

Cellular Agriculture:

A Comparative Analysis of Press Coverage in the United States, the United Kingdom & France (2013-2018)

Preliminary Data and Impressions

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Google's Sergey Brin

La « clean meat », nouv
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BUSINESS

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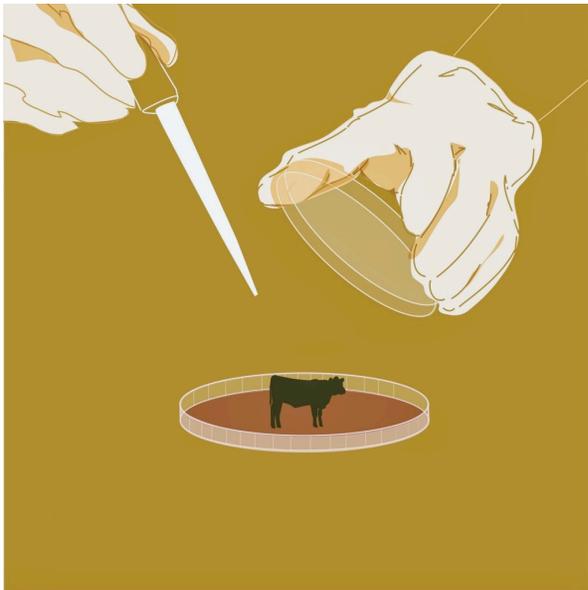
Memphis Meats

IDEAS | DAVID SCHARFENBERG

I'm a vegetarian. Bring on the lab-grown meat.

Overview

In cellular agriculture research, development and commercialization since 2013 have transformed the prospects for the future of food production, particularly regarding animal-based agriculture. With the first cultured burger taste-tested in London in August 2013, advances in cultivating meat through cellular agriculture have grown and expanded capturing the attention of the press, the public, and investors. The potential for cultured or “clean” meat has been at the forefront of revitalizing thinking about animal agriculture and mitigating its apparent ethical and environmental consequences. This document provides an overview and analysis of press coverage of cellular agriculture in the United States, United Kingdom, and France from August 2013 to July 2018.



Press Coverage of Cellular Agriculture: Executive Summary

A Shift in Narratives

One of the most visible changes in press coverage from 2013 to 2018 across all three nations has been the shift in focus -- from the science of cellular agriculture to articles covering business, start-ups, and investment. With cellular agriculture start-ups emerging from San Francisco to Tel Aviv, press coverage has been reacting to the market impacts these companies may have if and when their products are commercialized. Language now is more focused on how these new fledgling businesses are being funded and their chances for success as opposed to reactions to the technology of food production itself.

The emergence of the term “Googleburger”, was an initial sign that the press has become increasingly interested in covering major investors such as Google’s Sergey Brin, Virgin Groups Richard Branson, or Microsoft’s Bill Gates, and their relationship with start-ups like Finless Foods or Memphis Meats. Similarly, coverage spiked as the traditional farm-based meat corporation, Tyson, announced investments in cellular agriculture start-ups. While the press coverage may still be event-driven, the content of coverage is shifting to investment as opposed to covering advances in the underlying science and technology.



Similarities Among Coverage

This research also found that the major benefits and risks of cellular agriculture presented in the media have been quite similar across the US, UK, and France. The top three advantages mentioned in each data set were the potential to benefit the environment, improve animal welfare, and decrease greenhouse gas emissions associated with livestock production. Additionally, in terms of risks presented, press coverage was also largely homogeneous. The top three risks of cellular agriculture portrayed across the three nations were related to the emergence of viable markets: price, taste, and public acceptance, in that order. This homogeneity of coverage may point to the effects of globalization, social media, or the tendency of journalists to ‘piggyback’ coverage on other news pieces or news service feeds (such as Associate Press or Reuters).

Why?

