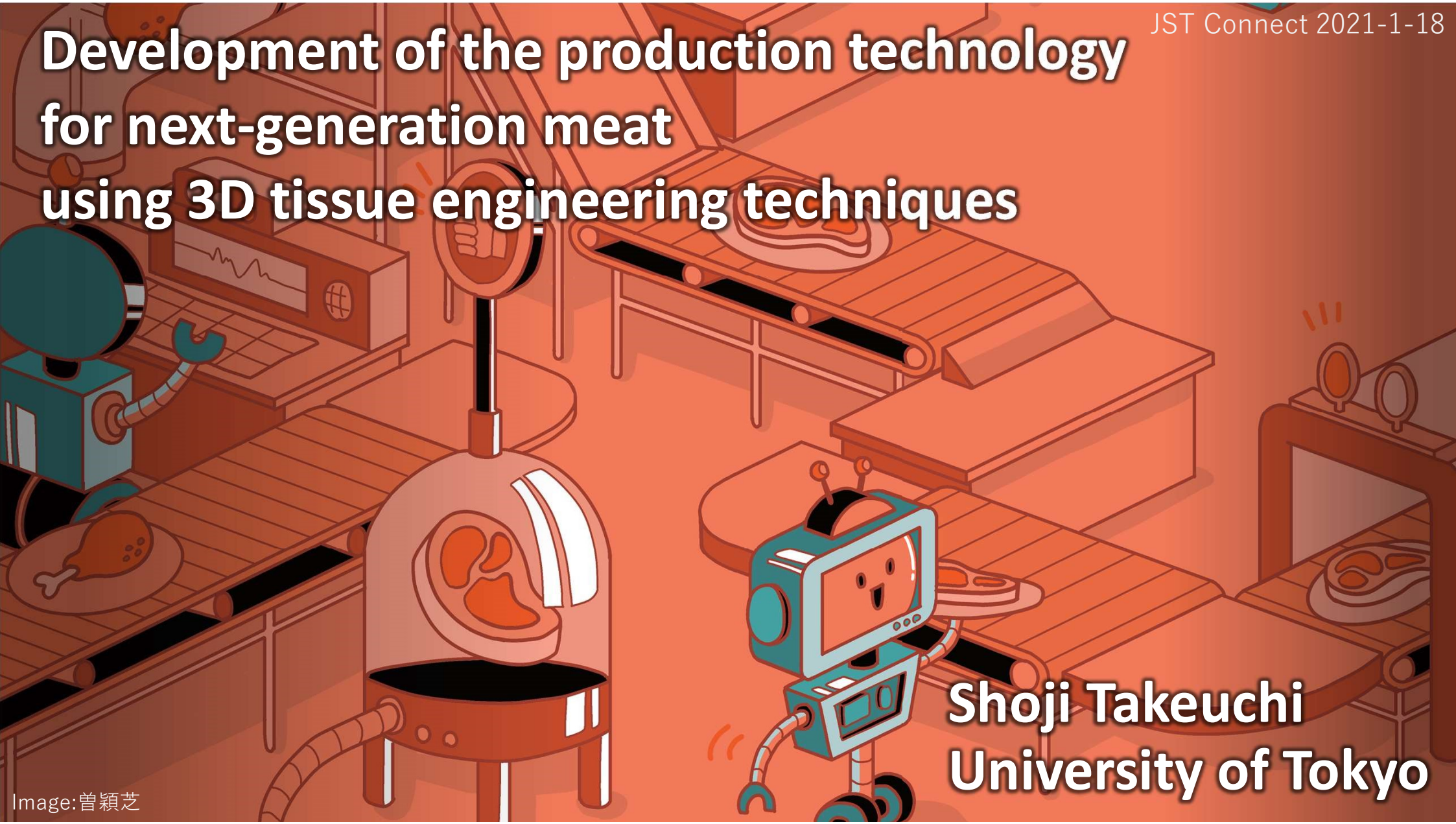
