



EMERGING TECH RESEARCH

# Foodtech Report

VC trends and emerging opportunities



Q1  
2023

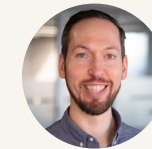


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## Institutional Research Group

### Analysis



**Alex Frederick** Senior Analyst, Emerging Technology  
alex.frederick@pitchbook.com  
pbinstitutionalresearch@pitchbook.com

### Data

**TJ Mei** Data Analyst

### Publishing

Report designed by **Joey Schaffer** and **Megan Woodard**

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For previous updates as well as our complete foodtech research, please see the designated [analyst workspace](#) on the PitchBook Platform.



# Vertical update

The foodtech industry operates at the intersection of food and technology, with the goal of enhancing the food value chain from production to consumption. Despite experiencing its lowest funding level since 2017, Q1 2023 was a period of noteworthy advancements and key investment trends in the sector.

## Venture capital activity

- **Overall funding:** Q1 2023 saw a downturn in foodtech funding—a total investment of \$2.3 billion across 197 deals—marking the lowest level seen since 2017.
- **Major VC deals:** Some deals stood out despite the general downward trend. Meal replacement drink provider [YFood](#) raised \$230.3 million in late-stage VC funding. Additionally, [Meati](#), a mushroom-based protein provider, attracted \$172.0 million in Series C funding to build a new manufacturing “ranch” and expand production.
- **Significant VC exits:** Consumer packaged goods (CPG) company [Starco Brands](#) acquired meal replacement provider [Soylent](#), while [The Arena Group](#) acquired food media company [Fexy](#), both for undisclosed sums.
- **Investment focus areas:** Key areas of investment included fermented protein, with an 83.6% QoQ increase; kitchentech & robotics, up by a remarkable 99.8% QoQ; and functional foods, which attracted sustained interest.

## Foodtech deal activity quarterly



Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VERTICAL UPDATE

### Notable events

**Innovative developments:** Cultivated meat provider [Vow](#) unveiled a mammoth meatball made from cultivated woolly mammoth cells, highlighting advancements in cellular agriculture. [Amazon](#) expanded its innovative “palm recognition” payment service, Amazon One, to [Panera Bread](#), reflecting an ongoing push toward biometric payment options in the food sector.

### Emerging trends

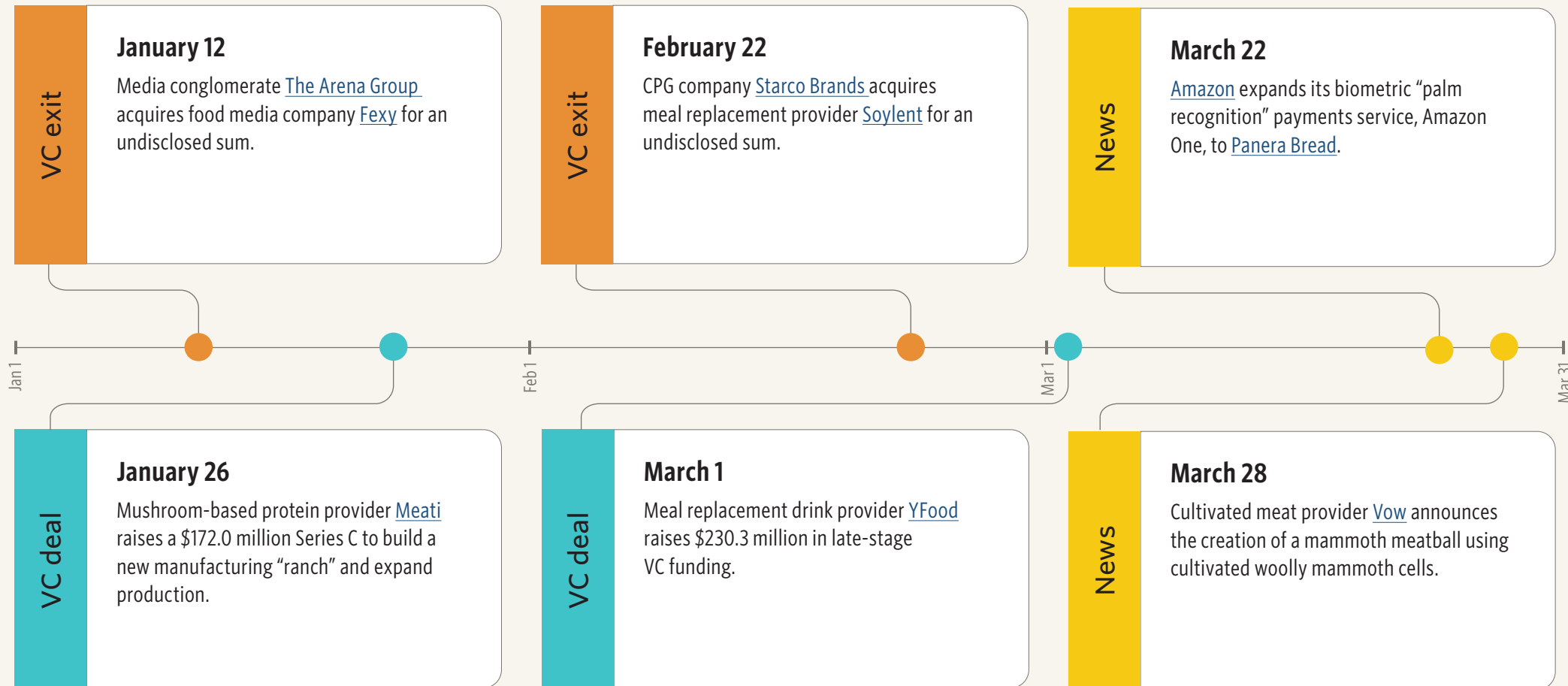
**Generative AI applications:** New generative AI applications emerged, with [Instacart](#) offering shoppable recipes, [Wendy's](#) introducing AI-powered drive-thru tools, and [Tastewise](#) launching a consumer insights platform. These applications demonstrate the industry's drive toward automation and personalization in food services.

