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

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



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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.

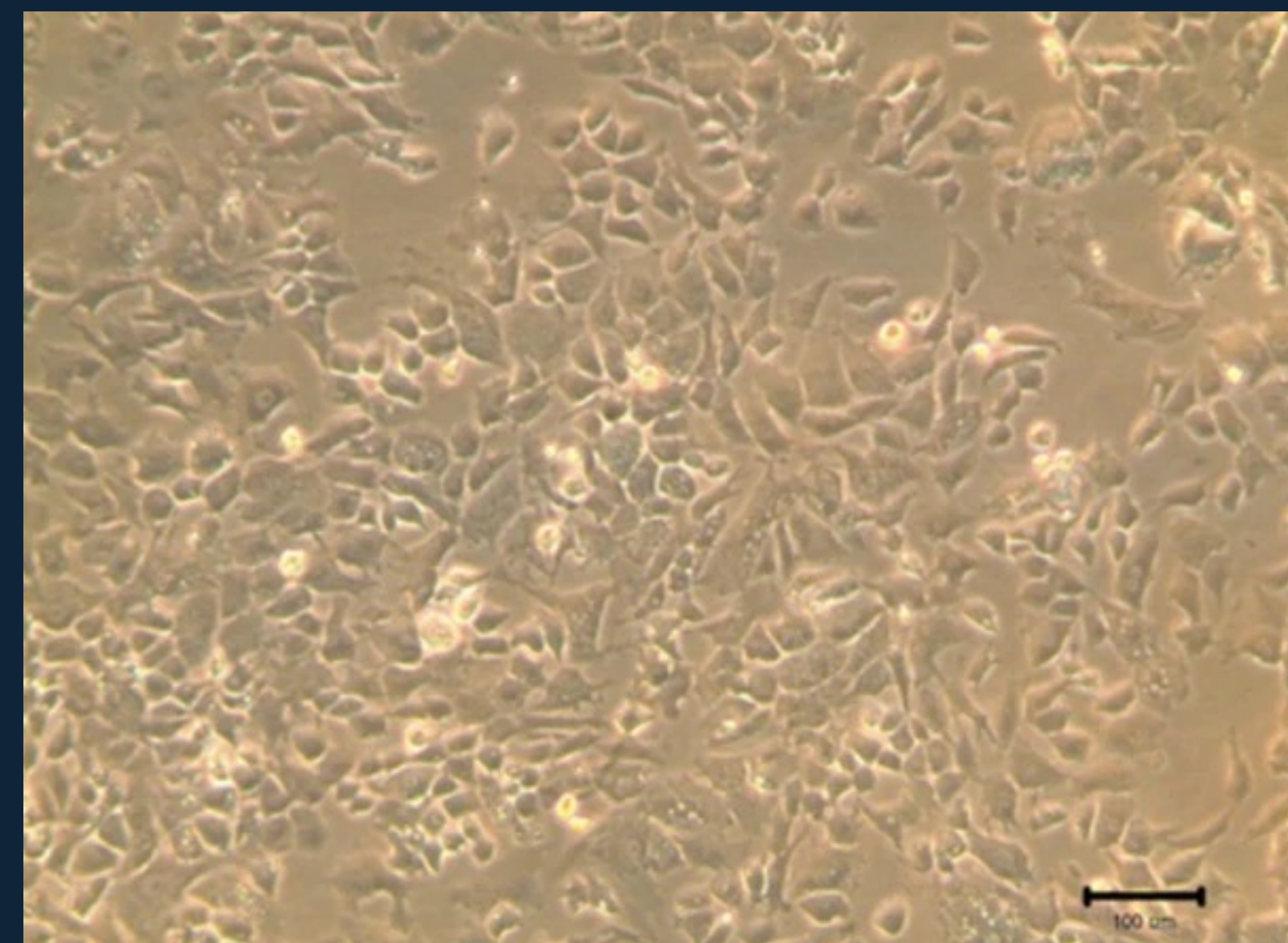
A major constraint for expanding cellular agriculture is the cost of the feed source for the cells.