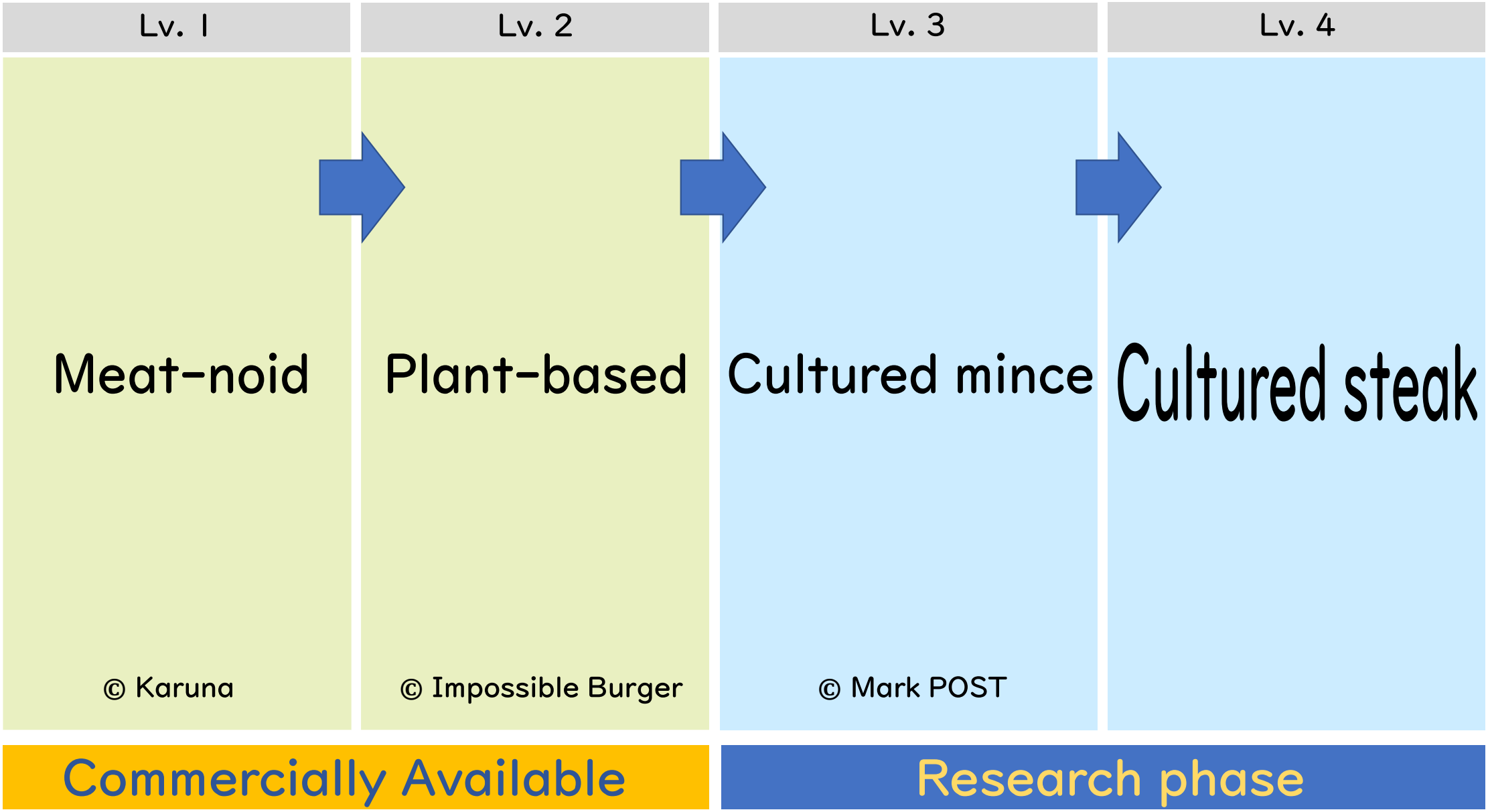
JST Connect 2021-1-18