Q1 2023 saw a paradoxical state in the foodtech industry. While funding decreased to levels unseen since 2017, the sector simultaneously witnessed major deals and novel technological applications. Despite the ebb in overall funding, the sector continues to advance at a rapid pace, particularly with AI applications and investments in emerging areas like kitchentech & robots and fermented proteins. The industry is poised for dynamic developments in the upcoming quarters, presenting potential opportunities for growth and innovation.





# Q1 2023 timeline



## Q1 VC deal count summary

197  
total deals

-39.6%  
QoQ growth

\$2.3B  
total VC raised

-18.8%  
QoQ Growth

## TTM summary

1,300  
total deals

-33.4%  
YoY growth

\$15.0B  
total VC raised

-65.1%  
YoY growth

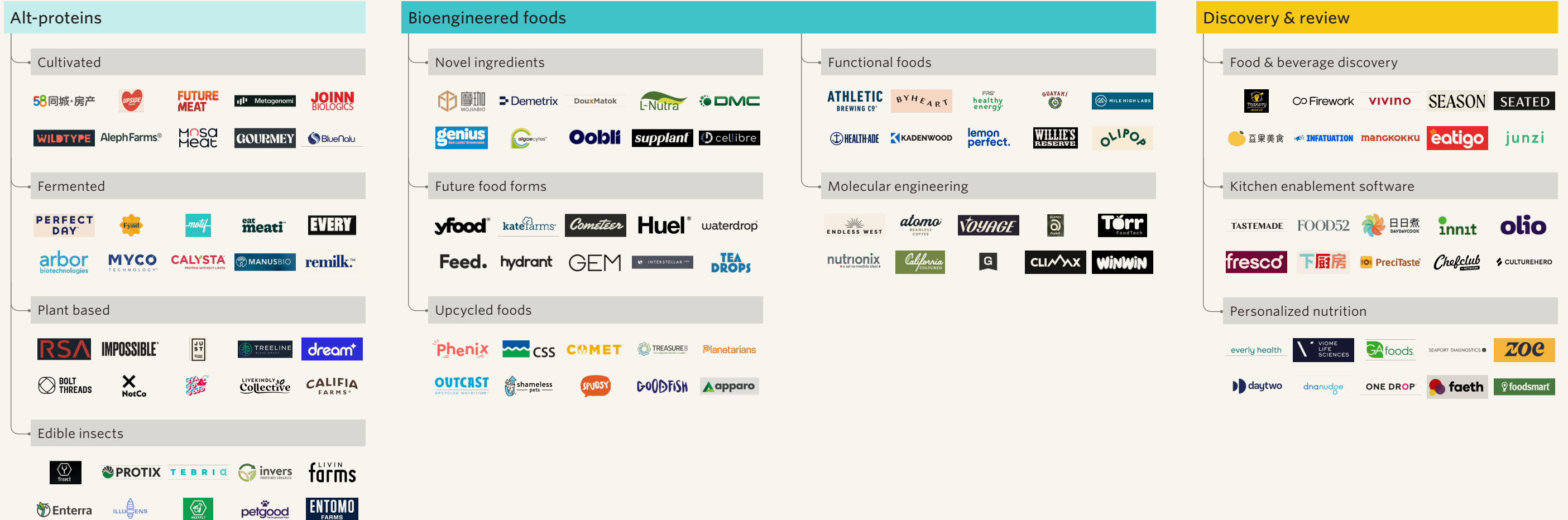




# Foodtech VC ecosystem market map

Click to view the interactive market map on the PitchBook Platform.

Market map is a representative overview of venture-backed or growth-stage providers in each segment. Companies listed have received venture capital or other notable private investments.

