



ANNOUNCEMENTS

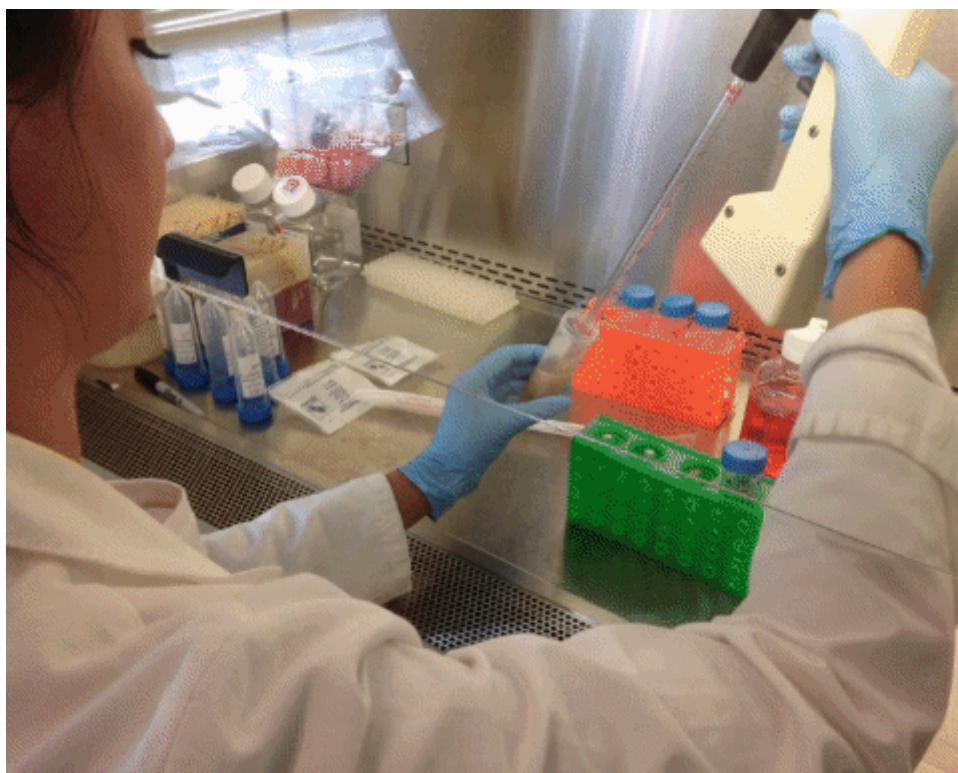
The latest news from New Harvest:

NH2019
July 19 + 20 | MIT Media Lab

EARLY BIRD TICKETS ON SALE NOW!

Student/Biohacker/Veteran discounts also available.
Get your tickets at 2019.new-harvest.org

- **Get your early bird tickets!** New Harvest will be hosting the [4th annual](#) New Harvest conference on **July 19 & 20, 2019** at the MIT Media Lab in Cambridge, Massachusetts. **Early bird tickets are now available the [NH2019 website](#)!**
 - If you are a **student, biohacker, or veteran**, we have *major* discounts available for you! Fill out [this form](#) to apply.
 - Watch the [#NewHarvest2018](#) recap video to see what's to come!



Our research is supported by donors [like you!](#)

- 2018 was an *incredible* year for New Harvest, with many of our long term projects yielding results. How far did New Harvest push cellular agriculture forward in 2018?



Funded 9 research projects



Employed 16 lab scientists and engineers



Put out 8 publications



Mobilized 24 scientific advisors



Used >50% of our budget on research



All with <\$1M, contributed by our donors!

- We couldn't have done this without the help of the 301 donors who contributed to our work in 2018!