Development of the production technology for next-generation meat using 3D tissue engineering techniques

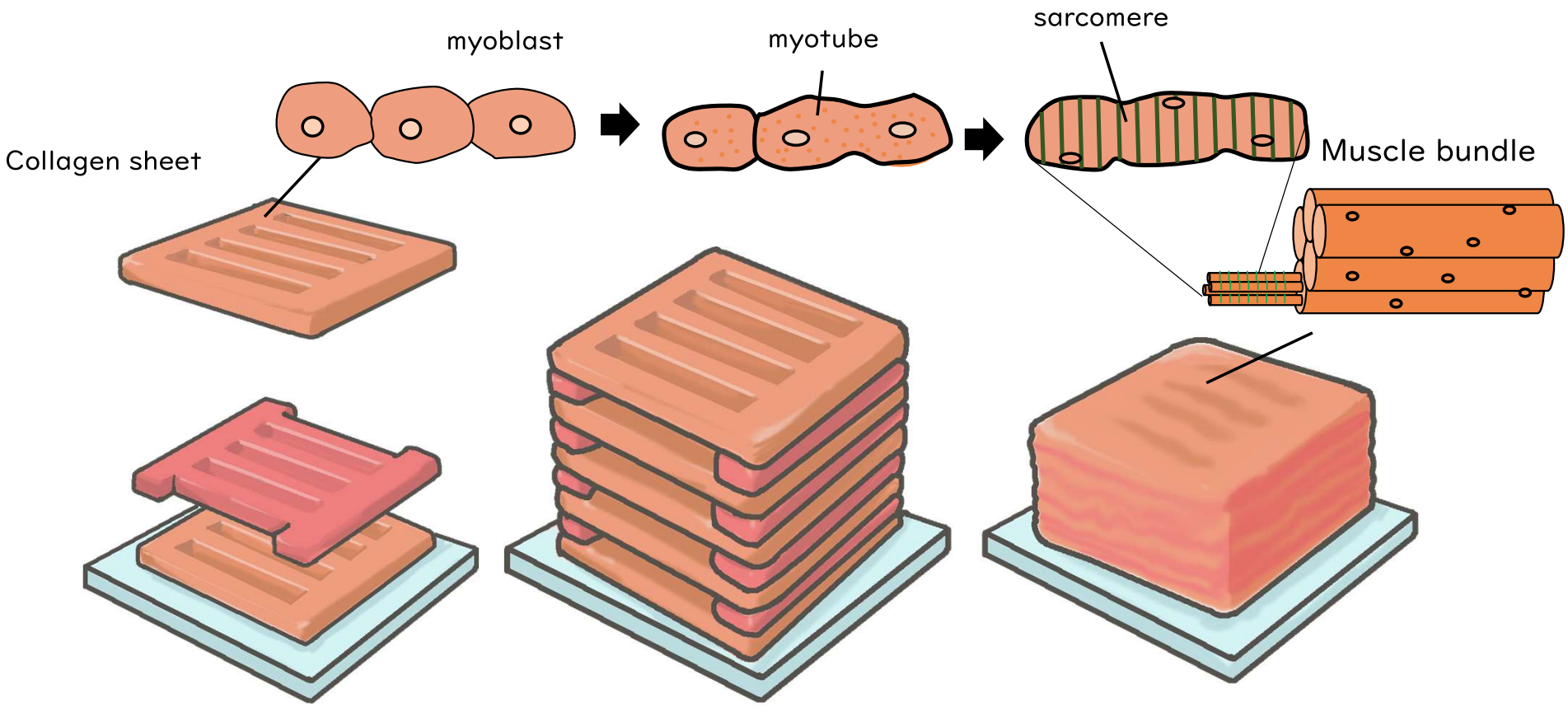


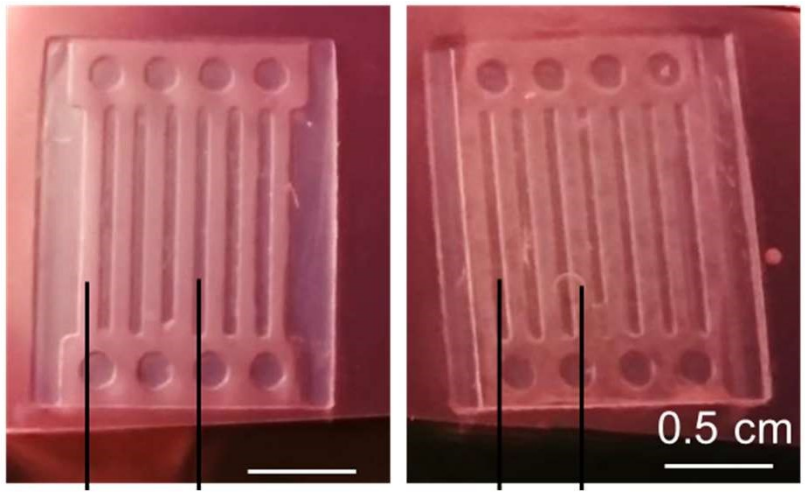
Shoji Takeuchi
University of Tokyo