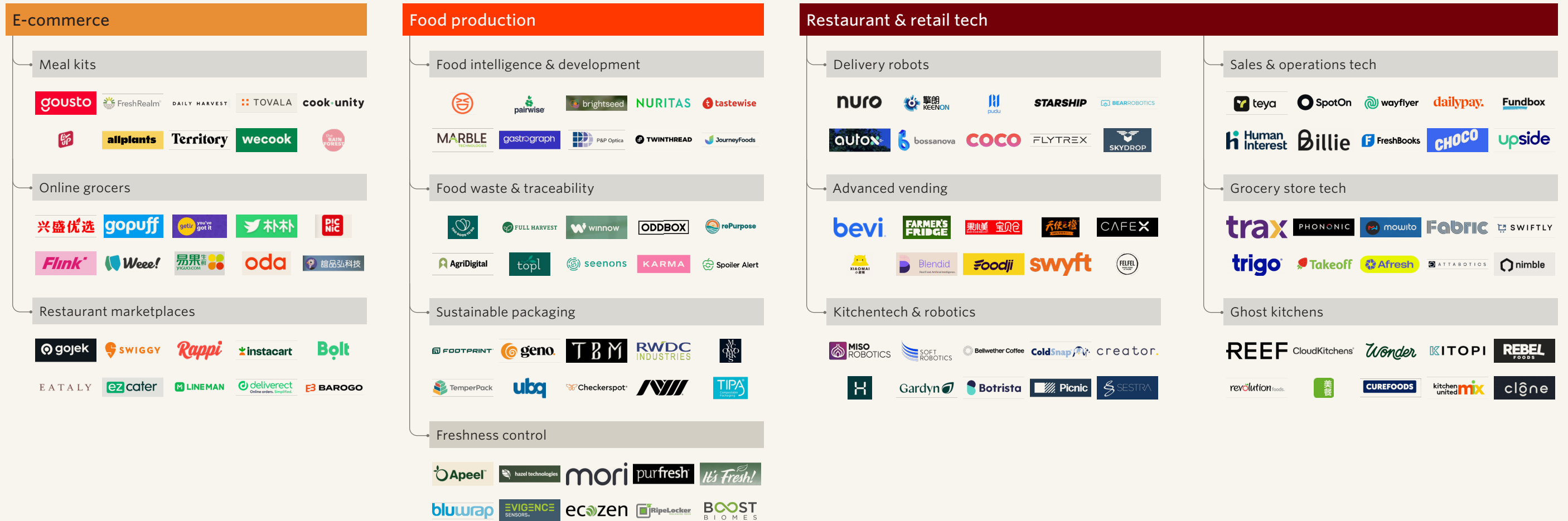




# Foodtech VC ecosystem market map

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# VC activity

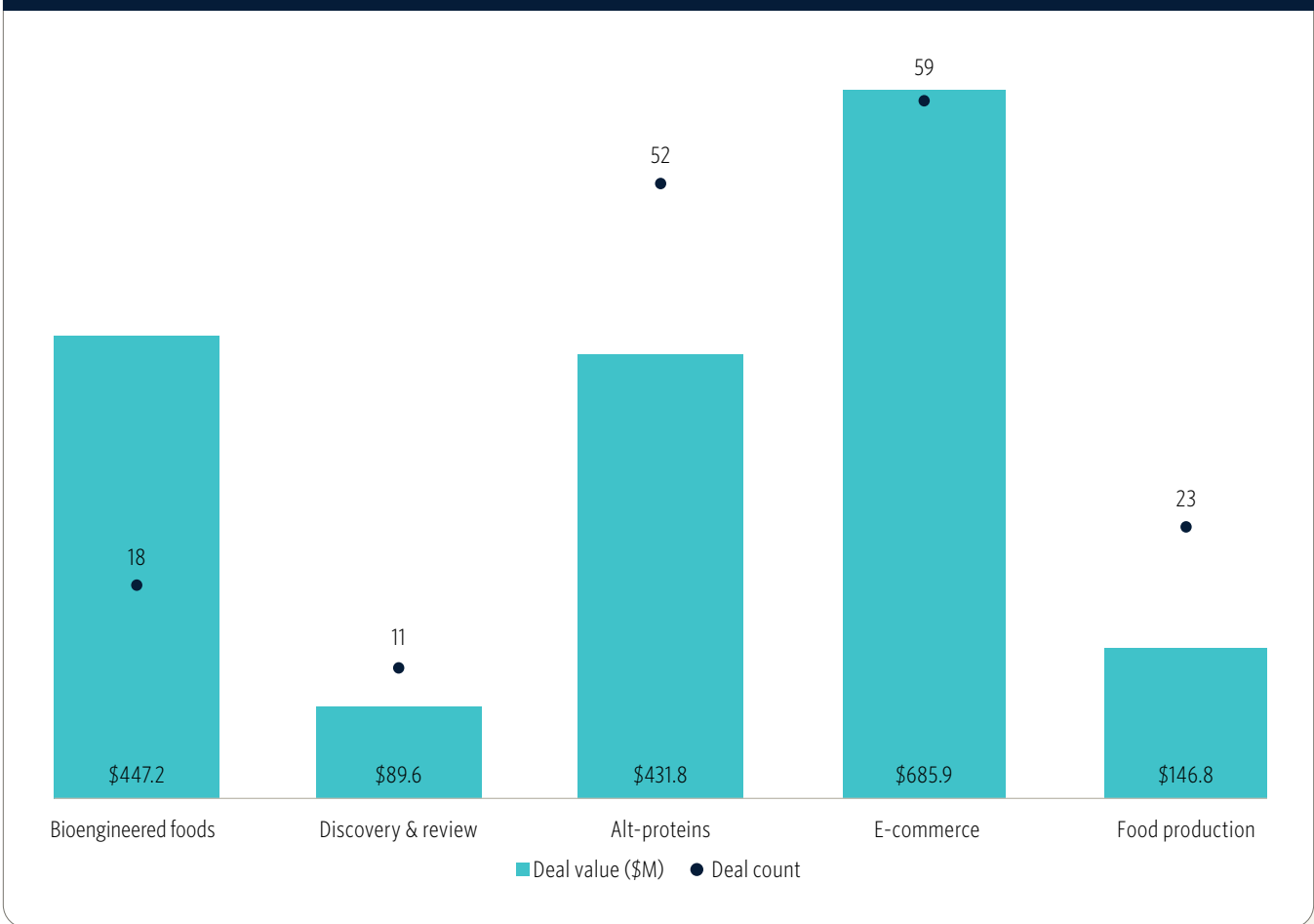
During the first quarter of 2023, the foodtech industry experienced a notable decline in deal count, with a decrease of 39.6% compared with the previous quarter. This resulted in a total of 197 deals worth \$2.3 billion overall, a substantial drop from Q4 2022's figures. The decline in funding and banking has been identified as the primary reason for this decrease, as it led to a drop in investor confidence.

