

Cultured Meat: A New Era in Food Bioprocessing



Dear Participants

It is a pleasure to welcome you to this one-day conference on **Cultured meat: A New Era in Food Bioprocessing** held on 19th April 2023 in London and organised by the Biochemical Engineering Special Interest Group (BESIG) within the Institution of Chemical Engineers (IChemE).

Cultured meat is an emerging novel food that is more sustainable than meat obtained through traditional farming and may contribute to solving current food security and key environmental challenges. It is real meat with the same structure, composition, and taste, but it doesn't require animal slaughter and is produced in a controlled manner. Due to its complex structure with multiple cell types, the production of cultured meat is complex and challenging. Commercial availability and affordability of these novel food products will be determined by its manufacturing processes.

The meeting will cover both the current status of the Cultured Meat industry and the bioprocessing challenges that need to be resolved, including media and ingredients development and process analytics, as the technology transitions from lab bench through to commercial production.

We hope that you will enjoy the science, interact with our trade sponsors and extend your network.

On behalf of the organising committee,
Petra, Glenn, Vaughan, Alex and Eirini



ORGANISING COMMITTEE



Petra Hanga
UCL & Quest Meat



Glenn Robinson
Getinge



Vaughan Thomas
UCL & Tillingbourne Consulting



Alex Kiparissides
Aristotle University & UCL



Eirini Theodosiou
Aston University

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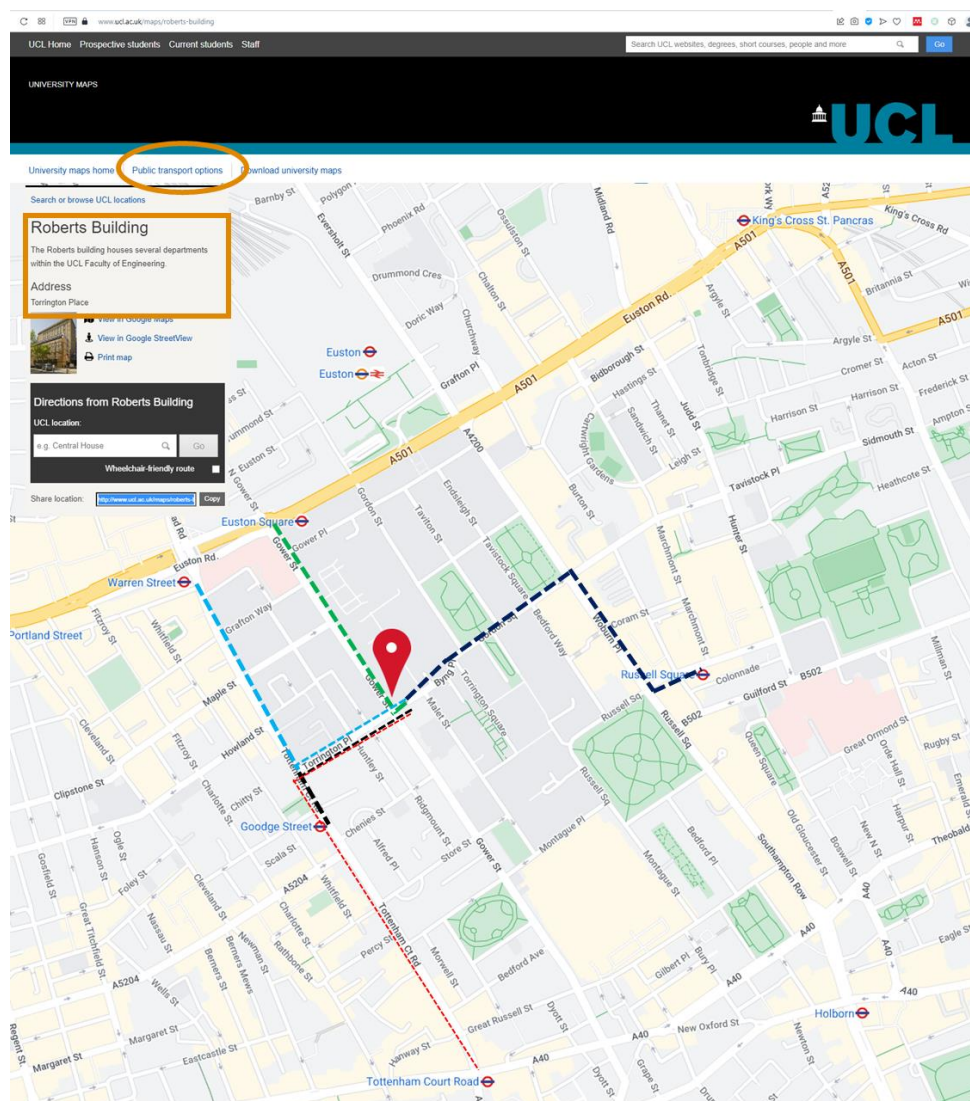