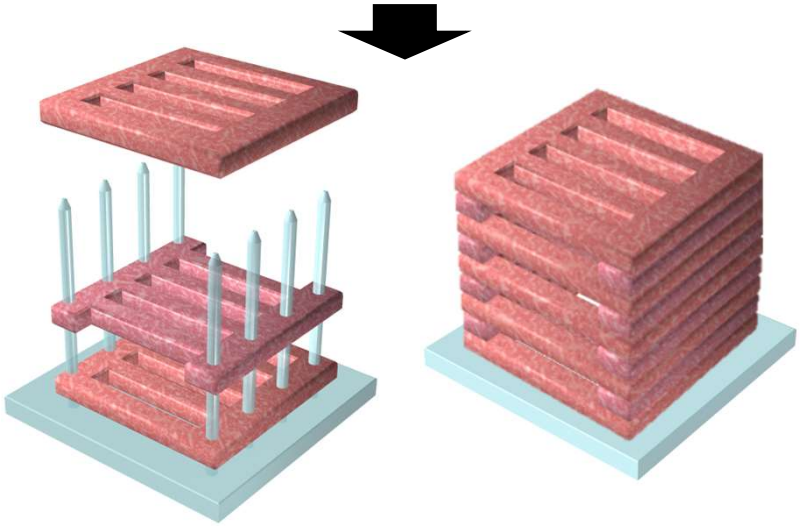
Image:曽穎芝

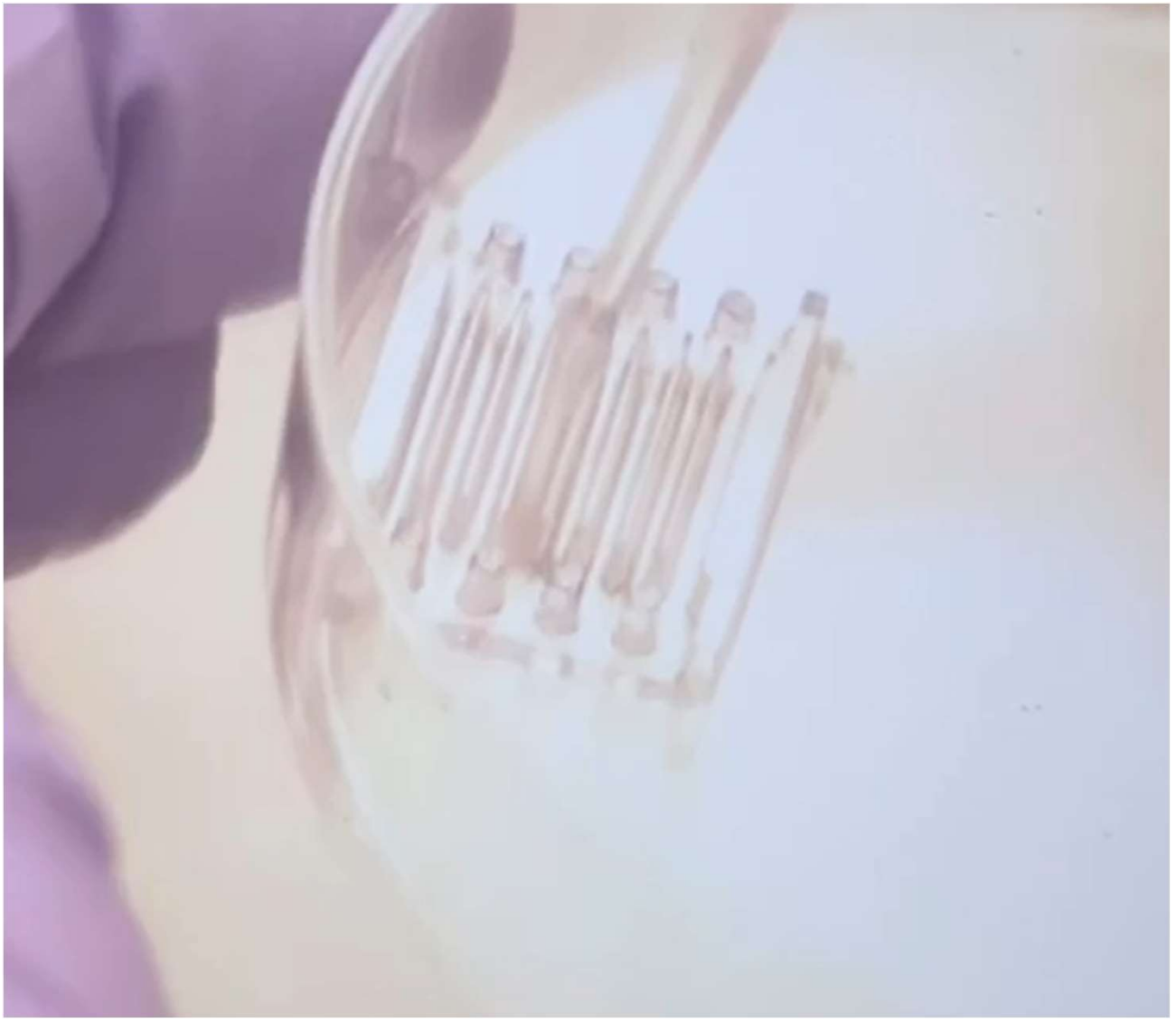

Lv. 1
Lv. 2
Lv. 3
Lv. 4
Meat-noid
Plant-based
Cultured mince
Cultured steak
© Karuna
© Impossible Burger
© Mark POST
Commercially Available
Research phase