Despite the challenges, some notable deals were still made, including meal replacement provider [YFood](#)'s \$230 million late-stage VC round and fermented protein provider [Meati](#)'s \$172 million Series C. These deals demonstrate that there is still significant interest and investment in the foodtech industry, even in challenging times.

During the first quarter of 2023, the foodtech sector experienced a notable surge in its median pre-money valuation, which reached \$27.0 million. This represents a remarkable 57.2% increase from 2022, which is quite surprising given the prevailing market volatility. Despite expectations of a decline in valuations, the reduction in the number of deals during this period led to the postponement of riskier ventures, allowing only the ones with greater investor confidence and higher valuations to be finalized.

Furthermore, median deal sizes also witnessed a significant rise during the same period, reaching \$6.0 million, which represents an impressive 87.5% growth. This indicates that investors are now focusing on fewer, larger deals that are considered less risky. Overall, these trends in the foodtech industry suggest that investors are becoming more discerning and cautious, preferring to invest in ventures that offer greater stability and potential for growth.

### Foodtech VC deal activity by segment in Q1 2023\*



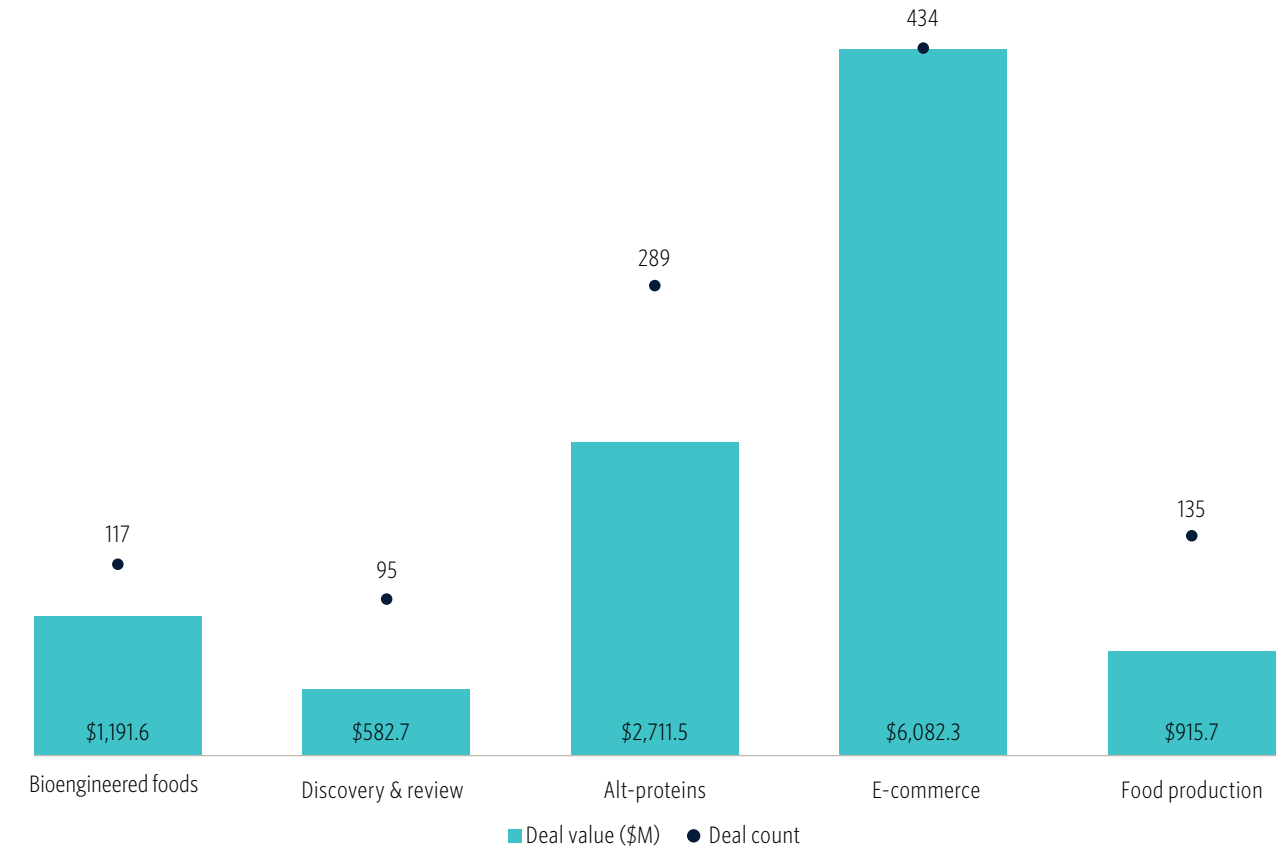
Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

In Q1 2023, exit activity continued to be low, which is consistent with the trend of the past year. There were only 15 exits that amounted to less than \$1 billion overall, the same as Q4 2022. This indicates that opportunities for exits are limited. The M&A market was less attractive due to high interest rates, and the IPO window remained closed. We recorded 14 M&A transactions, one buyout, and no IPOs. Some notable Q1 exits were [Starco Brands'](#) acquisition of [Soylent](#) and [The Arena Group's](#) acquisition of [Fexy](#), both for undisclosed sums. It is expected that exits will remain subdued in the near future until interest rates decrease and the IPO market reopens.