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

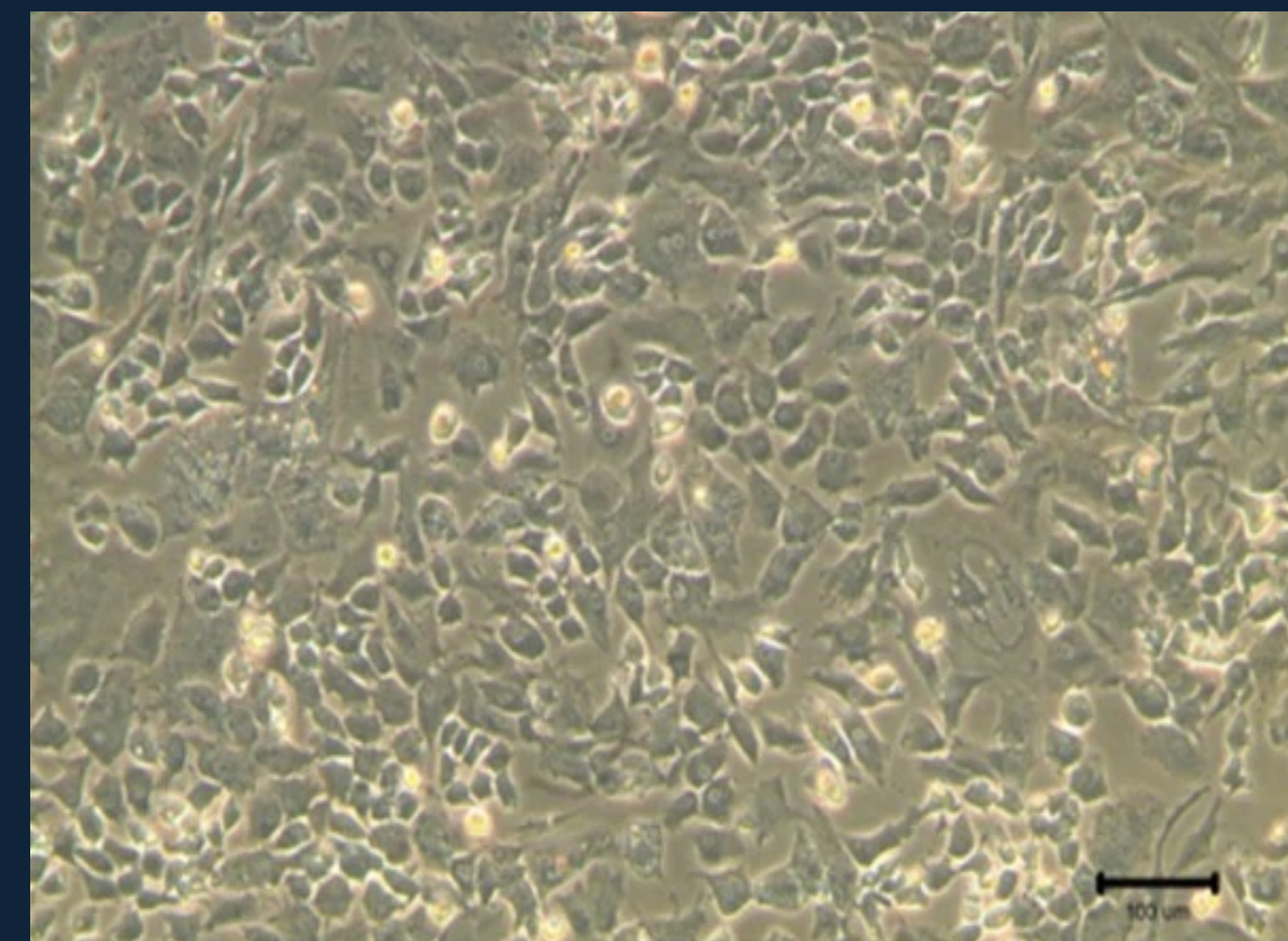
Feed sources

- 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.

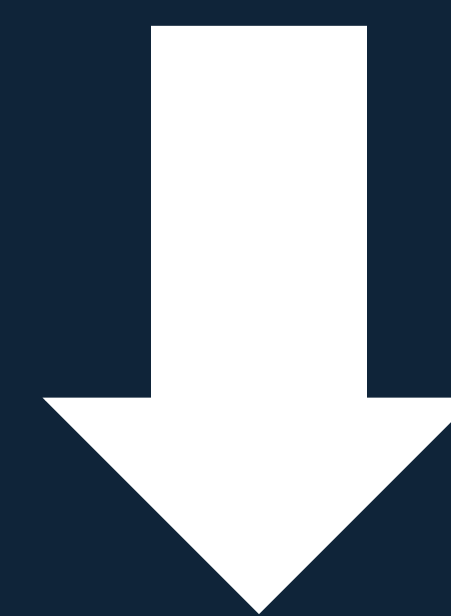
Is feeding algae to lab-grown chicken the future of agriculture?



