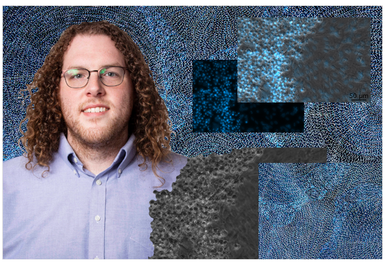
NEW HARVEST



Learn about Mike's novel workaround for animal serum in tissue culture

Hi friend,

At the start of the pandemic, New Harvest granted Mike McLellan our very first dissertation award. A fifth year PhD student at the Jackson Lab, Mike is approaching the question—how do you get cells what they need to grow without a body?—from an exciting new angle.

Unlike other serum-free media projects, Mike isn't formulating a replacement "substance" for Fetal Bovine Serum (FBS). Instead, Mike is developing a muscle culture "trophic support cell" (TSC) to provide all the molecular cues typically provided by serum.

The novelty of this workaround is best understood in contrast to another one of New Harvest's serum-free media projects.

Like Mike, Cameron—a NH Research Fellow at the University of Calgary—is trying to grow meat without animal serum. Cameron accomplishes this by identifying the relevant growth factors in serum, synthesizing them in a lab, and then adding those proteins back into the growth medium which feeds his fledgling meat cells.

Mike, however, is inserting the genes for each of those growth factors into a single cell (the TSC) which he then co-cultures alongside the cells he wants to grow into tissue.

It is an elegant fix: the TSC secretes the growth factors as opposed to Mike having to (very expensively) engineer them himself.

I called Mike to learn about his research, but our conversation snowballed into an interrogation of Winston Churchill's fame within cellular agriculture and discussion about how COVID-19 radicalized Mike's vision for cultured meat and food security.

As Mike outlines in this essay, Churchill's policies killed millions when he diverted food from India to European stockpiles during the 1943 Bengal Famine. Despite contributing to mass starvation, Churchill is ceaselessly quoted by industry insiders and outsiders alike (including on our own website 👀) when talking about cultured meat and its potential to feed the world.

Savvy skeptics often cite fetal bovine serum as a reminder of how laughably hard it is to grow meat from cells, while optimists invoke Churchill's famous cell ag prophecy to give gravitas to this admittedly scifi idea.

Mike's research, in and out of the lab, suggests that they both have it twisted.

With his trophic support cells, Mike is well on his way toward establishing a proof of concept for serum-free tissue culture. The biggest challenge is not growing the meat (although to be clear, that is no easy feat) but rather, distributing it. @governments—pick up the phone!

In other news...

- Episode three of the New Harvest Fellowship Series on the Cultured Meat and Future Food Podcast is all about vegetable scaffolds. 🌱🍃 Alex Shirazi interviews NH fellow Jordan Jones about the viability of a green onion cell-cultured beef jerky, why it makes sense to grow meat on vascularized plant tissue, and life in the Gaudette Lab. Audio and transcript here.

- We are pleased to be a media partner for the Alt Protein Conference 2020 presented by CellAgri and The Protein Directory. With keynotes, panels, and networking sessions, this virtual conference brings together alternative protein industry leaders from around the world. Early bird tickets close July 31!

- Join us in October for the virtual Cultured Meat Symposium. Leaders in the cultivated meat industry will discuss regulation, automation, and scale. The lineup is always top notch—register today!

Take care!

OPPORTUNITIES IN CELLULAR AGRICULTURE

- NH Research Fellow Dr. Ricardo Gouveia is guest editing a special issue of the International Journal of Molecular Sciences focused on cellular agriculture. He is looking for reviews and original research articles. Submissions are due November 30, 2020.

- The department of Cellular, Computational and Integrative Biology at the University of Trento in Italy is seeking a PhD student to conduct research growing cultured meat from pluripotent stem cells. This is a fully funded position sponsored by the start-up Bruno Cell.

- Mission Barns is hiring for a number of non-technical positions in Berkeley, CA.

- Artemys—a cultured meat company founded by former NH fellow Jess Krieger is hiring for a number of technical positions in San Leandro, CA.

- Biomilq—a women-owned cell ag infant nutrition company is hiring a Research Associate and Cell & Tissue Engineer in Durham, North Carolina.

- Orbillion—an early-stage company still in stealth mode is hiring a Scientific Lead in Berkeley, CA.

- Gourmey—a cultured meat company focusing on foie gras is hiring a food scientist in Paris, France.

- Bruno italian company

For a comprehensive list of jobs, check out Cell Agri

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