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Is Feeding Algae to Lab- Grown Chicken the Future of Agriculture?

Elise Barton

Utah State University

Melanie Mills

Utah State University

Britton Porter

Utah State University

Elizabeth Walker

Utah State University

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Microalgae feed media can decrease the need for animal products in lab grown chicken cells.



Elise Barton, Melanie Mills, Britton Porter, Elizabeth Walker, Dr. Ronald Sims
Utah State University

Dr. Cameron Copeland
Upside Foods

What is lab-grown meat?

Cellular agriculture, commonly referred to as lab-grown meat, has the potential to require less land, water, and energy compared to traditional meat.

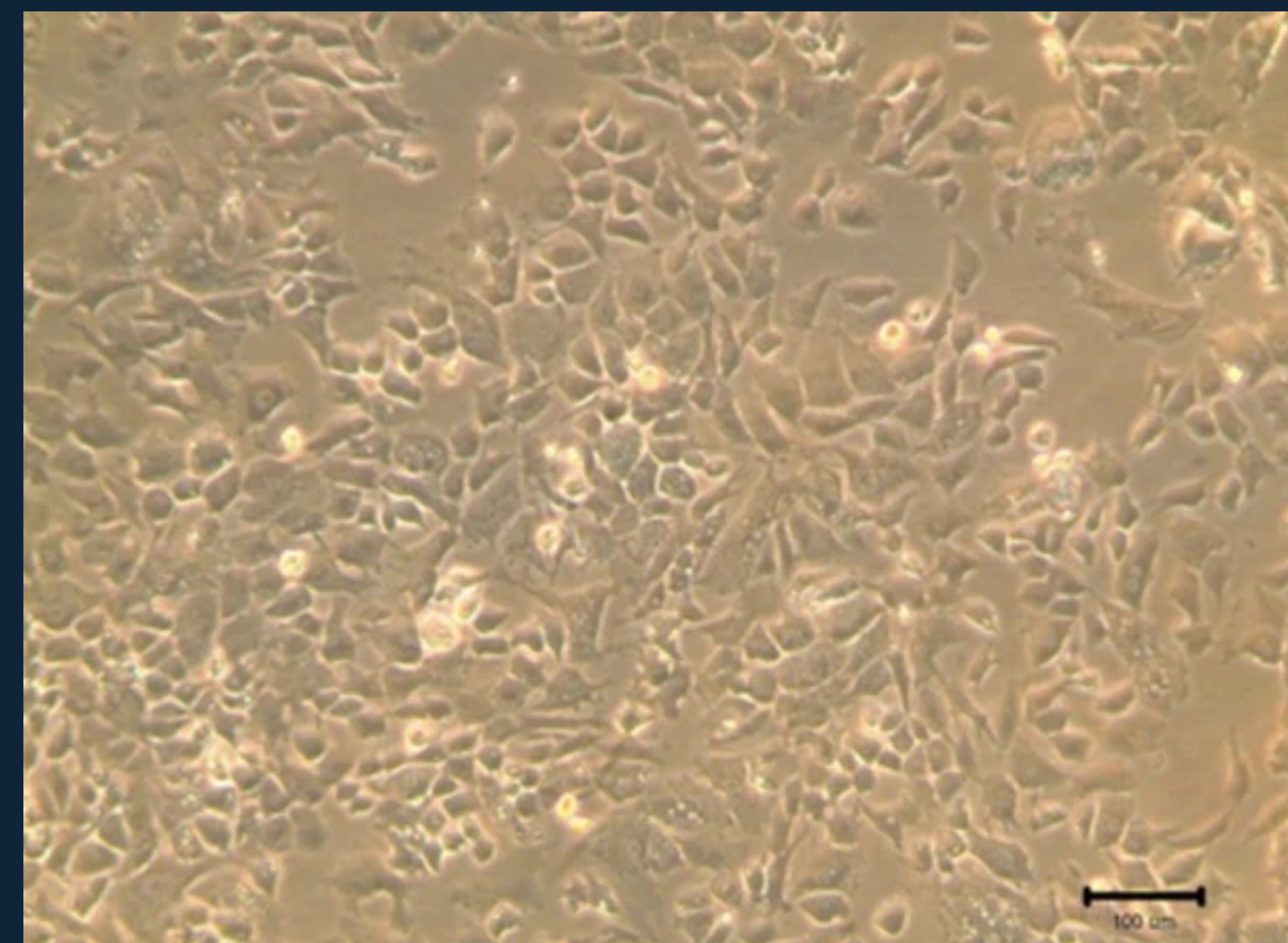
A major constraint for expanding cellular agriculture is the cost of the feed source for the cells.