NEW HARVEST FEATURES

In Vitro Insect Muscle for Tissue Engineering Applications

Natalie Rubio, Kyle Fish, Barry Trimmer, and David L Kaplan

ACS Biomater. Sci. Eng., Just Accepted Manuscript

DOI: 10.1021/acsbmaterials.8b01261

Publication Date (Web): January 2, 2019

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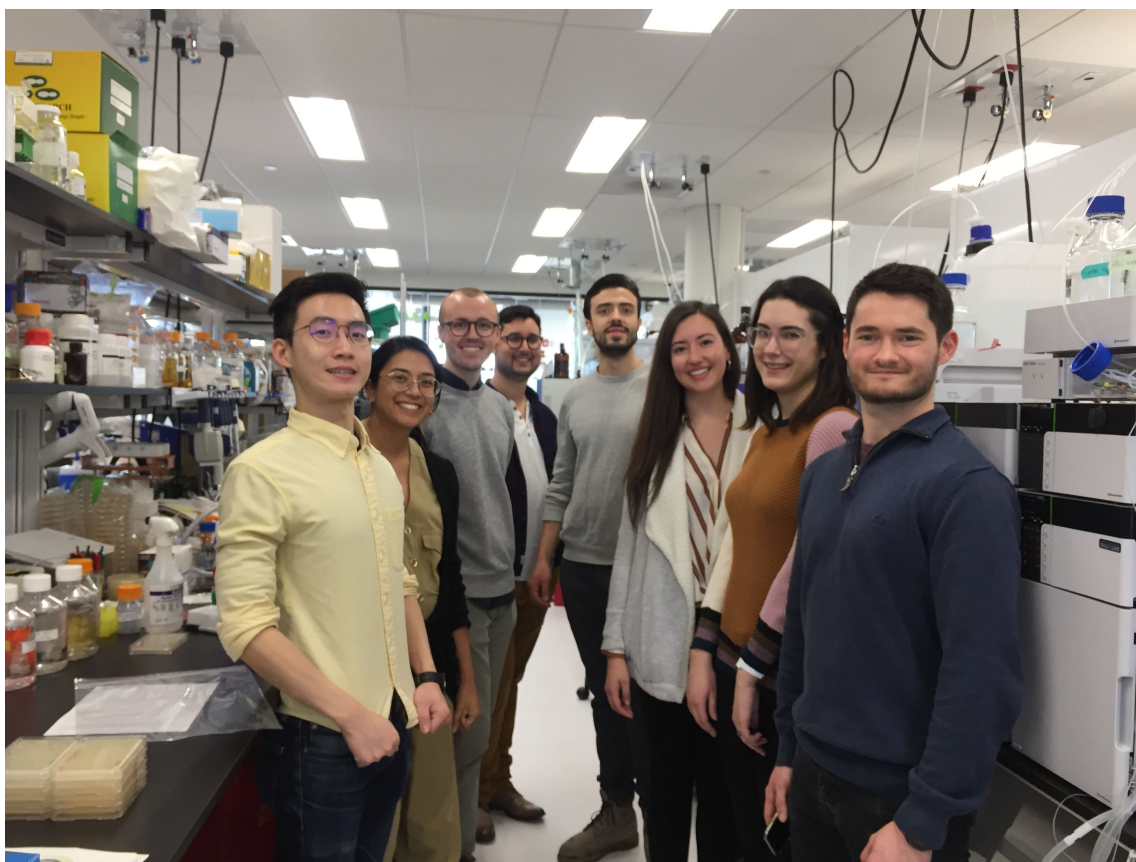
Cite this: ACS Biomater. Sci. Eng. XXXX, XXX, XXX-XXX