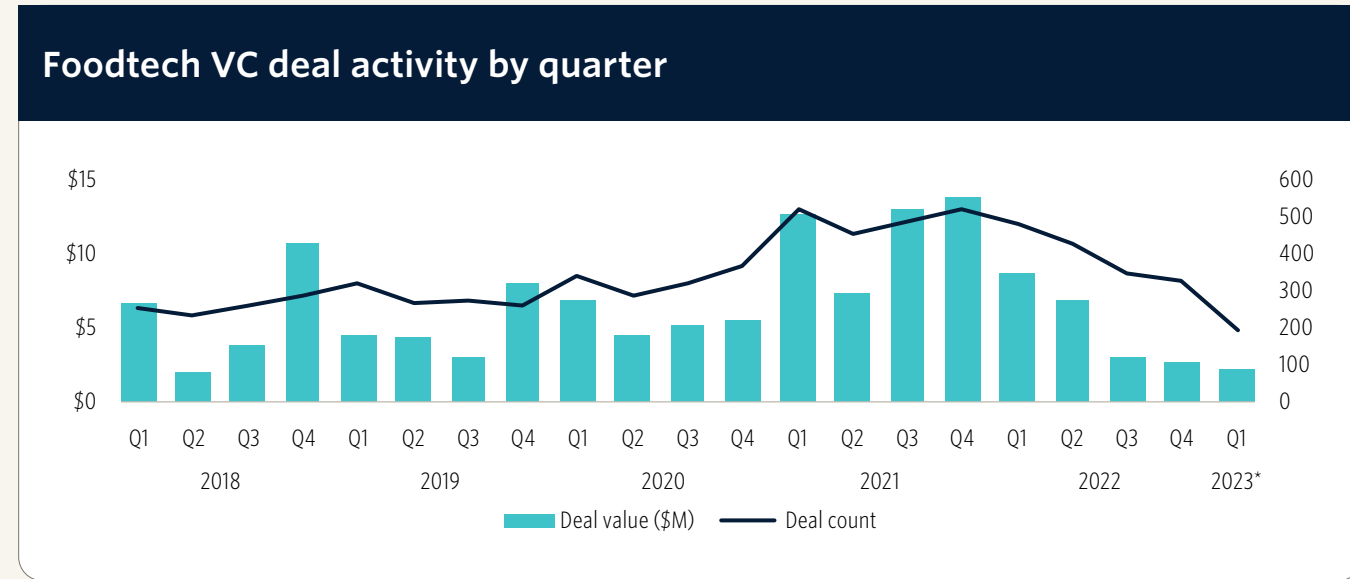
### TTM foodtech VC deal activity by segment\*



