

Lab Grown Meat: Future Sustainable Alternative to Meat

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Seventy billion land animals, and possibly trillions of marine animals, are killed for human consumption each year. Meat intake around the world in both developed and developing countries are increasing rapidly during the second half of the 20th century, worldwide meat consumption grew by five times as much, increasing from 45 million tonnes of meat eaten in 1950 to nearly 300 million tonnes now. As a consequence of estimated population increase and growth in welfare, meat demand is expected to grow by 75 per cent around 2050, whilst production of meat through livestock could stay sluggish, more food will be required to satisfy the demand of the increasing population, which is a big challenge because of the resources and agricultural land limitations.

A majority of these animals are raised in factory farms, where they experience brutal forms of abuse. Major meat producers often defend factory farming as the most efficient way to meet the global demand for meat. But evidence shows that these facilities are disastrous for the environment, nearby communities, consumer health, and animal welfare. It shouldn't have to be this way. It's time to fix our broken food system. It's time to look for alternatives. Lab-grown meat could hold the key.

Cultured or Lab-grown meat has its place in the developing field of cellular agriculture and constitutes a hopeful technology. This innovative technology seeks to offer decreasing negative impacts on animal as well as on humans, the environment, and livestock. Lab-grown meat provides a safe and infection-free path to meet the growing meat necessity without the involvement of animal killing while at the same time decreasing greenhouse emissions, caused by meat derived from animal abuse.

What is Lab Grown Meat

Lab grown meat is the cultured, cultivated, cell-based clean meat. Lab-grown meat is a invention of modern science and technology. Scientists can now harvest a small sample of cells from a living animal

and cultivate the sample to grow outside of the animal's body, shaping the fully formed sample into cuts of meat.

Process of Lab Grown Meat

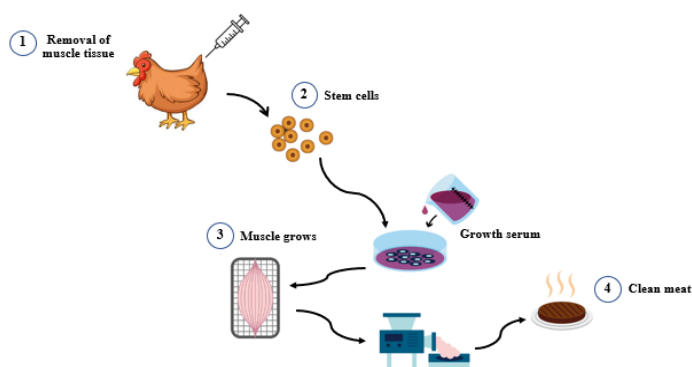
Instead of killing animals for their meat, the process of making lab-grown meat starts with the careful removal of a small number of cells from a living animal, typically using local anesthesia to provide relief from pain. A sample of stem cells is taken from a live animal (stems cells are cells that can develop into other specialized types of cells found in the body, for example, blood, liver or muscle cells). The stem cells are put in large tanks called bioreactors, containing culture media that recreate a similar environment for the cells in the animal's body and are provided with the nutrients that they need to multiply. The culture media is changed according to the requirement so that stem cells can differentiate into the three main components of meat: muscle, fat, and connective tissue. The cells grow and multiply, producing real muscle tissue, which scientists then shape into edible "scaffoldings." A scaffold is an edible material. These cells are separated and arranged to "build" the type of meat that is being produced and give it a desirable shape. It also carries nutrients and helps them differentiate even further. Using these scaffoldings, they can transform lab-grown cells into steak, chicken nuggets, hamburger patties, or salmon sashimi. The final product is a real cut of meat, ready to be marinated, breaded, grilled, baked, or fried – no animal slaughter required.

Nutritional Aspects of Lab Grown Meat

When lab-grown meat reaches the shelves, it could be healthier than meat reared from livestock. According to researchers in the Journal of Scientific Research, Lab grown meat could be an excellent functional food that can be modified and enrich the content of essential amino acids and fats, vitamins, minerals and bioactive compounds so that not only equivalent to natural meat but also exceeds it to meet

specific dietary needs for people with various ailments.

LAB GROWN MEAT – PROCESS (CHICKEN)



Additionally, after the introduction of functional and fortified foods, consumers are more willing to use the products that have been modified to have particular functional and nutritional characteristics according to their needs. Controlling the amount of fat or reducing cholesterol or even adding in heart-healthier fats instead, such as omega-3 fats (derived from fatty fish).

The cultured meat could help alleviate certain nutritional deficiencies in these populations and support the physical and mental development of children.

Strictly controlled hygiene conditions in sterile systems applied to the production of lab grown meat contribute significantly in improving its safety by minimizing the risk of zoonotic and food-borne pathogens, viruses such as avian influenza, swine flu or prions for transmissible spongiform encephalopathies. Scientists also hope that the need for pesticides, fungicides, growth factors and antimicrobials which are used in excess for

conventional meat production, may be significantly reduced as the consumption of culture meat increases. In the future, the ever-growing production and cost reduction of lab grown meat, possibly below traditional animal husbandry, would make its consumption more affordable and could increase access to meat even in developing countries.

ADVANTAGES OF LAB GROWN MEAT (CULTURED MEAT)



Lab-grown meat production is an innovative technology with several advantages. This is a great future sustainability for natural meat. The lab-grown meat is definitely a benefit to humanity and will play an important role in food, dietary as well as ecological sustainability and security. Consumer acceptance, safety, and security of lab-grown meat as well as consumer education will have to be concentrated for the use of lab-grown meat. Lab-grown meat is going to be a powerful environmentally sustainable tool for businesses, cities, as well as nations to build a healthier, more effective, and efficient, as well as a more civilized food system.