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- New Harvest Research Fellow **Natalie Rubio**'s paper, "**In Vitro Insect Muscle for Tissue Engineering Applications**" has been published in the journal **ACS Biomaterials**! Natalie's paper explores the potential application of insect cell lines in tissue engineering beyond medical purposes. Insect tissues offer unique capabilities unlike other, more obvious cell ag-relevant tissues, that make it a perfect first species to investigate for the field. You can access Natalie's article [here](#).
- New Harvest's *first* postdoctoral fellow, **Dr. Ricardo Gouveia**, recently published the paper "**Autogenous biofabrication of native-like, scaffold-free human skin equivalents using a smart, enzyme-degradable tissue templating coating**" in the journal **ACS Biomaterials**. In the paper, Ricardo compares the quality and properties of *biofabricated* dermal tissue to natural human dermis. You can access Ricardo's article [here](#).
- New Harvest Research Fellow **Scott Allan** was recently awarded the **Whorrod Prize for 2017/18**! Scott received the award in recognition of achieving the *highest* overall MRes mark in the Research Masters portion of his PhD in Sustainable Chemical Technologies at the University of Bath.
- New Harvest held the **first Lab Meet of 2019** in Cambridge, MA at the MIT Media Lab. This twice yearly event brings together all New Harvest Research Fellows, to exchange skills, knowledge, and know-how. Here's the crew learning about scale and automation on a tour of Ginkgo Bioworks!



- [Check out our Twitter account!](#) Inspired by Ginkgo Bioworks, New Harvest now has a collaborative approach to Twitter - the account is run by a different member of the New Harvest community one week at a time. Catch a view into the many experiences and perspectives of New Harvest researchers, volunteers, staff, and more.

FROM AROUND THE WEB

Our favourite content from the world of cellular agriculture:

- **What is the [business case](#) for cell ag?** As part of a 5-part series, cell-based fish startup [Wild Type](#) breaks down the numbers for the business case for cell-based meat companies and the growing demand for meat.
 - In Part 2, Wild Type takes a look at the [global distribution of cell ag startups](#) and compares them to regions of growing meat demand.
 - In Part 3, Wild Type explores the [job and talent opportunities](#) for people interested in joining the field.
 - In Part 4, Wild Type investigates the [white space](#) opportunities in the growing cell ag industry.
 - In Part 5, Wild Type wraps up the series exploring future of [food trends](#).

- **Luminary Labs** recently released their list of [100 conferences to attend in 2019](#), and [New Harvest 2019](#) made the list!
- “**Food industry researchers are often required to communicate complex science** to the public, particularly in the event of a supply-chain problem, food-disease outbreak, or chemical or microbiological contamination.” [Written by David Payne for Nature](#), this piece explores the various roles and responsibilities that different food scientists play in the development and quality assessments of foods. *What roles will food scientists play in bringing cellular agriculture products to market?*
- **How will cell-grown foods impact food safety regulation?** Teagann Finn’s piece [“Test Tube Burgers Prompt Regulators to Beef Up Safety Oversight”](#) provides an overview of how food safety regulators are working to ensure cell ag products meet all the necessary safety requirements. Finn also speaks to **Daan Luining**, Chief Technology Officer of Dutch cell ag startup [Meatable](#). Luining was previously part of the research team under Dr. Mark Post that developed the *first* cultured meat burger in 2013. Luining has also worked as a research strategist at New Harvest!
 - **Executive Director** Isha Datar spoke at the **USDA and FDA’s Joint Public Meeting** in October about regulatory steps forward for cellular agriculture. You can catch her thoughts on [food safety](#) and her [formal comments](#) from the meeting on the New Harvest [YouTube channel](#)!
- “We’re going to create [new flavours](#) and things like that. I think **world cuisine will continue to remix with these new flavours and textures**.” [IndieBio](#) is a world-leading life science accelerator based in San Francisco, California where many cell ag startups *first* began, including Memphis Meats, Clara Foods, and Geltor. Ahmed from [CellAgri](#) sat down with **Arvind Gupta, Managing Director of IndieBio**, to learn about IndieBio’s role in [commercializing cell ag](#) and how he sees the *future of food*.
- The USDA posted its long-awaited **GMO labelling law**. Starting in 2022, foods that contain genetically modified ingredients will have to include the label ‘**bioengineered**’. [In this piece for the New Food Economy](#), Sam Bloch explores that that means for different foods and *two particular* foods that will be exempt from the labelling rules.
- “**Cultured meat has often been heralded as a silver bullet** for solving the environmental problems caused by livestock production.” In her paper, [“The eco-friendly burger”](#), **Dr. Hanna Tuomisto provides a breakdown** on the obstacles ahead for cell ag and how cell-based meats can offer a sustainable and environmentally-friendly way to produce meat.