- **Hypothesis:** Using microalgae as the primary feed source for chicken cells will reduce the cost of cellular agriculture.

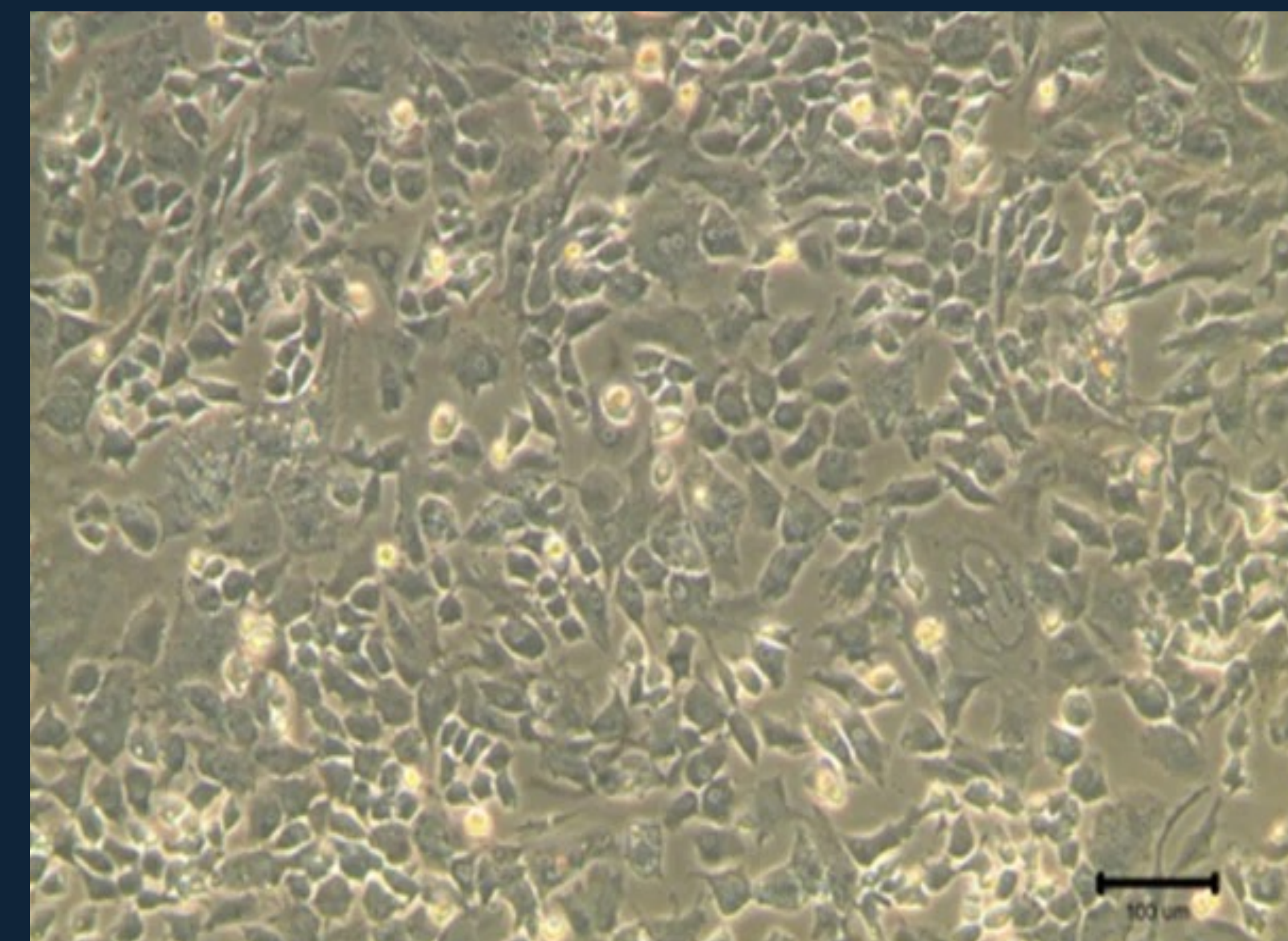
Feed sources

- Develop combinations of feed sources to culture cells.
- Test these feed sources initially on Human Embryonic Kidney (HEK) cells.
- Analyze results and adapt ratios for subsequent testing
- Use new ratios to culture chicken cells.
- Analyze results and adapt the design as needed.