Chicken Embryonic Fibroblast cells, 9 days after initial culturing



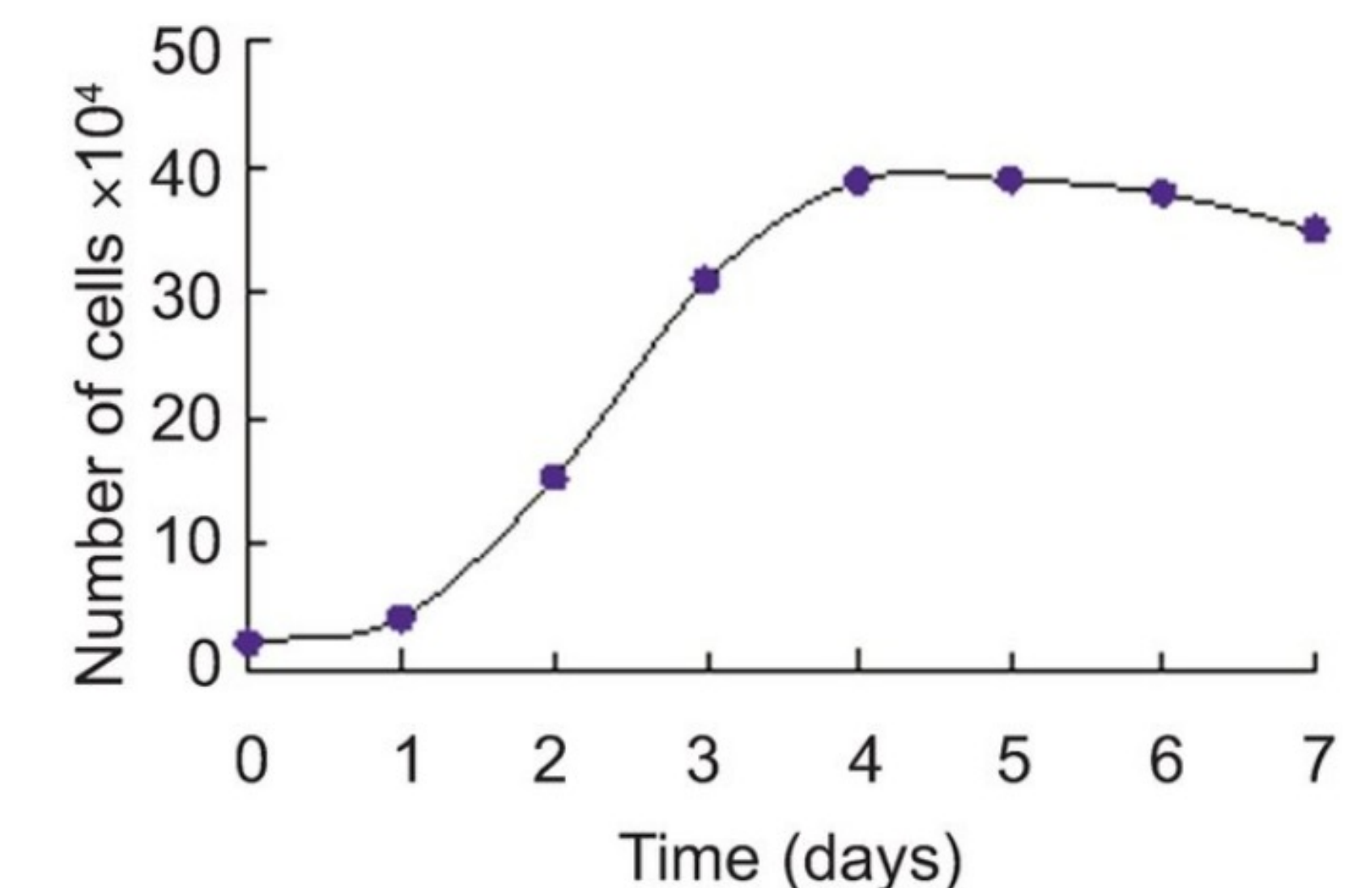
Chicken Embryonic Fibroblast cells after 3 rounds of passaging (putting the cells into new growth media)