3D muscle tissue formation



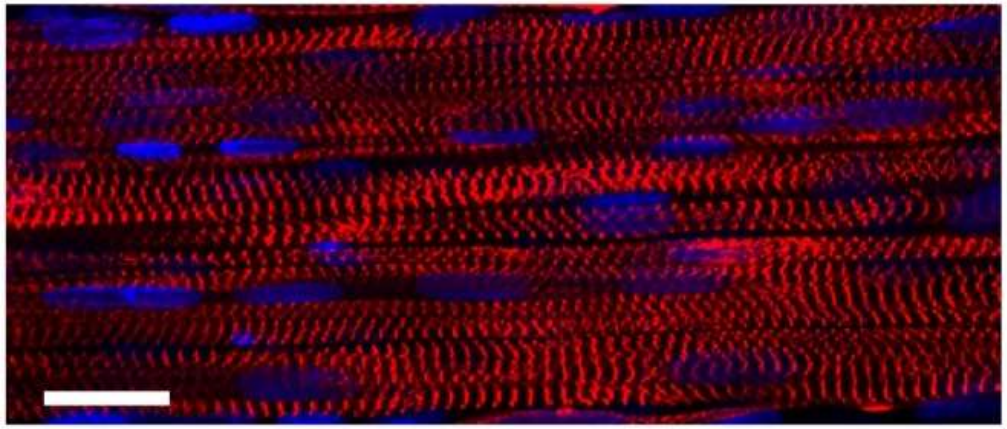

0.5 cm



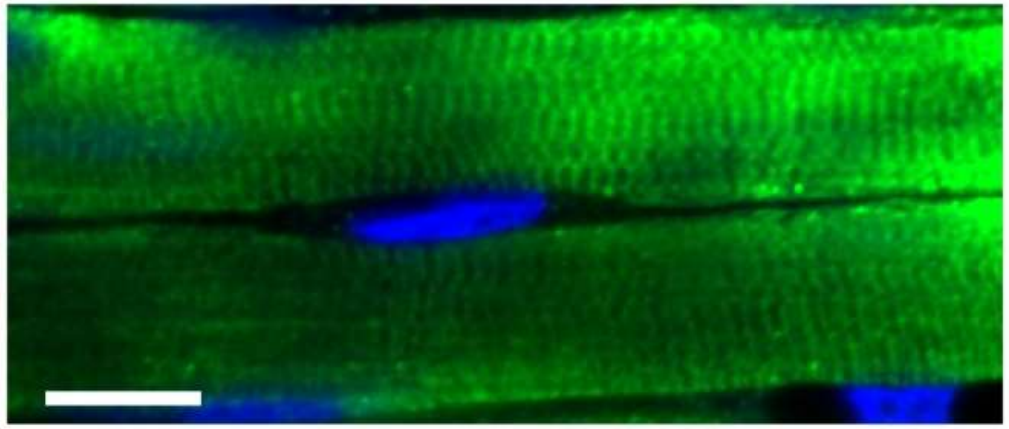


Patent 2016-041059

Blue: cell nucleus, Red: α-actinin

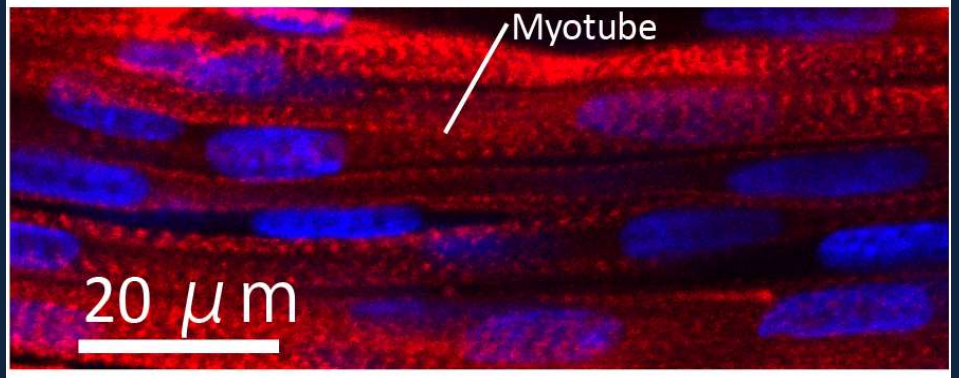


