Consumer Expectations and Perceptions on Cultivated Meat

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I have no conflicts of interest or disclosures to report.
Problems solved by cultivated meat

Environment
Animal Death
Problems solved by cultivated meat

Tomiyama...Rowat, 2020, Trends in Food Science & Technology
Problems solved by cultivated meat

- Environment
- Animal Death
- Poor Health
Tunable scaffolds

Amy Rowat, UCLA

Norris et al., 2022, Biomaterials
It’s not that easy

**Ethics**
"Why should we take jobs away from farmers and give them to scientists?"

**Cost**
"It's too expensive."

**Naturalness**
"It's not natural."
"It's disgusting."
"Food should come from a farm, not a lab."

**Health**
"It's not as healthy as 'real' meat."
"It's not safe to eat."

**Taste**
"Sounds gross."
"It won't taste as good as 'real' meat."
"It won't have the flavor of 'real' meat."

**Identity**
"Eating meat is part of my culture."
"Eating 'real' meat is manly."

Tomiyama...Rowat, 2020, *Trends in Food Science & Technology*
Barrier #1: Taste and texture

Taste is the #1 concern about cultivated meat

(Also Barrier #2: Cost)
(And Barrier #3: Safety)

Wilks & Phillips, 2017, *PLOS One*
Barrier #4: Disgust & morality

- Neophobia makes people judge foods as disgusting
- Disgust makes way for moral judgments: “It’s just wrong”
People are indeed disgusted by it

Daniel Rosenfeld, UCLA

Rosenfeld & Tomiyama, 2022, J of Env Psych
Why? “It’s unnatural”
Animal Frame: “Cultured meat is meat grown from animal muscle cells in isolation without the need to raise animals. Cultured meat is 100% pure animal flesh, so eating a hamburger made from cultured beef feels like eating something that came directly from a cow. Every single bit of any cultured meat originates entirely from a real living animal.”

Control Frame: “Cultured meat is meat grown from animal muscle cells in isolation without the need to raise animals. The world’s first cultured meat hamburger was created in 2013. Currently, cultured meat is not publicly available, though it will likely become available in the near future.”
Barrier #5: Political orientation

Conservatives are more skeptical of cultivated meat than liberals

Wilks & Phillips, 2017, *PLOS One*
Barrier #6: Gender identity

(Although they are more receptive to plant-based-diets\textsuperscript{1}) Women are less receptive to eating cultivated meat than men\textsuperscript{2}

\textsuperscript{1}Rosenfeld, 2018, Appetite; \textsuperscript{2}Wilks & Phillips, 2017, PLOS One
Barrier #6: Gender identity

Comparing the proportions of men and women who reported that, if they were to become a vegetarian or vegan, their main reason for doing so would be out of concern for animals, their health, or the environment.

<table>
<thead>
<tr>
<th>Prospective Reason for Becoming:</th>
<th>Men</th>
<th>Women</th>
<th>$\chi^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetarian</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concern for animals</td>
<td>15%</td>
<td>26%</td>
<td>31.92***</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Health reasons</td>
<td>55%</td>
<td>50%</td>
<td>4.31*</td>
<td>.038</td>
</tr>
<tr>
<td>Environmental reasons</td>
<td>15%</td>
<td>12%</td>
<td>1.97</td>
<td>.160</td>
</tr>
<tr>
<td>Vegan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concern for animals</td>
<td>17%</td>
<td>26%</td>
<td>19.40***</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Health reasons</td>
<td>50%</td>
<td>50%</td>
<td>0.00</td>
<td>.961</td>
</tr>
<tr>
<td>Environmental reasons</td>
<td>15%</td>
<td>12%</td>
<td>3.35</td>
<td>.067</td>
</tr>
</tbody>
</table>
Barrier #6: Gender identity

Rosenfeld & Tomiyama, 2021, *Appetite*
Barrier #7: Social Ethics

“Cultivated meat will take jobs away from farmers”

Wilks & Phillips, 2017, *PLOS One*
Barrier #8: Mistrust of science

Negative perceptions of science can impact food choices

McCluskey et al., 2016, Ann Rev Resource Econ
Combatting mistrust of science

- “Clean meat” > “Lab-grown meat”\(^1\)
- But “clean meat” has its risks\(^2\)
- Lesson from GMOs: Transparency is key\(^2\)
- Academic partnerships
  - Not for profit
  - Academics seek to publish, not keep trade secrets

\(^1\)Siegrist et al., 2018, *Meat Science*; \(^2\)Mohorcich & Reese, 2019, *Appetite*
Consumer education

Food: A Lens for Environment and Sustainability vs. Evolution of the Cosmos and Life (control)

Jenny Jay, UCLA

Jay et al., 2019, Climatic Change
The path forward

- Targeted marketing that addresses each consumer’s idiosyncratic objection
- Behavioral economics and “nudging”
  - Cultivated meat at eye-level
  - Make cultivated meat the default

Tomiyama...Rowat, 2020, Trends in Food Science & Technology