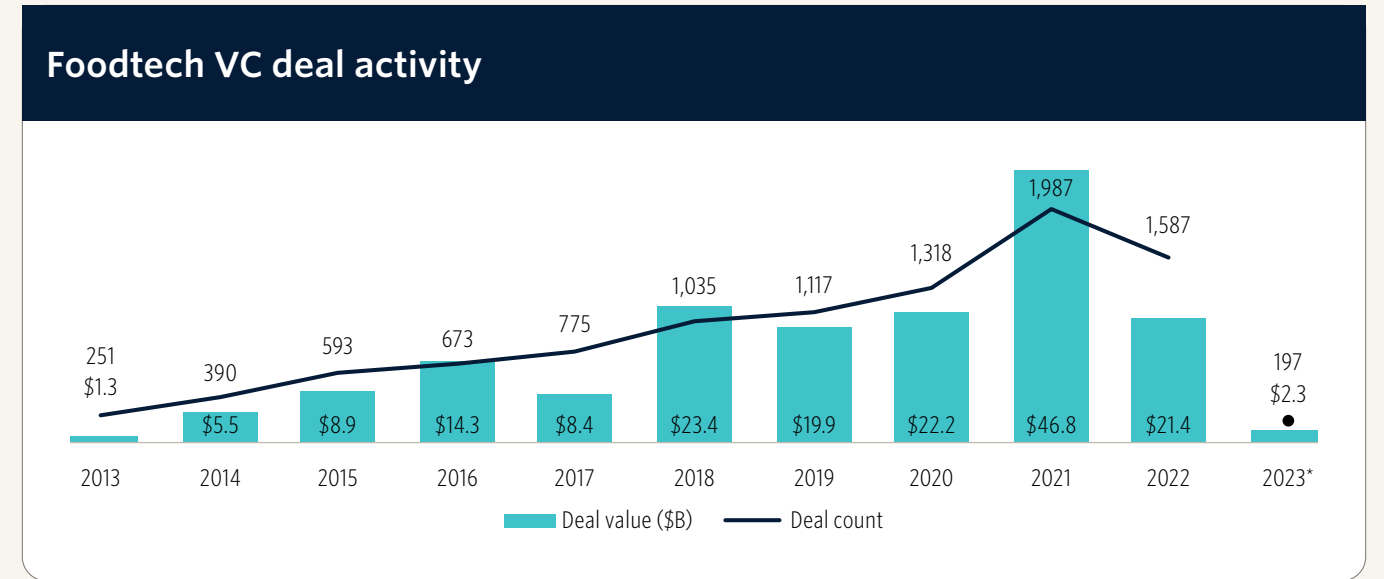
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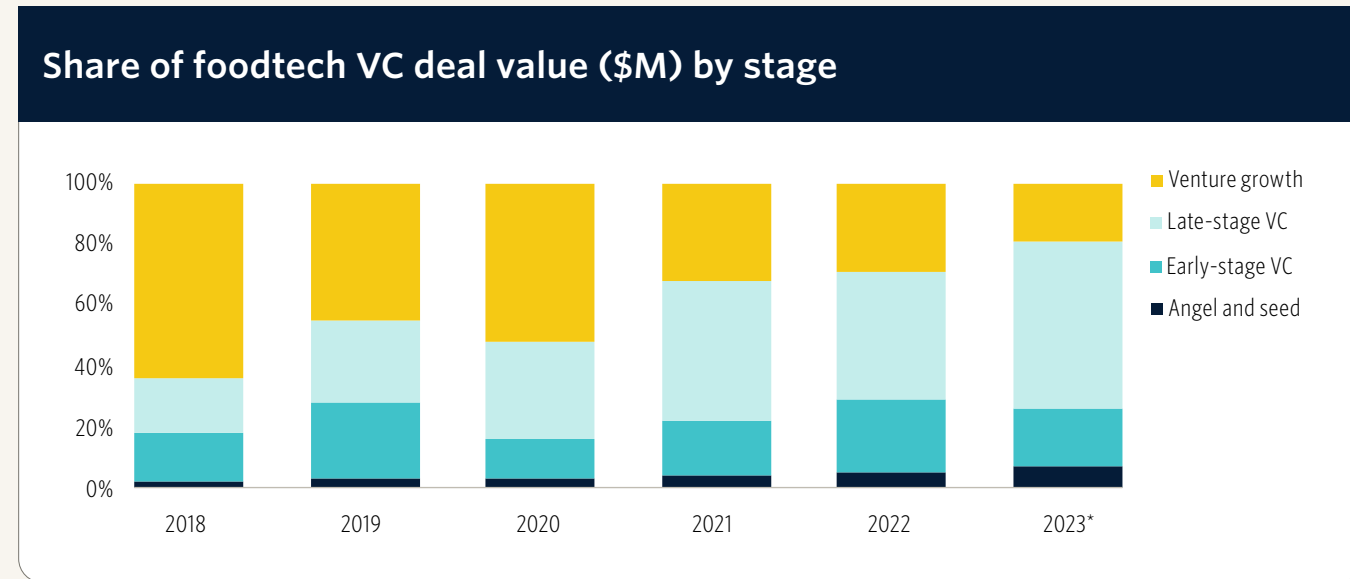
## VC ACTIVITY