Blue: cell nucleus, Green: Myosin heavy chain

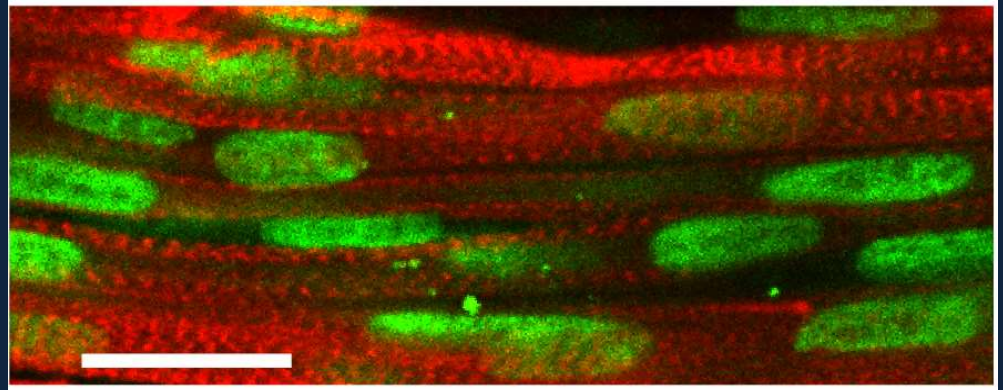


existence of **sarcomeres**

Blue: cell nucleus, Red:α-actinin

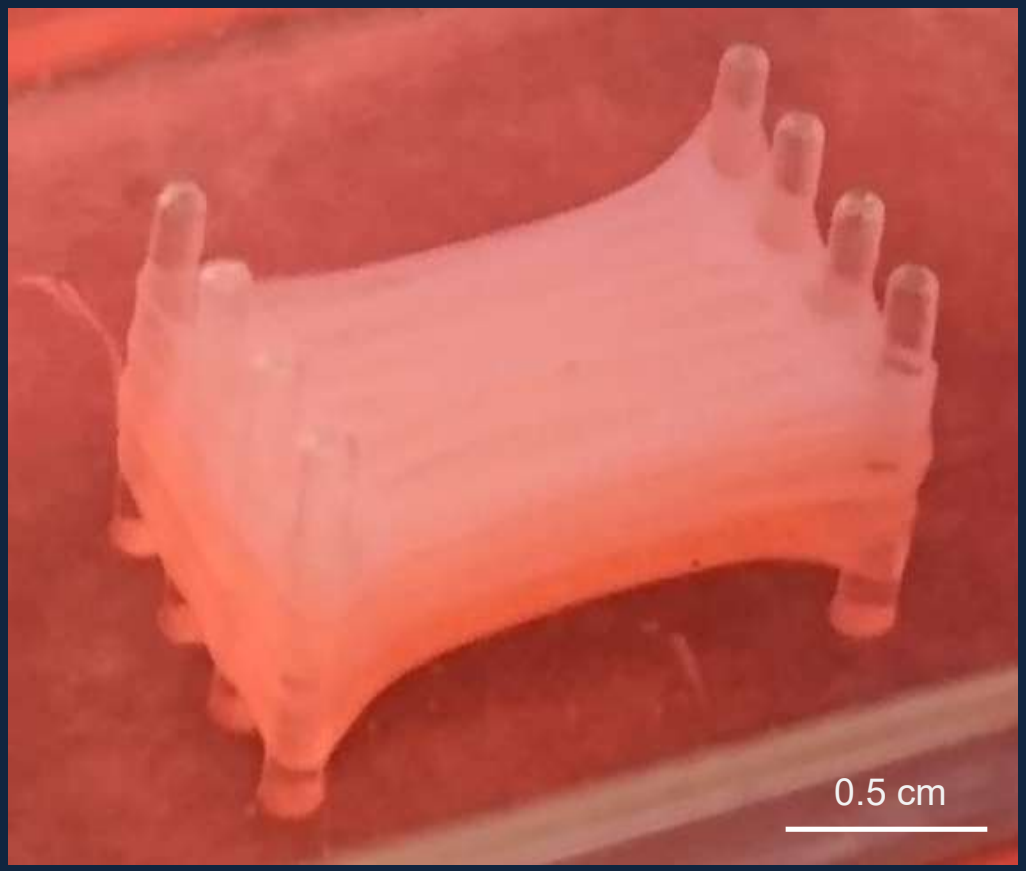