In her book *Selling Science*, sociologist Dorothy Nelkin makes the point that the public often understands complex scientific issues not through direct experience or past education but through the filter of newspapers, television news, magazines, and websites. As the popular adage goes: The press doesn't tell the public how to think, but what to think about. How the media covers emerging technologies, like cellular agriculture, matters, especially if media coverage shifts political attention, affects investments, impacts market acceptance, or shapes the regulatory environment.



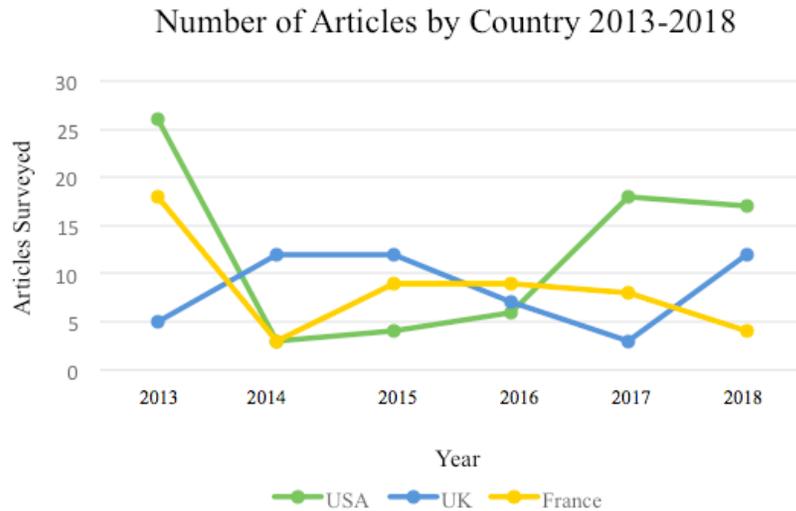
The commercialization of cellular agriculture is considered to have sizable potential impacts in terms of climate change mitigation, securing food security for a growing population, and potentially impacting public health.

Thus, it was hypothesized that these concerns -- **public health**, **climate change**, and **population growth** -- would be reflected in media coverage. The project focused on better understanding how the press covered these topics over the past five years through a content analysis of articles in mainstream newspapers.

It was also hypothesized that the *United States' coverage would tend to focus more on benefits than risks*, in contrast to *French press coverage*, based on the historical relationship each country has had to food and food regulation. It was also initially assumed that given the UK's history with mad cow disease, British press would be more likely to highlight the *positive impacts cellular agriculture could have on public health*.

Who is reporting?

Major mainstream news sources in the US, UK, and France have actively reported on cellular agriculture over the past five years.



Coverage is still largely event-driven. 2013 saw extensive coverage surrounding Dr. Martin Post's burger tasting. Spikes in coverage after 2016 most often referenced new investment in cultured meat start-ups.

France

<i>Le Monde</i>	8
<i>Les Echos</i>	8
<i>Le Figaro</i>	6
<i>La Tribune</i>	4
<i>Le Parisien</i>	4
Other	20

United States

<i>The Washington Post</i>	15
<i>The Wall Street Journal</i>	8
<i>LA Times</i>	6
<i>USA Today</i>	5
<i>East Bay Times</i>	5
Other	11

United Kingdom

<i>The Guardian</i>	12
<i>The Telegraph</i>	7
<i>The Independent</i>	6
<i>The Daily Mail</i>	6
<i>The Herald (Glasgow)</i>	4
Other	15

What is reported?

The framing of cellular agriculture increasingly assumes that the commercialization of cultured meats is inevitable. Most articles will reference a projected date when products will reach the market, often based on the predictions or formal statement released by many emerging start-ups. Instead of *if*, press coverage is focused more on *when* cultured meat will hit the shelves in supermarkets or land on restaurant tables.