IChemE
Biochemical Engineering
Subject Group

PRACTICAL INFORMATION

EVENT VENUE

Roberts Building, University College London, Torrington Place Entrance, London WC1E 6BT



 <http://www.ucl.ac.uk/maps/roberts-building>

SCIENTIFIC SESSIONS

All presentations will take place in Lecture Theatre G08, Roberts Building.

LUNCH/COFFEE breaks and TRADE EXHIBITION

Lunch/coffee breaks and Trade exhibition will be in the Roberts Building Foyer.



CONFERENCE PROGRAMME

- 9:00** *Registration*
- 10:00** **Introduction to BESIG IChemE and the meeting**
Glenn Robinson
- CHAIR: Glenn Robinson**
- 10:10** **Keynote: Introduction to Cultivated Meat: Core Research
Priorities and Opportunities for Researchers**
Seren Kell, Good Food Institute Europe
- 10:40** **Developing stem cells for cultivated meat production**
Tom Phillips, Roslin Technologies
- 11:00** **Increasing complexity and control: reinventing growth media
for the cultivated meat industry**
Cai Linton, Multus
- 11:20** *Coffee Break and Technology exhibition*
- CHAIR: Eirini Theodosiou**
- 11:50** **Developing culture medium for cultivated meat – methods,
challenges, and opportunities**
Jonathan Dempsey, Pathway Biopharma Ltd
- 12:10** **A new sustainable, cheap and versatile ingredient for the
cultivated meat sector**
Ivan Wall, Quest Meat
- 12:30** **Panel Discussion**
Seren Kell, Tom Phillips, Cai Linton, Jonathan Dempsey, Ivan Wall
- 13:00** *Lunch Break and Technology exhibition*
- CHAIR: Petra Hanga**
- 14:00** **Keynote: Beefing up the CHO bioprocess - what's at steak?**
Ruth Faram, Higher Steaks
- 14:30** **Developing scalable processes for cultivated meat**
Will Milligan, Extracellular
- 14:50** **Reimagining scalable bioprocessing; a breakthrough in
adherent cell culture**
Ajay Tharakan, CellRev



15:10 *Coffee Break and Technology exhibition*

CHAIR: Vaughan Thomas

15:40 **Scaling up cultivated fat**
Max Jamilly, Hoxton Farms

16:00 **Panel Discussion**
Ruth Faram, Will Milligan, Ajay Tharakan, Max Jamilly

16:20 **UCL TINs announcement**
Jonathan Knowles

16:25 **Final remarks and close of meeting**



SPEAKER BIOGRAPHIES



Seren Kell

Good Food Institute Europe

Introduction to Cultivated Meat: Core Research Priorities and Opportunities for Researchers

Seren's background is originally in biochemistry, with a focus on cellular senescence and the fundamental processes underlying human ageing. Over the last few years she has been involved in both the cultivated meat space (focusing on cell culture media, and then co-founding Cellular Agriculture UK), and external innovation more generally – previously working at IN-PART, a startup that connects R&D-focused companies with academia to encourage greater collaboration. Now at the Good Food Institute Europe, Seren leads our science and technology team to build a strong, well-funded scientific community in the sustainable proteins space across Europe.



Tom Phillips

Roslin Technologies

Developing stem cells for cultivated meat production

Tom is Chief Commercial Officer at Roslin Technologies, an Edinburgh-based biotechnology company focussed on developing and licensing animal stem cells for the production of cultivated meat. Before joining Roslin Technologies, Tom worked in the cultivated meat industry as an independent consultant, advising early-stage companies on commercial and strategic topics.

Previously, Tom worked in West Africa, developing conventional agricultural projects with a focus on food security, economic development, and employment. Earlier in his career he worked at McKinsey & Company as a Fellow in the firm's sustainability practice. He studied Engineering at Durham University and Sydney University.

Tom has a particular interest in novel approaches to food production. He is keen to see a world where our consumption of food is decoupled from environmental degradation and social injustice.