Green: myogenin, Red:α-actinin

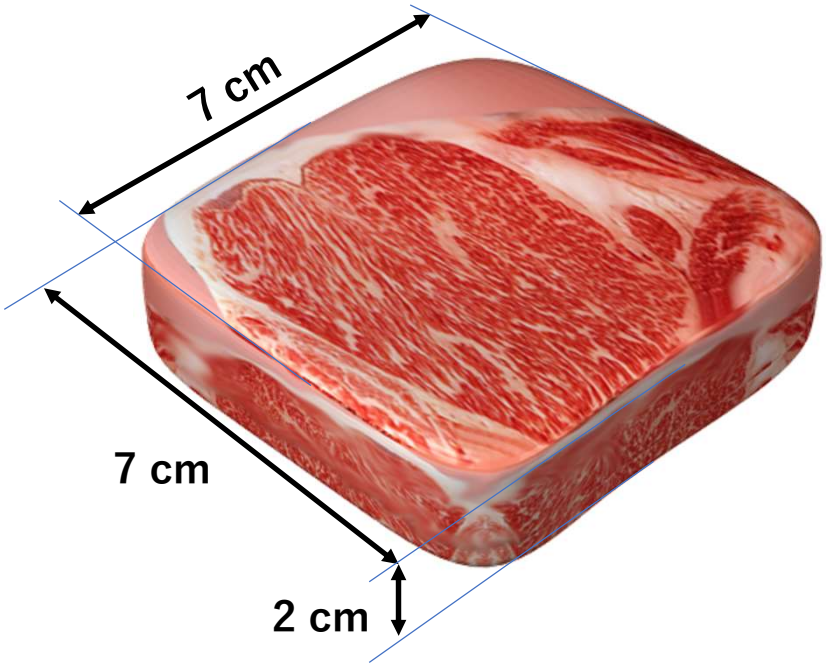


High ratio of **myogenin** expression


Day 7
0.5 cm


0.5 cm

JST-Mirai Program: Innovative R&D for the future (2020-2025)