United States



"When will we eat hamburgers grown in test tubes?" <i>(The Atlantic, August 2013)</i>
"Could a test-tube burger save the planet?" <i>(Washington Post, August 2013)</i>
"Silicon Valley and the Search for Meatless Meat" <i>(Fortune, December 2017)</i>
"Startup Producing Cell-Grown Meat Raises New Funding" <i>(Wall Street Journal, July 2018)</i>
"Meet the new meat, pretty much the same as the old meat" <i>(Washington Post, March 2018)</i>

United Kingdom



"Synthetic meat: How the world's costliest burger made it on to the plate" <i>(The Guardian, August 2013)</i>
"Lab-grown burger 'will be on the menu by 2020: Scientists set up company to make stem cell meat an affordable reality" <i>(The Daily Mail, October 2015)</i>
"How the world can eat meat with killing animals" <i>(The Independent, August 2016)</i>
"Could lab-grown fish and meat feed the world without killing a single animal?" <i>(The Guardian, 2013)</i>
"Bill Gates and Richard Branson vow to beat world hunger with synthetic MEAT" <i>(Daily Express, August 2017)</i>

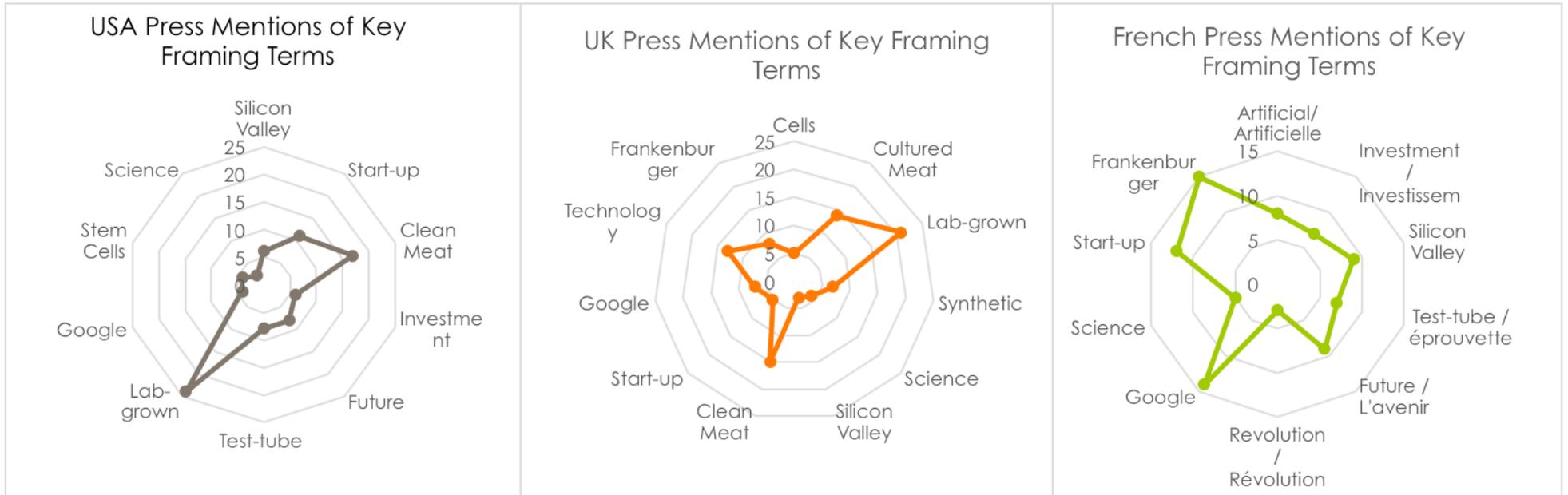
France



"La viande 'in vitro' encore loin des assiettes" – "In vitro meat still far from the plates" <i>(20 Minutes, August 2013)</i>
"La viande de synthèse bientôt au menu" – "Synthetic meat almost on the menu" <i>(Les Echos, January 2014)</i>
"Les streaks-éprouvettes sont-ils la viande de demain?" – "Are test-tube steaks the meat of tomorrow?" <i>(Le Monde, 2016)</i>
"Bill Gates et Richard Branson misent sur la viande artificielle" - "Bill Gates and Richard Branson bet on artificial meat" <i>(Le Figaro, August 2017)</i>
"La Viande Artificielle, une Fausse Bonne Idée?" - "Artificial Meat, a false good idea?" <i>(La Croix, January 2018)</i>

What is reported?