Is feeding algae to lab-grown chicken the future of agriculture?



Chicken Embryonic Fibroblast cells, 9 days after initial culturing



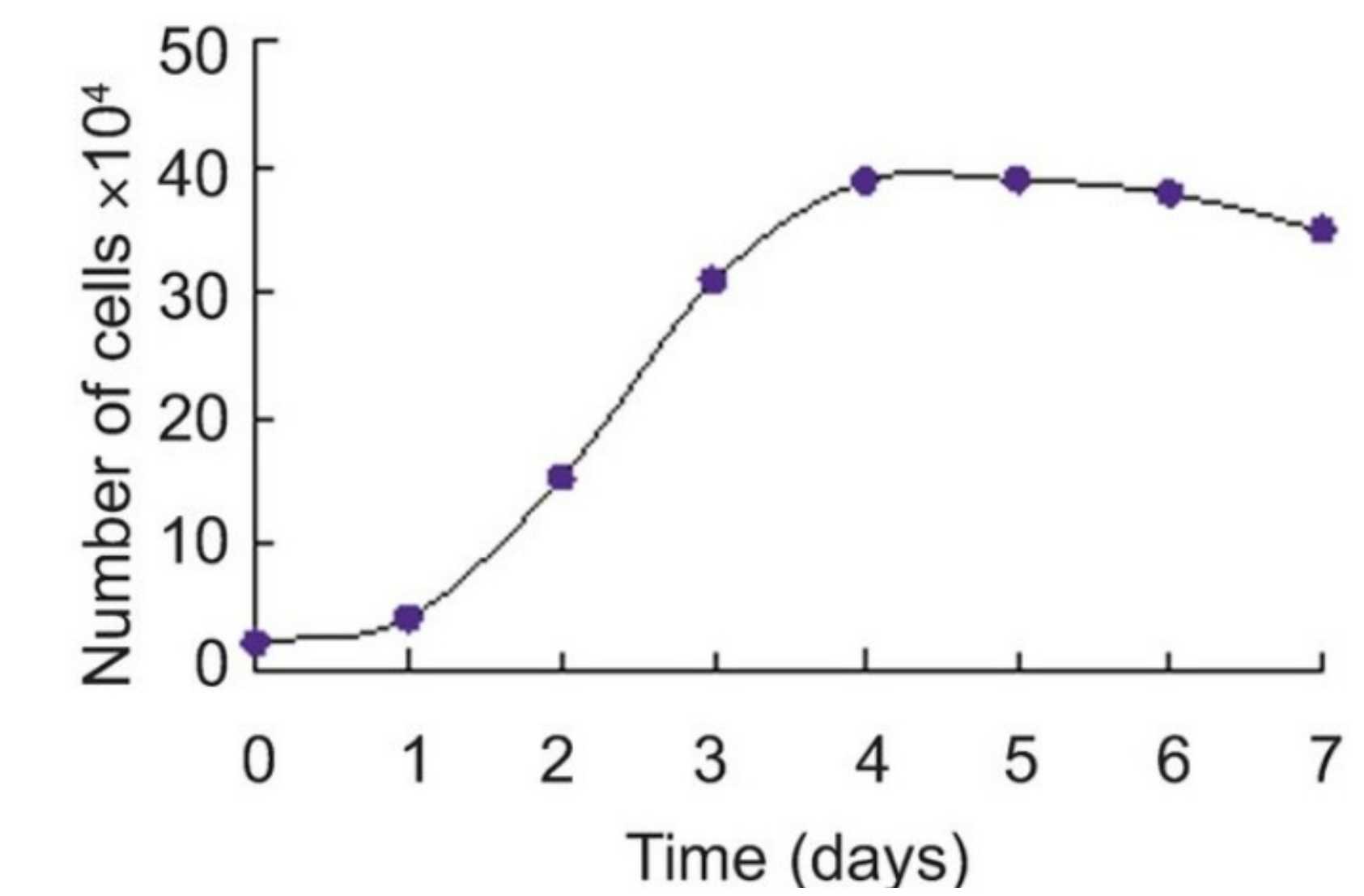
Chicken Embryonic Fibroblast cells after 3 rounds of passaging (putting the cells into new growth media)



