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Lab-Grown Chicken — The Latest Silicon Valley Mess to Clean Up?

Analysis by Dr. Joseph Mercola | January 10, 2024

STORY AT-A-GLANCE

- Upside Foods, a leader in the fake meat market and one of two companies allowed to sell cultured meat in the U.S., has failed to scale up its production to produce meaningful amounts of synthetic meat
- Plagued by contamination issues, Upside had problems with rodent DNA found in one of its chicken cell lines
- While parading its expensive stainless-steel bioreactors for the press, Upside is actually growing only small amounts of fake meat bits inside small, single-use plastic bottles
- Fake meat, presented as a solution to save the environment, may end up being worse for the planet than real meat
- Lab-grown meat is often made using animal components, so it's not really animal-free, and when Upside tested its fake meat for heavy metals, some samples contained 20 times more lead than conventional ground chicken

Silicon Valley is banking on cultured meat taking off, providing animal-free "meat" to satisfy the carnivorous appetites of the world's more than 8 billion people — most of whom eat meat. But what started out with grandiose fanfare and backing from billionaire investors like Bill Gates and Jeff Bezos[1] is falling flat.

The dream of creating cultured "chicken" breasts or animal-free "beef" fillets is turning out to be nothing more than a fairy tale. Upside Foods, a leader in the fake meat market

and one of two companies allowed to sell cultured meat in the U.S.,[2] has resorted instead to "growing just minuscule numbers of chicken skin-type cells in small plastic bottles, then scraping them out gram by gram to compress and mold them into a single forkful of flesh."[3]

It's not only unappetizing. Even if it succeeds, fake meat, presented as a solution to save the environment, may end up being worse for the planet than real meat, while presenting consumers with another highly processed food product that may further devastate human health.

What Happens When Silicon Valley Gets Mixed Up in Food Production?

Putting faith in Silicon Valley to produce wholesome food was the first mistake in the race to create cultured food. While regenerative farmers raising grass fed cows and free-range chickens work in concert with nature to provide food in the form humans have thrived on since the beginning of time, Silicon Valley does just the opposite.

In a process completely removed from nature, venture-backed startups are using precision fermentation based on genetically engineered microbes to create synthetic food products in a lab. At Upside, which has received backing from Richard Branson, Kimbal Musk and even meat giants Tyson Foods and Cargill,[4] stainless steel bioreactors are paraded as a measure of progress at media events, but it’s nothing more than careful PR.

Inside reports from employees, uncovered by The Wall Street Journal, claim that the bioreactors are plagued by contamination and rodent DNA was once found in a chicken cell line.[5] Illustrating the contradiction that is the fake meat industry, the "sustainable" lab-grown chicken is in actuality being grown in two-liter plastic bottles — hundreds of which are required to product a few fillets.[6]

In the U.S., a limited amount of Upside’s lab-grown chicken is available as part of a tasting menu at Bar Crenn in San Francisco. But even Bloomberg reported this

"sustainable" solution makes no sense:[7]

> *"The company is growing them in small, single-use plastic bottles, in amounts so piddling that a single night at Bar Crenn, a 'certified plastic-free' establishment, according to its website, could require the use of more than a hundred such bottles."*

Upside's Expensive Fake Chicken Bits Aren't Made From Muscle Cells

To make fake meat, cell lines taken from a living organism. They're then manipulated to grow quickly and consistently. While myoblasts are the type of cells that grow into muscle meat, they're the most difficult for fake meat companies to grow and "immortalize."

"A regular cell extracted from an animal, known as a primary cell, won't replicate forever. Eventually it stops, entering a phase known as senescence. If a company wants to grow significant amounts of meat and doesn't want to have to keep taking cells from live animals or embryos, it needs to turn primary cells into immortal ones," Bloomberg reports.[8]

Because myoblasts are difficult to immortalize, fibroblasts, which grow easily, are often used in cultured meat products. "But when it comes to food, they're not what most people would consider delectable. They can develop into fat and other cells, but they're most known for their role in making connective tissue, like cartilage or what's found in skin," according to Bloomberg's report.[9]

Adipocytes, or fat cells, are also sometimes used, often mixed with plant proteins. In a dossier for the U.S. Food and Drug Administration, Upside named genetically engineered immortalized fibroblasts and a naturally immortalized myoblast cell line as options for its fake meat. But Samir Qurashi, a former Upside employee, shared doubts the company had a myoblast cell line capable of being used in production.

"It's next to near impossible," he told Bloomberg, and, indeed, the fake meat Upside is serving at upscale Bar Crenn is made from fibroblasts, the type that typically forms connective tissue. Further, according to Bloomberg:[10]

> *"The chicken doesn't even include immortalized cells; it's made of primary fibroblast cells that at some point will stop replicating and at best grow only into connective tissue. This means that to make more chicken, scientists will eventually have to go back to an embryo and remove more cells, a process that, even when it works, also kills the embryo. (Bar Crenn didn't provide comment.)*
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> *It's an admission that has left experts both confused and amused. "I scratch my head," says David Kaplan, director of the Tufts University Center for Cellular Agriculture. "Why would you ever use primary cells?"*

The Myth of Animal-Free Meat

One of the foundational principles behind cultured meat is the ability to produce food without killing animals. But fake meat is often made using animal components, negating this principle.