Terminology & Framing



While the top 10 most referenced terms stay fairly consistent across the three nations, their frequency of usage varies significantly

A major shift in terminology from science fiction to science, and then to business investment was present in this 5-year period, often framing cellular agriculture start-ups as another example of Silicon Valley's ability to shape emerging technologies. There has been an increasing use of the terms *clean* and *cultured* meat. However, "lab-grown" and "test-tube meat" still dominate the terminology. "Lab-grown" or "test-tube" meat will often be referenced in the headline, while longer articles refer to cultured or clean meat later in the text.

In the case of country-specific terminology, the most repeated key terms from each country are graphed above. All countries' press mentioned future and business-related terminology, while French and British press often also referred to "Frankenburger" in their headlines. Meanwhile, French articles heavily incorporated the use of the term "artificial", and often the content of the articles would imply that cultured meat is somehow incompatible with meat from farm-raised livestock, associating "cultured meat" more with the alternative-meat industry, or vegetarian lifestyles.

Benefits vs. Risks

Can lab-grown meat really save

the planet? Will Lab-Grown Meat Save the World?

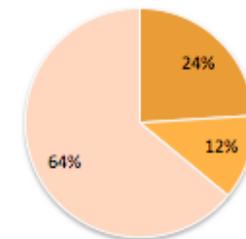
La viande artificielle, une fausse bonne idée ?

The perceived benefits and risks of cellular agriculture were similar across the three data sets. The most referenced benefits were **environment**, **animal welfare**, and the potential to **lower greenhouse gas emissions**, while the risks mentioned were also identical in each of the sets. Most common risks associated for every data set were: **price**, **taste**, and **public perception**, in this order.

A majority of articles discussed both the potential benefits and risks of cellular agriculture, though the balance differed across countries. *French coverage was the most balanced* in this regard, with **84%** of the articles referencing **both** benefits and risks. In United States and United Kingdom, almost a quarter of the articles in the data set mentioned only benefits. Press coverage in the UK was also most likely to reference only risks, accounting for 17% of the articles sampled.