Chicken cells will be cultured to create edible slices of meat

Results

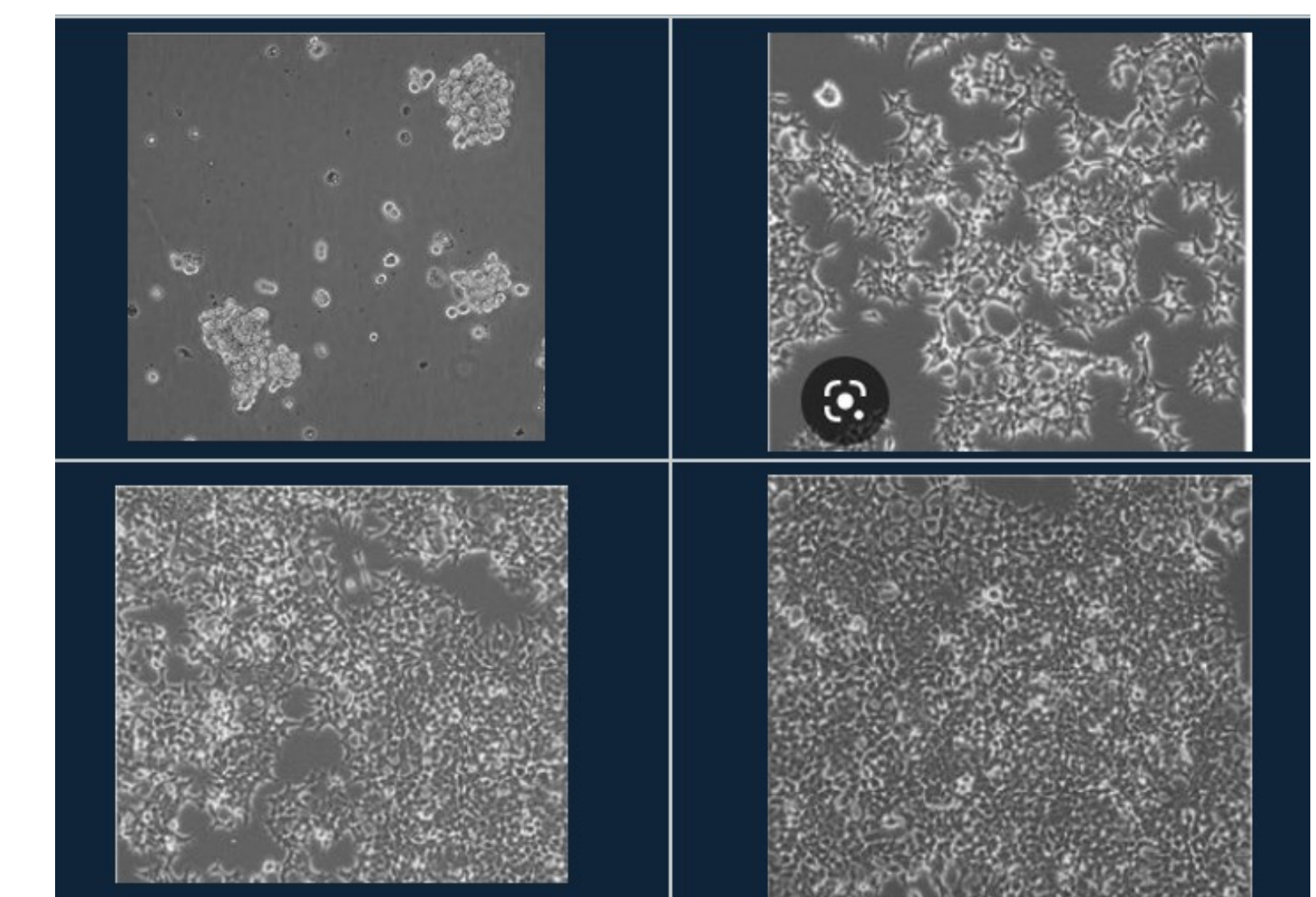
- Growth on algal feed sources reduces the need for expensive blood serum and growth media.
- Optimal growth occurred in peptone and algal hydrolysates.



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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