Chicken cells will be cultured to create edible slices of meat

Results

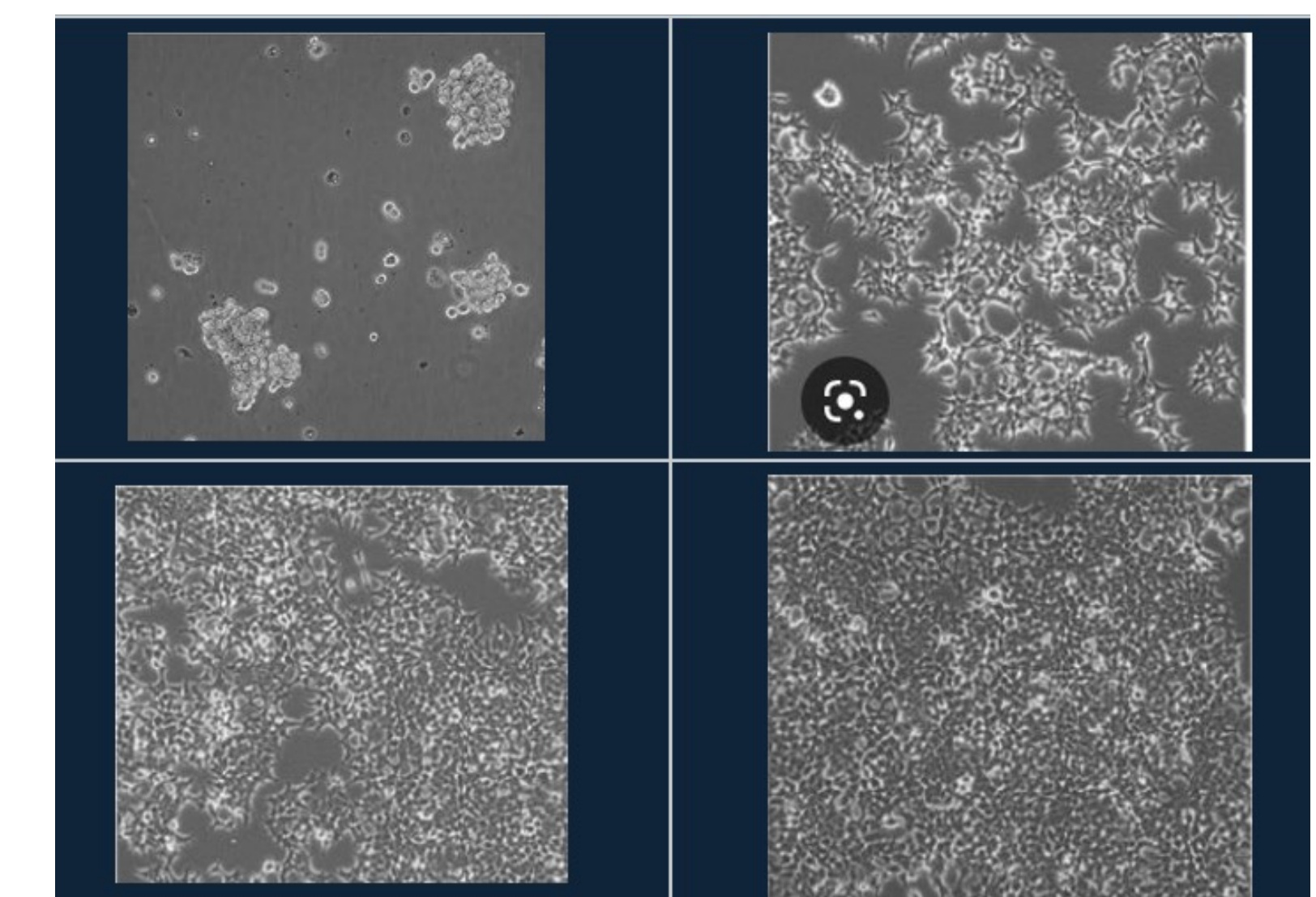
- Growth on algal feed sources reduces the need for expensive blood serum and growth media.
- Optimal growth occurred in peptone and algal hydrolysates.



Growth rate of chicken cells over a one-week period

Discussion

- Supplement current meat demands.
- Reduce energy input.
- Reduce land and water requirements.
- Reduce risk of meat contamination.
- Increase availability of seafood and counteract negative effects of over-fishing.



Human embryonic kidney cells after three days with various feed sources.

Extra results

Microalgae shows promise as an ethical alternative to current mammalian cell culture practice.



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