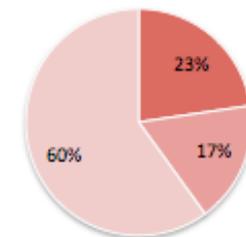
BRITISH COVERAGE

Benefits Risks Both



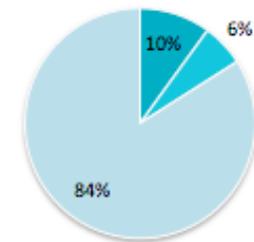
USA COVERAGE

Benefits Risks Both



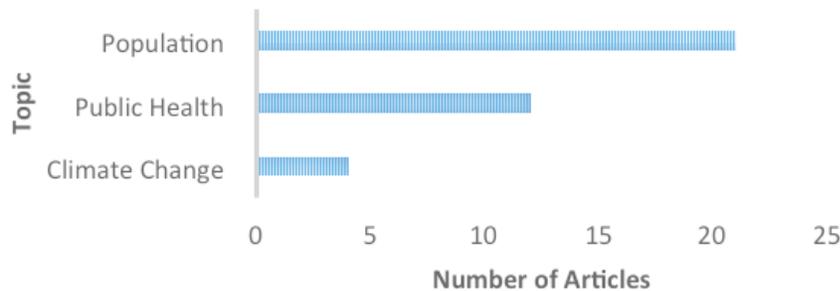
FRENCH COVERAGE

Benefits Risks Both

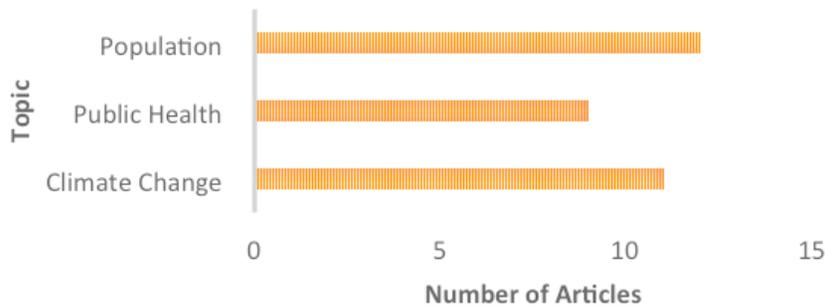


Coverage of Key Topics

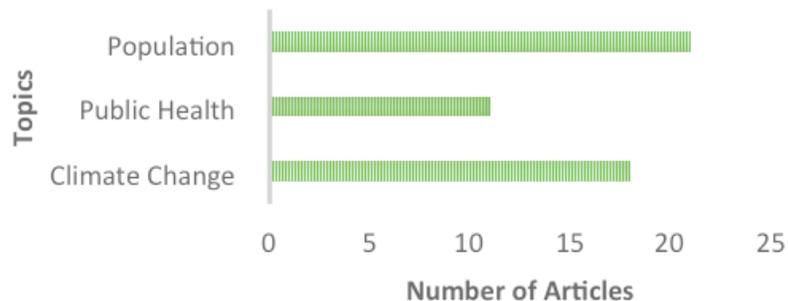
FRENCH COVERAGE OF TOPICS



BRITISH COVERAGE OF TOPICS



AMERICAN COVERAGE OF TOPICS



With the rising global concern in the last decade for climate change, public health, and population growth, cellular agriculture presents a relevant solution to many of the negative externalities traditionally related to farm-based livestock.

The data set screened for explicit references to the three terms, to better understand if there were discrepancies between countries. The coverage in the UK and US press regarding these topics was largely similar. References to population growth and climate change were commonplace, while public health was seldom mentioned explicitly.

The French data set, however, showed differences in reporting. French articles frequently mentioned population growth, particularly referencing the estimate that over 9 billion people will live on the planet by 2050, as a cause for alarm. Given this population increase, farm-based animal agriculture was presented as insufficient to ensure food security for the earth's population. Meanwhile, explicit references to climate change mitigation were rare in the French data set.

