SAKURA SCIENCE EXCHANGE PROGRAM 2025

FINAL PRESENTATION

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Technologies learned at Osaka University and Shimadzu Co

- TQ LC-MS, Q-TOF LC MS, Imaging MS, TQ GC-MS

TQ LC-MS

Q-TOF LC MS

ImSCOPEQT

TQ-GC MS

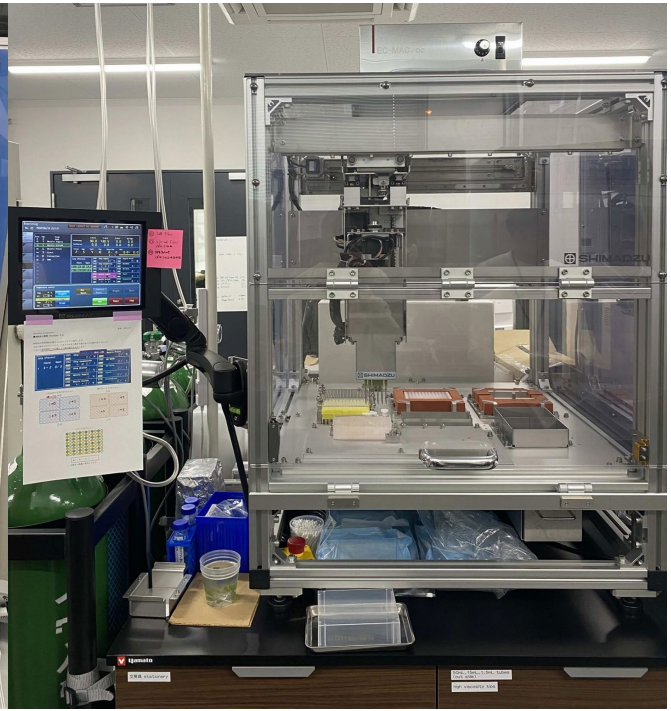
https://www.ssi.shimadzu.com/products/index.html

Technologies learned at Osaka University and Shimadzu Co

animal cell-cultured Wagyu beef in a lab

- Cell isolation and stock
- Bioink design
- 3D Bioprinting
- Flow system to induced differentiation into fiber
- Assembly with transglutaminase

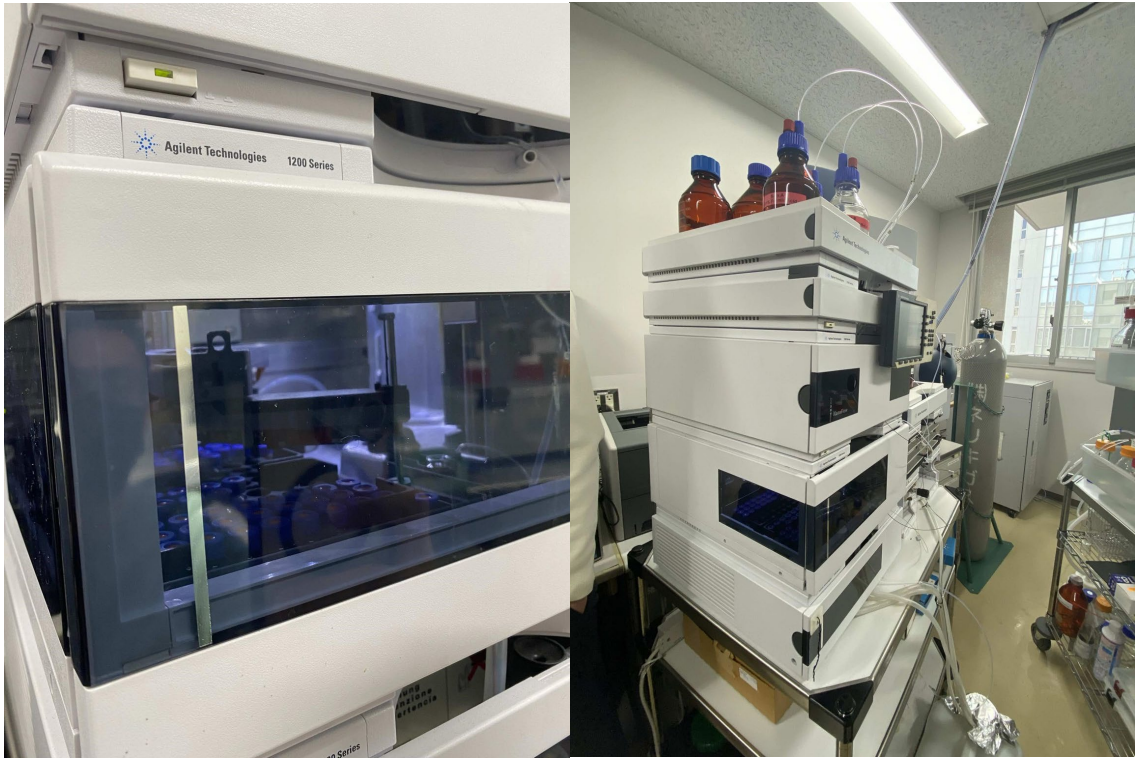
Bioink Design Process



3D Bioprinting Machine

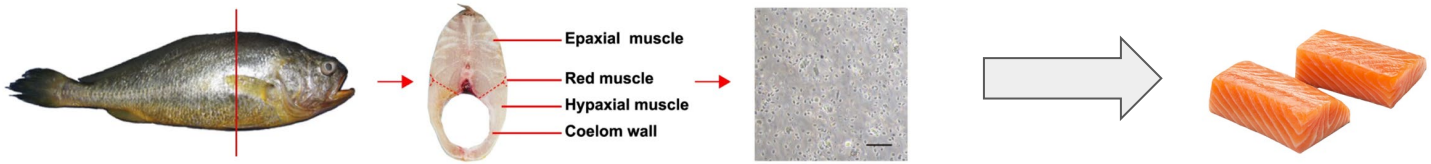
Technologies learned at Osaka University and Shimadzu Co

nanoLC-MS/MS (from hands on research experience with Kajiura-sensei)



nanoLC-MS/MS

Animal cell-cultured meat (other than mammalian)



(Enbo Xu et al, 2023)

Fish (Salmon)

Birds (chicken)

Invertebrates (shrimp, octopus)

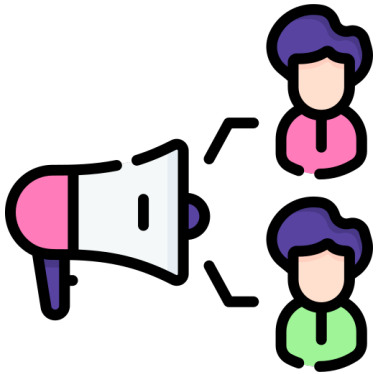
- Producing other meat alternatives with the same method is possible according to recent researches.
- Screening and adjustment of the BSA ratio, culture condition is required for finding suitable constituent method for future manufacturing

Technology we can develop to get better meat

- Technology for **tasting the meat** (law not allowed to taste by human)
- **Substitution of serum** to reduce the cost of production
- Better **red** food dye
- **Aroma** resemblance of conventional meat
- Technology to **decrease cell cultivation time**

Concerns

- Safety: Unknown health effects
- Not regulated by normal immune system (prone to cell development error)
- Public awareness and acceptance



THANK YOU
ご静聴ありがとうございました