Cai Linton

Multus

Increasing complexity and control: reinventing growth media for the cultivated meat industry

Cai Linton (CEO/Founder) has an MEng in Bioengineering from Imperial College London and founded Multus to make cultivated meat the affordable and sustainable choice, for everyone. Multus is enabling the cultivated meat industry to realise its disruptive potential, creating the key ingredients to make cultivated meat production scalable, affordable and profitable. Their first product, Proliferum® M, grows muscle, fat and connective tissue using a unique formulation and ingredient design process.



Jonathan Dempsey

Pathway Biopharma Ltd

Developing culture medium for cultivated meat – methods, challenges, and opportunities

Jon specialises in the translation of biological products to commercial application through the development of innovative materials and processes. Jon has worked extensively in bioprocessing, developing not only biological medicines but the cell lines, expression systems, culture and medium and bioprocesses used in their manufacture. Recently Jon has been translating his skills to the field of cultivated meat, working with innovators to help further develop their technologies towards commercial scale. Bringing many years of experience in the biology, metabolism and physiology of cells used in industrial processes Jon has led culture medium development at several companies and advised new suppliers in the science of culture medium for animal cells.



Ivan Wall
Quest Meat

A new sustainable, cheap and versatile ingredient for the cultivated meat sector

Ivan is a scientist turned entrepreneur, who is passionate about driving positive change through technology and innovation. He completed a PhD in cell biology and regenerative medicine as well as an MBA. His academic career started at University College London and then Aston University where his team worked at the interface of stem cell science and bioprocessing. Most of his work was focused on stem cell therapies for medicine and he has translated this knowledge to cultivated meat. Currently he is the Co-founder and CEO of Quest Meat.



Ruth Faram
Higher Steaks

Beefing up the CHO bioprocess - what's at steak?

Dr Faram is co-founder and Chief Scientific Officer at HigherSteaks, where she leads the company strategy and research focus for the Stem Cell, Bioprocess, Differentiation and Biomaterial teams.

Dr Faram was awarded BSc. Neuroscience from University College London in 2008, MSc. Pharmacology from the University of Oxford in 2009 and completed her doctorate in Neuropharmacology from the University of Oxford, Department of Anatomical Neuropharmacology in 2013, where she specialised in novel neurogenic cell types in the rostral migratory stream during development of the rodent olfactory system. She subsequently held three postdoctoral positions within the Department of Pharmacology, Department of Physiology Anatomy and Genetics and the William Dunn School of Pathology, and the Nuffield Orthopaedic Centre. She received scholarships from the Medical Research Council and Alzheimer's Research UK to work on the neuropathological interactions between amyloid beta and tau proteins in the human induced pluripotent stem cells, as part of the StemBANCC initiative. She was later awarded an Arthritis Research UK scholarship to work on the epigenetic mechanisms of bone stem cells during inflammation.

She brings extensive years of experience in cell and molecular biology, working with cutting edge, innovative technologies. She is inventor on 4 patents (pending). She is a mum to 4 year old Felix, and is a seasoned marathon runner.





Will Milligan
Extracellular

Developing scalable processes for cultivated meat

Bio: Will Milligan is CEO and Co-Founder of Extracellular, the world's first CDMO dedicated to supporting cultivated meat. Extracellular has established world-leading capabilities in the UK, with expertise in small-scale optimisation for process development, high-throughput media development, and scale-up capabilities to produce large quantities of cultivated meat.

Will is an expert in biomanufacturing, with more than a decade of experience in process development and scale-up across stem cells, gene therapies and cultivated meat. Will was formerly Head of Upstream Processing at a UK-based biotech CDMO and consultancy, and holds an Engineering Doctorate in Biopharmaceutical Process Development.



Ajay Tharakan
CellRev

Reimagining scalable bioprocessing; a breakthrough in adherent cell culture

Ajay is Head of Bioprocessing at CellRev and is working on commercialising of their novel bioprocess technology. Ajay has a MEng in Chemical and Process Engineering from Newcastle University and an EngD in Formulation Engineering from Birmingham University where he developed models of the human small intestine with Unilever. Ajay has worked in a range of industries and scales of companies with a focus on taking research from the lab to manufacturing scale.



Max Jamilly
Hoxton Farms

Scaling up cultivated fat

Max Jamilly is the co-founder of Hoxton Farms. Based in London, Hoxton Farms make real animal fat – without the animals – as an ingredient for delicious meat alternatives. After raising their series A in 2022, they are now building London's first pilot facility for cultivated fat. Max has a PhD in synthetic biology from Oxford and two degrees in biotech and business from Cambridge. He has spent the past decade in the UK and US using biotechnology to solve problems in healthcare, climate and food. He is obsessed with the future of food.