

# CHICAGO SUN-TIMES

## Would you eat lab-grown meat?: You may choke on the idea, but the animal rights crowd loves it

Traci Hukill, *The Chicago Sun-Times*

As I type these words, men and women of science are growing meat in a laboratory. That's meat grown independently of any animal. It isn't hatched or born. It doesn't graze, walk or breathe. But it is alive. It sits growing in a room where somebody has called it into existence with a pipette and syringe.

"Cultured meat," it's called, and it is supposed to save us from the execrable pollution and guilt of factory farms while still allowing all 6.5 billion of us to stuff our gullets with ham sandwiches whenever we want to. It already exists in ground or chipped form. What Dutch scientists are working on now is a product that costs a few dollars per pound instead of a few thousand. It could be as little as five years away.

The concept is as simple as it is horrifying. Take some stem cells, or myoblasts, which are the precursors to muscle cells. Set them on "scaffolding" that they can attach to, like a flat sheet of plastic that the cells can later be slid off of. Put them in a "growth medium" -- some kind of fluid supplying the nutrients that blood would ordinarily provide. "Exercise" them regularly by administering electric currents or stretching the sheets of cells mechanically. Wait. Harvest. Eat.

### AN OLD IDEA

It seems like something out of a chilling sci-fi future, the very epitome of bloodless Matrix-style barbarism. But growing flesh in a petri dish is an old idea from the early 20th century that received a fresh infusion of, how you say, growth medium in 2002. As part of a NASA-funded experiment to find a portable source of animal protein for astronauts, Touro College biology professors Morris Benjaminson and James Gilchrist sliced a bit of muscle from the abdomen of a goldfish and set it in a saline solution enriched with fetal calf serum. Over several weeks, the muscle grew about 15 percent. Another muscle growing in a maitake mushroom solution did almost as well.

To determine whether the product was remotely appetizing or would be too repulsive even for space station humanoids to eat, Benjaminson and Gilchrist convened a panel of female employees, chosen for their gender's presumed pickiness and demonstrably superior sense of smell. Gilchrist, who used to be a professional chef ("He makes great calamari," said Benjaminson), breaded the tiny filet and sauteed it in extra virgin olive oil. He finished with a squeeze of lemon and a dash of pecorino cheese.

"And it smelled good to them," Benjaminson says. Understandably, the ladies were not asked to eat the "fish."

Whatever one's response to the idea of meat grown in a petri dish -- revulsion seems to be a common one -- there are also some compelling reasons in favor of it.

"It's cleaner, healthier, less polluting and more humane," said Jason Matheny, a doctoral student in agricultural policy at the University of Maryland who sits on the board of New Harvest, a research organization for in vitro meat.

Meat grown in the sterile environment of a laboratory wouldn't harbor zoonotic diseases like avian flu or contribute to antibiotic resistance, Matheny said. As for human health, artery-clogging beef fat could be swapped out in vitro for salmon fat, for example, with its salubrious omega-3 fatty acids. And the squalid misery of factory farms could be bypassed altogether. No river would be fouled with manure and no chicken's beak would be clipped in the making of dinner.

These are important considerations. All the problems associated with modern meat production -- like the 64 million tons of manure excreted each year by factory farmed animals in the United States alone -- are poised to worsen as the Earth's population heads toward 9 billion people by 2050. As up-and-coming nations like China and India develop large middle classes that adopt Western habits of consumption, that translates to an exponential rise in meat eaters and factory farms over the next 45 years.

### A SPLENDID IDEA

Add it all up, and some people find cultured meat a splendid idea.

Bruce Friedrich, vice president of People for the Ethical Treatment of Animals, calls it "the best thing since sliced bread." Friedrich, who energetically denounces the eating of "animal corpses" every chance he gets, says that "anything that takes the cruelty out of meat-eating is good."

There are a couple of serious problems with cultured meat, though, starting with the fact that people seem to find the idea repellent. "Yeah," Matheny admits. "There's a 'yuck' factor involved with producing any novel food."

Presented with the argument that cultured meat just ain't natural, Matheny gamely counters that wine and cheese are engineered products, too.

"And I would say cultured meat is not inherently more unnatural than producing chicken meat from tens of thousands of animals raised intensively in their own feces and fed antibiotics," he said.

That is a very good point. But then Matheny, who is vegetarian, probably won't be eating much cultured meat, either. Nor will Friedrich, who said he had done just fine without eating animal flesh for 18 years and planned to stick with his program.

As for Benjaminson, when asked if he finds the idea of cultured meat appealing, he answered, "From an esthetic standpoint? No. It would have to taste palatable, and that would require a lot of tissue engineering."

What a lot of trouble to go to for a solution that is frankly nightmarish (especially the "exercising" of the disembodied muscle by means of electrical shocks). All cultivation is a form of enslavement, however benevolent or necessary, but harnessing the manic energy of stem cells takes that dynamic into a realm where the side effects -- the "equal and opposite reaction" promised by Newton -- play out perilously close to the life process itself. If synthetic fertilizer, which seemed like such a great way to boost plant fertility, can create a dead zone the size of Maryland at the Mississippi Delta, wiping out a totally different link in the food chain, who's to say what would come of overexploited RNA or mitochondria?

Fred Kirschenmann of Iowa State Univer-

sity's Leopold Center for Sustainable Agriculture just hopes there will be plenty of testing. "I'm not saying some of these new ideas can't be done and they won't work at some level, but every time we mess around with our ecological heritage there are always unintended side effects that come from it," he said. "We have a long history of unintended consequences.

"We've got all these animals out there right now, and if we suddenly decide we don't want to raise them, what does that do to the larger ecology?"

### RAISE ANIMALS MORE HUMANELY

Here's an idea: Instead of safeguarding our appetites and engineering our meat, let's safeguard our meat and engineer our appetites. What if real animals were raised humanely and in sustainable numbers, so that their meat cost more -- maybe even a lot more? What if people only ate it on special occasions? What if, instead of deciding that the most important thing was to be able to satisfy every idle hankering for a cheeseburger, humanity assessed the resources and made a rational decision about protein acquisition that did not involve divorcing its food source from the life cycle? What if we took the invisible hand of the market, which has all the self-discipline and foresight of a 14-year-old boy, off the job and put a grown-up in charge?

One of the many people who has already thought of this is Robert Lawrence, director of the Center for a Livable Future at Johns Hopkins University's Bloomberg School of Public Health. Although Lawrence sits on New Harvest's board, he's skeptical about the possibilities for cultured meat.

"I think it's an interesting idea," he said. "I think in some situations it might have real value as an important bioavailable form of quality protein. But there are other more straightforward and readily available solutions."

The most obvious one is moderating intake, both frequency and portion size. The Center for a Livable Future sponsors a Meatless Mondays campaign that has attracted interest from public school systems in New York and Maryland. But as wild a suggestion as Meatless Monday is (Meatless Monday through Thursday would be a lot closer to the mark) it has provoked what Lawrence calls a "backlash" by the meat industry.

"They called me an environmental extremist," he said with a laugh.

That bit of hysteria reveals volumes. It could be a long time before people smell the legume blossoms and start eating lower on the food chain. Matheny thinks cultured meat can be "a stopgap measure" aiding that process, methadone for meat eaters to ease the transition out of the era of 72-ounce steaks and into the days of dollops of hummus.

Maybe he's right. Maybe in vitro meat can serve that purpose. Or maybe it will work in a different way -- by so thoroughly grossing people out that they'll gladly reduce their meat consumption just so they lessen the risk of accidentally eating a meatri burger.

That's how it's working on me.

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