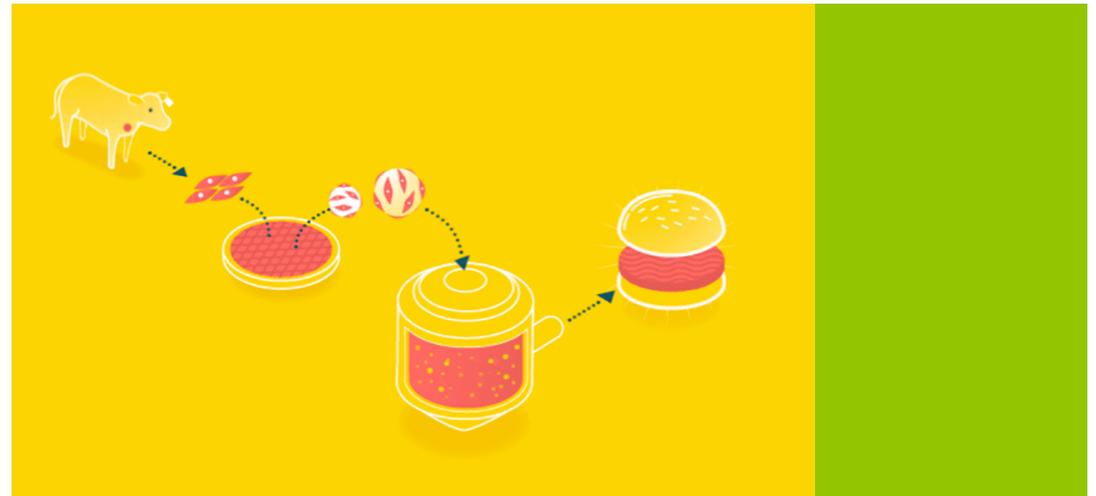
Implications

By country

FRANCE

French press coverage varied more than the articles surveyed in the US and UK. Most notably, French coverage was more balanced, presenting both benefits and potential risks of cellular agriculture in 84% of the articles surveyed. Additionally, French press was much more likely to reference population growth as a major challenge regarding food security and meat consumption. French press was also the least likely by far to explicitly reference climate change in the coverage of cultured animal products.

The main terms used in French coverage were “viande in-vitro” (in-vitro meat) “viande éprouvette” (test-tube meat), and “viande artificielle” (artificial meat). There was limited explicit reference to “l’agriculture cellulaire” (cellular agriculture). French coverage was overall the least likely to equate cultured meat with “real” meat, referring to meat from traditional farm-based practices. French coverage was also the most likely to refer to cellular agriculture as a kind of alternative meat, linking it to trends such as veganism and vegetarianism within the same article.



UNITED STATES

In the United States, press coverage is increasingly shifting towards business or investment-oriented coverage and outlets, such as the *Wall Street Journal*. *Washington Post* journalist Caitlin Dewey reported repeatedly on the topic. From 2016, the majority of articles references major players in the start-up scene, most notably: Finless Foods, Memphis Meats, and JUST Meat.

There was also a tendency to frame stories of cellular agriculture as another example of Bay Area/Silicon Valley innovation, along the same lines as electric vehicles. Sergey Brin, Richard Branson, and Bill Gate’s investment in the emerging industry filled press headlines from 2013 to today. A majority of articles also referenced, or built on, coverage by the Associated Press, highlighting the relative importance of newswires in framing coverage across the press landscape.

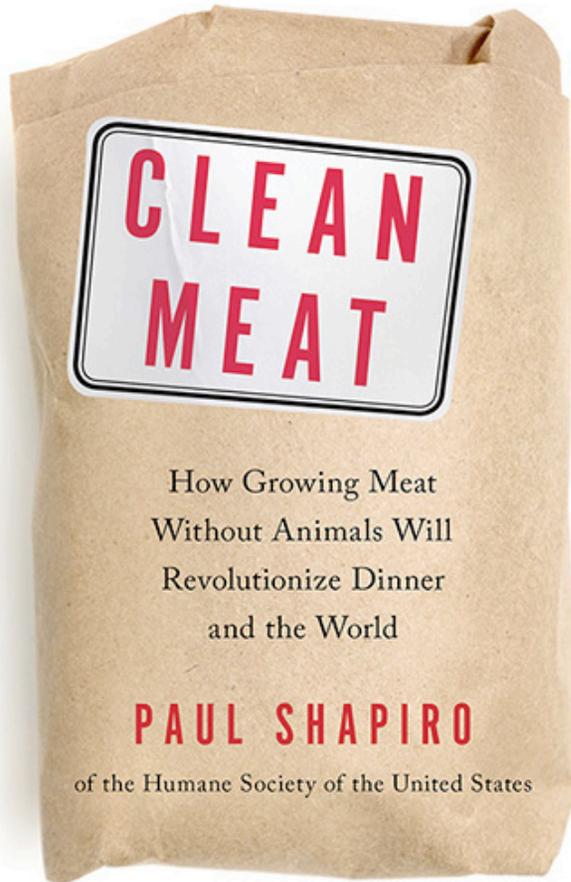
UNITED KINGDOM

Press Coverage in the UK followed many similar trends to that of the US. The coverage was found in all major newspapers. *The Guardian* was the press venue with the most coverage.