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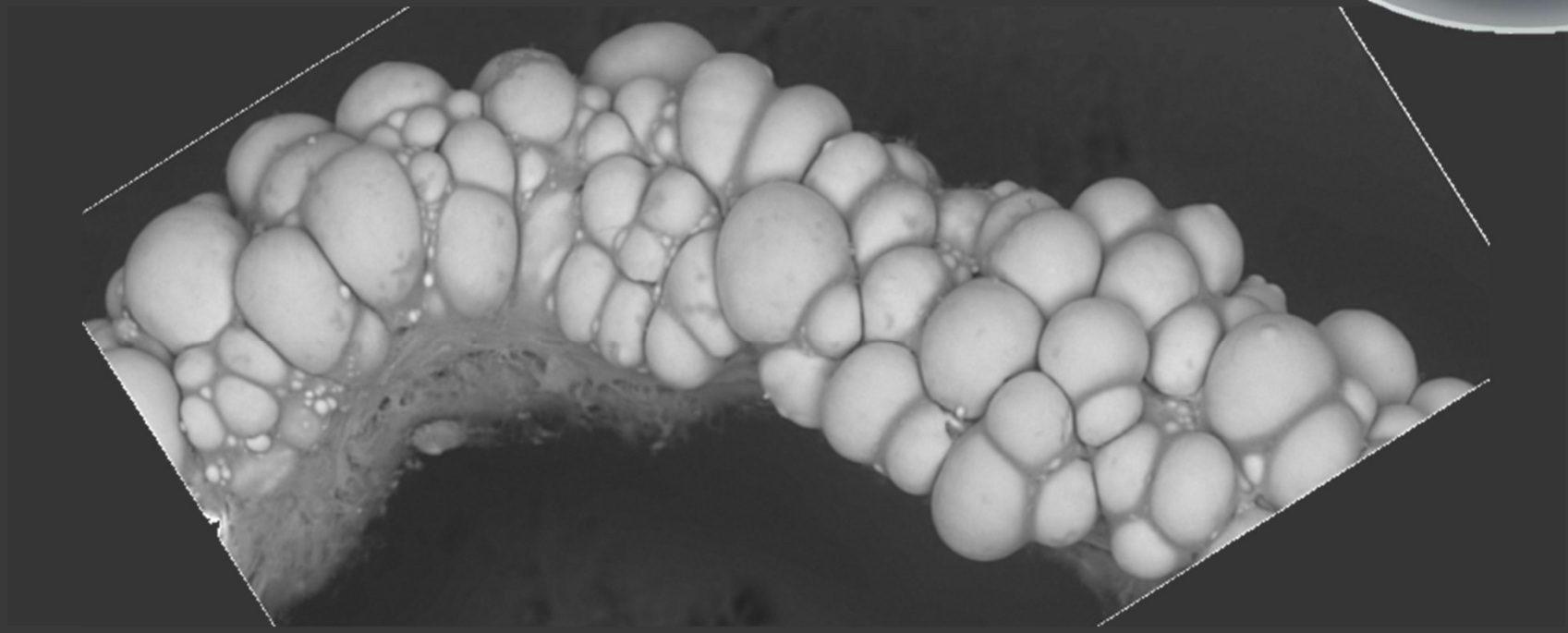
Fat tissue



Issues

1. Technology
2. Culture
3. Regulation

A booklet for cultured meat

Cultured Steak Players

Tatsuya Shimizu（TWMU）

Culture media using algae as a nutrient source

Shoji Takeuchi（UTokyo）

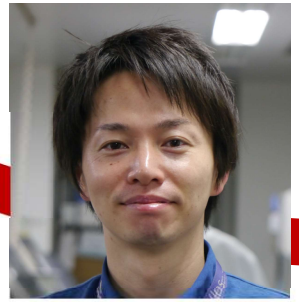
3D muscle tissue construction

Futoshi Nakamura（Nissin)

Food evaluation of the cultured meat

Hiroshi Ishikawa（U. Tsukuba ）

Cell expansion



Katsuhisa Sakaguchi（Waseda）

Low-cost culture media

Michiya Matsusaki (Osaka U.)

Fat tissue

Aiko Hibino (Hirosaki U.)

Public receptibility of cultured meat