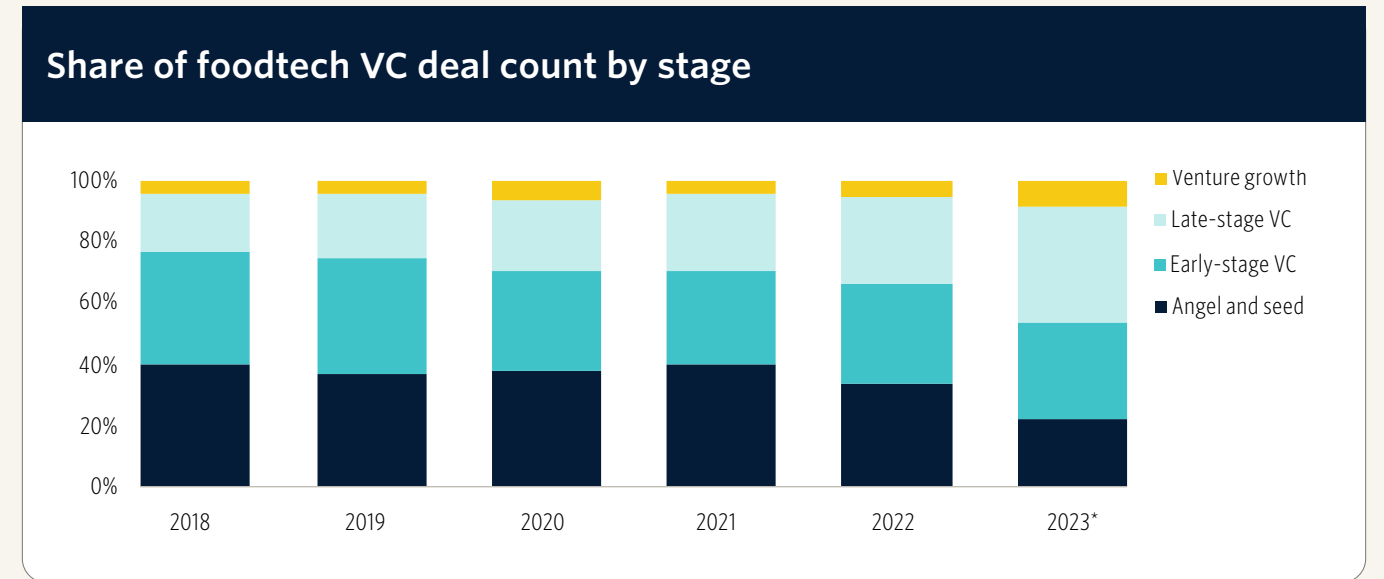
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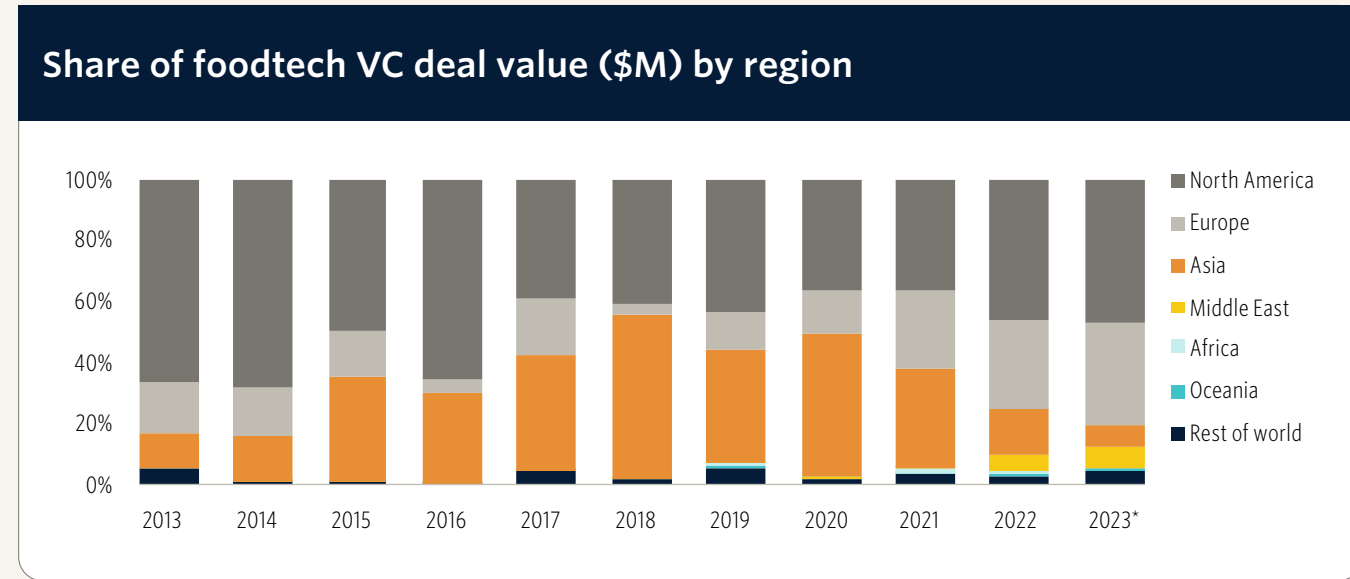
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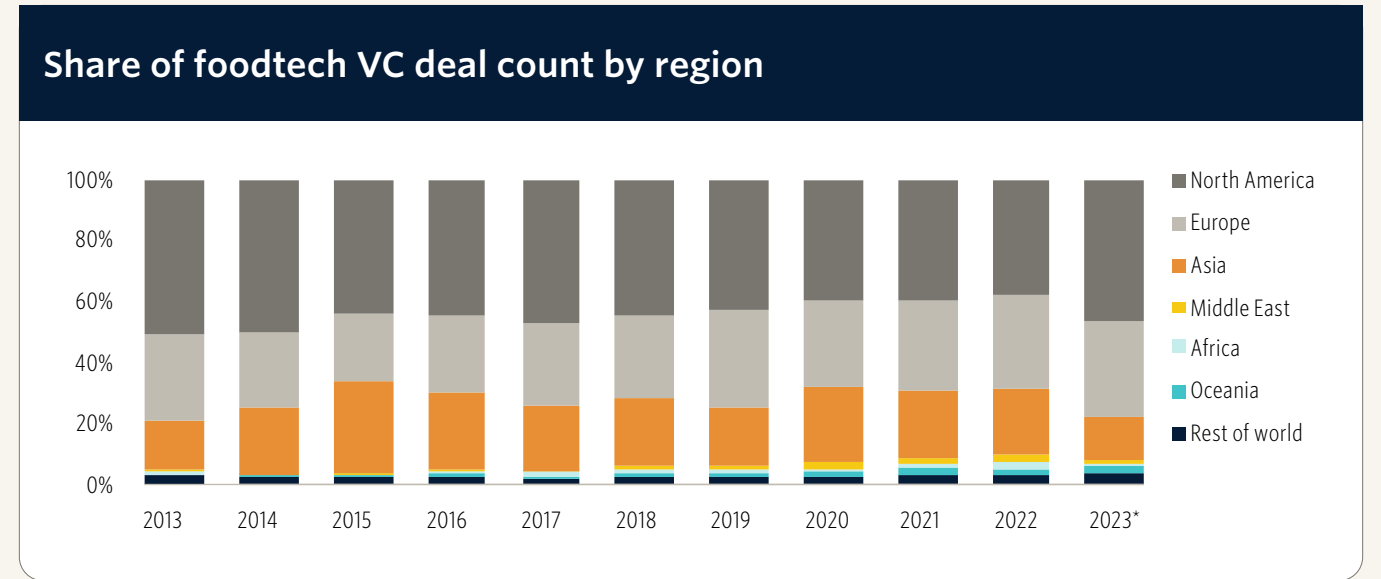
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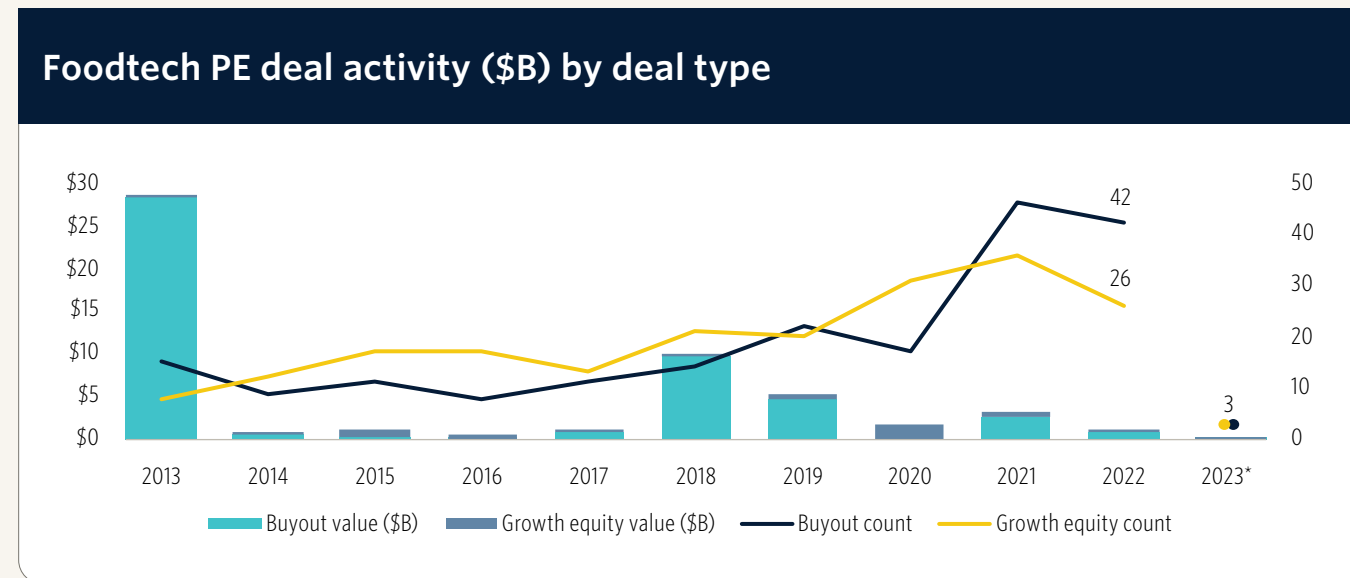
## VC ACTIVITY



