



2022 STATE OF THE INDUSTRY REPORT

Cultivated meat and seafood

Executive summary

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In 2022, cultivated meat and seafood moved closer to our plates than ever before.

Across the areas of science, innovation, talent, and public and private sector support, 2022 delivered major advances and grew momentum for this still early-stage industry—one on the cusp of transforming 12,000-year-old ways of making meat. New companies, production facilities, and partnerships were formed. A cultivated chicken product earned the go-ahead nod from the U.S. FDA. The world’s largest dedicated food technology venture fund was launched. Fresh consumer insights and market analysis pointed to growing international interest in cultivated meat adoption. New partnerships and global alliances formed to advance the science and scaling of cultivated meat.

Cultivated meat and seafood, part of our 2022 State of the Industry Report series, takes a field-wide view of the progress made over the past year.

Commercial landscape

Major path-to-market milestones

- In the U.S., FDA completed its first premarket review for a cultivated meat product (**UPSIDE Foods**’ cultivated chicken), with several other reviews pending. This brought cultivated meat one step closer to consumers’ plates— a major de-risking signal for investors.
- In Singapore, **GOOD Meat**’s cultivated chicken was served at a handful of iconic hawker stalls, further demonstrating cultivated meat’s culinary versatility.

Private investment firsts

- The largest deals to date for both a cultivated meat and a cultivated seafood company occurred in 2022 (**UPSIDE Foods** and **Wildtype**).
- The number of unique investors in cultivated meat and seafood grew by 19 percent to 679 investors total. Median deal sizes by round were generally higher in 2022 vs. 2021, a year of record funding.

Large food companies lean in

- There are now more than 70 diversified companies with activity in the cultivated meat industry, up from 60 companies in 2021.
- The world's top three meat companies (by revenue) are all involved in the cultivated meat industry.

Innovation fuels competitiveness with conventional products

- Research on cell lines, cell culture media, and scaffolding is demonstrating the path to cost reduction and efficient scaling.
- Hybrid solutions permeated the alternative protein space, as food producers worked to blend plant-based, fermentation, and cultivated meat production in the pursuit of products that reach taste and price parity with conventional meat. For example, the world's first innovation center dedicated exclusively to hybrid cultivated and plant-based meat products opened in Singapore.

Power of partnerships

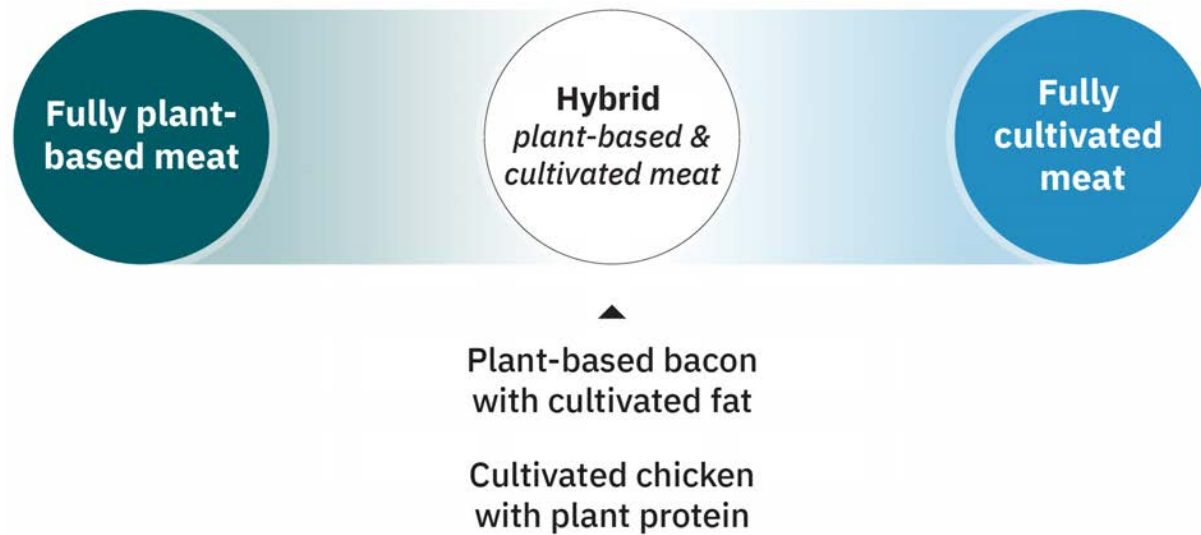
Notable partnerships formed in pursuit of scale. The U.S.-based Alliance for Meat, Poultry, and Seafood Innovation, the APAC Society for Cellular Agriculture, and Cellular Agriculture Europe teamed up to launch a new global alliance to collaborate on regulatory work, consumer research, and nomenclature.