Scottish newspapers, most notably the *Glasgow Herald* and the *Scotsman*, were also analyzed, although there was no significant difference in coverage in Scotland when compared to the rest of the UK. Of all press coverage, British newspapers were most likely to include the terms “test-tube” in the headlines of articles. Surprisingly, the UK press also reported the least on the 2013 tasting in London of Dr. Post’s burger.

Implications

General



Five years has pasted since Mark Post bit into his \$325,000 stem cell burger in London and significant shifts in the amount and type of media coverage have occurred. The press increasingly presents cellular agriculture as an inevitable part of our future food system. However, predictions about commercial success range widely, from the next two to twenty years. Press coverage places increasing emphasis on the development of start-ups and their investors, often framing cellular agriculture as another development of Silicon Valley's entrepreneurial ecosystem.

Despite the potential benefits cultured meat could hold for public health and climate change mitigation, this research indicated that animal welfare stood out as one of the most prominent benefits across the three countries studied. The term climate change was rarely mentioned explicitly, often garnering at most one sentence explaining cultured meat's possible role in reducing greenhouse gas emissions. The longer the article, generally, the more balanced the coverage, with longer pieces presenting both benefits and risks of cellular agriculture, while shorter articles referencing only benefits or risks.

While the press coverage of cellular agriculture's benefits is increasing, there is still a large gap between the use of the term "lab-grown" versus "clean meat" that the industry favors. Very few articles mentioned the term "clean" meat, and if they did, it was only following a long list of references to laboratories and test tubes. Cellular agriculture was also often presented as a subset of the "Alternative Meat" or "Alt-Meat" industry, not a possible equivalent or improvement over the status quo. For the cellular agricultural industry, metaphors will matter and challenges remain as companies try to frame their products to attract investors and consumers. Updating and disseminating this type of analysis could help inform public engagement efforts by both researchers and entrepreneurs in the future. Further research on media coverage is also needed in high population countries such as India and China.

Methodology

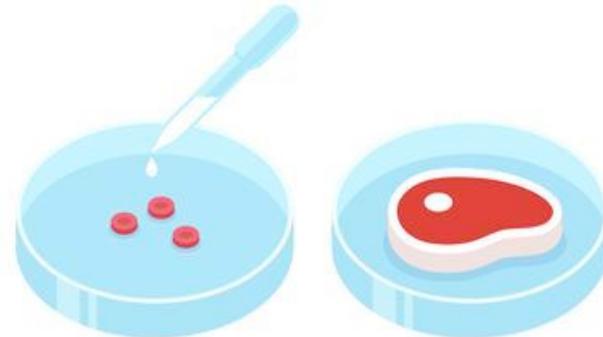
Method

The data in this report was based on a collection of articles retrieved through search engines using the term “cellular agriculture” or “agriculture cellulaire”, or a few equivalents in the table below, covering the 5-year period from July 2013 to July 2018. The report largely followed the methodology and content structure of the Wilson Center publication “Trends in American and European Press Coverage of Synthetic Biology” (2012). The chart below references the terms searched within major online newspapers.

Country	Search Term
United States	Cellular agriculture Cultured Meat Clean Meat
United Kingdom	Cellular agriculture Cultured Meat Clean Meat
France	L’agriculture cellulaire Viande in-vitro Viande Propre

Each article was screened for risks and benefits portrayed, which were identified as positive or negative regarding the impact of the commercialization or human consumption of cellular agriculture products. Select *key words* were identified as terms that appear three times or more in any given article.

Seventy-five articles from the United States were included in the data set along with fifty articles from France, and fifty from the United Kingdom. The countries’ most popular news sources were first screened for articles referencing the topic, to ensure the analysis was covering articles accessible and widely read by the public in each given country. A larger number of American articles were included, due to the fact that the United States is significantly larger in population than France or the United Kingdom. This data set looked specifically at news articles online, and did not include any form of video or audio media coverage. A variety of articles were included from a diversity of news sources, ranging from investigative journalism to breaking news pieces.





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