on energy produced purely from renewable sources.
- **Prevent animal slaughter**–Cultivated meat helps save animal slaughter.
- **Food accessibility**–Provides food accessibility to the population living in under-developed and strife-torn areas.
- **High in nutrients**- Lab-grown meat is high in protein, vitamins, and minerals and can be lower in fat and cholesterol than conventional animal meat.

Quick facts

Wo0lly mammoths

- The woolly mammoth is an extinct species of mammoth
- It lived during the Pleistocene until its extinction in the Holocene epoch.
- It was one of the last in a line of mammoth species, beginning with the African *Mammuthus subplanifrons* in the early Pliocene.

References

1. The Indian | Express Cultured Meat
2. Swiss Info | Cultured Meat Process

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