“Cultivated” gains momentum

- New research showed consumer preferences for using “cultivated meat” over “cell-cultured meat.”
- A Memorandum of Understanding was signed by over 30 APAC companies and stakeholders agreeing to use “cultivated” as the common, shared term.



Figure 1: A spectrum of alternative protein products



Many companies working on cultivated meat will initially release hybrid plant protein/cultivated meat products.

Figure 2: Major highlights for cultivated meat in 2022



Investments

Cultivated meat and seafood companies raised \$896 million in 2022, bringing the total for the industry (since 2016) to \$2.78 billion. While the 2022 raises represent a deceleration of 33 percent year-over-year (YOY), this rate outperformed the overall global funding decline of 35 percent YOY and outpaced funding for select sectors popular with venture capital funds. Moreover, both APAC and Europe saw higher cultivated meat investments in 2022 than in the year prior. In APAC, cultivated meat companies raised more capital in 2022 than in all prior years combined. The largest deals to date for both a cultivated meat and a cultivated seafood company occurred in 2022, and the number of unique investors in cultivated meat and seafood grew by 19 percent to 679 total investors.

Table 1: Invested capital in cultivated meat

Category	2022	2021	All-time (since 2016)	2022 highlights,
Total invested capital	\$896MM	\$1.3B	\$2.8B	From 2016 to 2022, cultivated meat and seafood investments tripled on average annually.
Invested capital deal count	77	83	294	2022's largest investment was \$400MM (UPSIDE Foods).
Unique investors	110	263	679	The number of unique investors grew by 19% in 2022.
Growth stage deals (Series B and above)	3	7	12	These included Wildtype, UPSIDE Foods, and SCiFi Foods.
Liquidity events	\$39MM	\$18MM	\$58MM	JBS acquired cultivated meat producer BioTech Foods.

Science and technology

New research advanced our understanding of cultivated meat and its impacts, while the research ecosystem grew at universities around the world:

- 13 multiyear research projects, including those focused on cell lines, serum-free cell culture media development, and scaffolding were published, many in open-access journals.
- New and updated life cycle assessments found that cultivating meat is a more efficient form of meat production compared to conventional meat, resulting in less land use and reduced air and water pollution.
- Awareness increased around cultivated meat's potential to eliminate antibiotics from meat production, the overuse of which threatens public health on a global scale.
- Universities worldwide launched seven new alternative protein courses and one certificate program.

Government and regulation

Governments around the world showed support for cultivated meat in notable ways, from an uptick in public policymaking and funding for R&D to FDA's greenlight of a cultivated chicken product in the U.S.

- In Europe, the Netherlands announced \$65 million in funding for cultivated meat and precision fermentation, the world's largest-ever public investment in the cellular agriculture field.
- Israel, China, and South Korea all increased policy support for cultivated meat development.
- The U.S. Congress directed nearly \$6 million in research funds to alternative protein R&D. California approved the first-ever state investment in cultivated meat research, directing \$5 million to R&D across three labs, two of which focus on cultivated meat.
- Israel launched the largest government-backed cultivated meat consortium to date, involving the country's top food producers and academic labs.