- In 2008, New Harvest funded the [first study investigating](#) the environmental impact of cultured meat production compared to conventional livestock agriculture by Hanna Tuomisto.
- "These preferences make sense in some ways – *naturalness* could be a proxy for important features like food safety and sustainability – but they could also be *problematic*." Written by Dr. Matti Wilks, this [Psychreg article](#) questions why we prefer *the idea* of natural products over something that may be 'unnatural'. What can that mean for a sustainable *future of food*?
- **Seed Grantee Matt Anderson-Baron** was recently interviewed in the [Edmonton Journal](#) about cell-based meat and his new startup [Future Fields](#). Matt shares how he first learned about cellular agriculture, including his research grant from New Harvest!

In the world of **startups**:

- [Aleph Farms](#) became the cell ag *first* startup to make **cell-based steak**! Using their [proprietary tissue technology](#) platform, Aleph Farms grew up to 4 different cell types together to make a small piece of *steak*. Erin Brodwin writes about the significance of the Israeli startup's development in the [Business Insider](#).
 - [The Wall Street Journal made a fascinating video](#) revolving around Aleph Farm's announcement and what that will mean for the future of meat. WSJ also speaks to Josh Tetrick from [Just](#) about their latest partnership to bring [cell-based Wagyu beef](#) to market one day.
- Cellular aquaculture company [BlueNalu](#) recently announced its [new advisory board](#). Their advisory board includes recognizable names, like Pierre-Yves Cousteau, the son of famous ocean conservationist Jacques Cousteau. Other advisory board members include backgrounds with Nestlé, Campbell Soup Co., and the Culinary Institute of America.
- [Ecovative](#) is exploring whether [mushroom mycelium](#) be used to make scaffolding for *both* cell-based and plant-based meats. Ecovative *first* debuted their interest in cell-based meat at the #NewHarvest2018 conference last year! *Mycelium bacon*, anyone?

EMPLOYMENT OPPORTUNITIES IN CELLULAR AGRICULTURE

- **University of Helsinki** is seeking [a postdoctoral researcher or doctoral student in sustainable food systems](#)(consequential sustainability assessment of novel food production technologies), 2-3 years employment contract, deadline to apply 3 March 2019. (Helsinki, Finland)

- **Ruralia Institute, University of Helsinki** is seeking [2 grant-funded doctoral students](#) to focus on societal and environmental consequences of the "post-animal bioeconomy", funding for 4 years, deadline to apply 1 March 2019. (Helsinki, Finland)
- **Geltor** is looking to hire a [VP of Finance](#) (San Leandro, CA).
- **Shiok Meats** is looking to hire [several positions](#) (Singapore)
- **Clara Foods** is looking to hire a couple of [Research Associates](#) (South San Francisco, CA)
- **Finless Foods** is actively looking for a [Senior Scientist](#) (Emeryville, CA)
- **Modern Meadow** is actively looking to fill a [number of positions](#) (Nutley, NJ).
- **Perfect Day Foods** is looking for a [Research Associate](#) (Berkeley, CA).
- **New Age Meats** is looking to hire a [Stem Cell Biologist](#) (San Francisco, CA).
- **Memphis Meats** currently has [several openings](#) (Berkeley, CA).
- **JUST** has [several openings in cellular agriculture](#) (San Francisco, CA).
- **Is your cell ag company looking to grow?** [Get in touch](#) to have your job posting shared on the New Harvest newsletter.

This mailout was written by New Harvest community member Ahmed Khan from [CellAgri](#), a news and insights platform exploring the future of food with cellular agriculture. Check out CellAgri on [Twitter](#) and [Instagram](#)!

[New Harvest](#) is powered by people like you.

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