Normally, cells grow in a structure in your body. The cell lines being grown in labs are grown in a thin film or growth medium. In the body, the growth medium is your blood, Dutch investigative journalist Elze van Hamelen reports,[11] a complex substance that laboratories try to replicate using fetal bovine serum (FBS) — blood taken from living calf fetuses.

"It's really gruesome how this is harvested," she says,[12] pointing out that this contradicts the narrative that lab-grown meats are made without animals. FBS is often used to grow cultured cells because of the proteins and vitamins it contains. A 2013 study stated, "In many common culture media, the sole source of micronutrients is fetal bovine serum (FBS) …"[13]

When lab-grown chicken made by U.S. startup Eat Just debuted in Singapore in 2020 — marking the first cultured meat to be sold at a restaurant[14] — it was produced using FBS.

Upside stated in 2021 that it had developed a way to grow fake meat without animal components, yet its first chicken filets still depended on animal compounds.[15]

In fact, part of Qurashi's role at Upside was to harvest cells from crustaceans, a process that killed them. As reported by Bloomberg, "Qurashi had the extremely challenging task of procuring cells from live crustaceans — a job that always led to their untimely demise, costing two or three animals their life each week. 'Literally, people cried when they saw me,' Qurashi says of his colleagues."[16]

In order to develop synthetic "blood" instead, precision fermentation and artificial hormones may be used. Micronutrients and minerals must also be sourced, making the process "insanely expensive," van Hamelen says.[17]

Use of FBS-free medium may cause cultured meat to cost over $20,000 per kilogram.[18] A report from the Good Food Institute (GFI), a nonprofit group behind the alternative protein industry,[19] suggested that if the cost of FBS-free mediums could be reduced, it would drive down the cost of cultured meat by 90%. This, however, is unlikely.

"[T]he report provides no evidence to explain why these micronutrient costs will fall," Joe Fassler, The Counter's deputy editor, wrote in an in-depth exposé about the actual science behind lab-grown meat."[20]

Fake Chicken Contains More Lead Than Real Chicken

Adding to the controversy over lab-grown meat, when Upside tested its fake meat products for heavy metals, some samples contained 20 times more lead than conventional ground chicken, along with about eight times more cholesterol compared to conventional chicken.[21]

There are other concerns as well. Writing in Frontiers in Nutrition, it's speculated that "with this high level of cell multiplication, some dysregulation is likely as happens in cancer cells. Likewise, the control of its nutritional composition is still unclear, especially for micronutrients and iron."[22]

Synthetic dairy products, including milk made from genetically engineered yeast, is also raising concerns about the health risks of fake food. Along with missing important micronutrients that are abundant in real milk, fake milk contains compounds that have never before existed in the human diet. One analysis revealed 92 mysterious, unknown compounds in fake milk that don't exist in real milk.[23]

The Environment Also Suffers From Lab-Grown Meat

The other myth that's part of the fake meat narrative is that it's better for the environment than real meat. Even with the use of renewable energy factored in, lab-grown chicken would have the same carbon footprint as conventional chicken, according to a report by CE Delft.[24] When global average energy mixes were used, lab-grown meat had a higher carbon footprint than pork and chicken.

A preprint study from University of California, Davis researchers also found that the environmental impact of lab-grown meat is "likely to be orders of magnitude higher than median beef production,"[25] again highlighting the myth that fake foods are more sustainable than real foods, especially when they're produced regeneratively.

The reality is that fake foods are far from sustainable. John Fagan, Ph.D., a molecular biologist who worked with the U.S. National Institutes of Health for 8.5 years, explains:[26]

> *"The reality is that many of the carbon footprint calculations have been done starting with the fermentation process and going forward, but where did the high fructose corn syrup come from that is the primary energy component that goes into these fermentations?*
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> *… And you look at that industrial agriculture and you add that carbon footprint on to what they have been using in their calculations and suddenly it goes way in the wrong direction. And so we can't even use the sustainability arguments to justify what's being done. It just doesn't work."*

This Is About Controlling the Food Supply

Sustainability, animal rights and human health are all buzzwords being floated around fake meat. But this isn't about saving the planet or animals, and it's certainly not about making people healthier. The reason why Silicon Valley is willing to invest billions into fake food is because it knows that whoever controls the food supply controls the population.

The globalists are trying to replace animal husbandry with lab-grown meat, which will allow private companies to effectively control the entire food supply. Just as was the case with GMOs, raising awareness about the dangers of fake meat is important, especially in this early and aggressively expanding phase.

Tell your social circle that to save the planet and support your health, it's necessary to skip all the fake meat and dairy alternatives and opt for real food instead. When you shop for food, know your farmer and look for regenerative, biodynamic and/or grass fed farming methods, which are what we need to support a healthy, autonomous population.

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