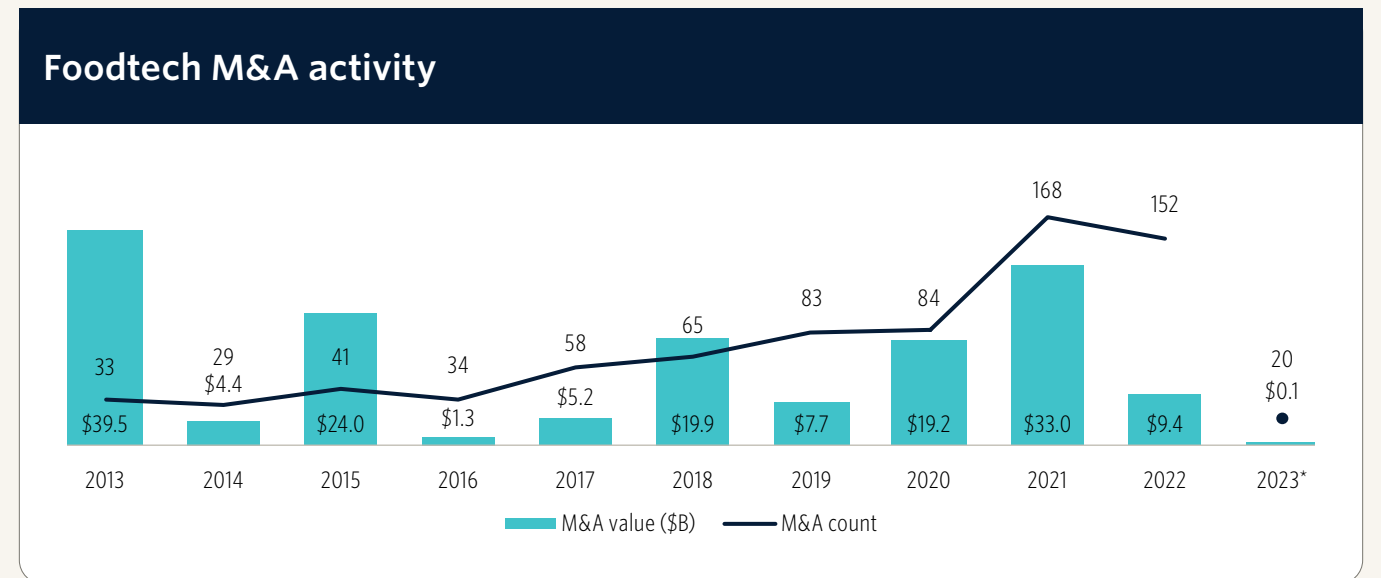
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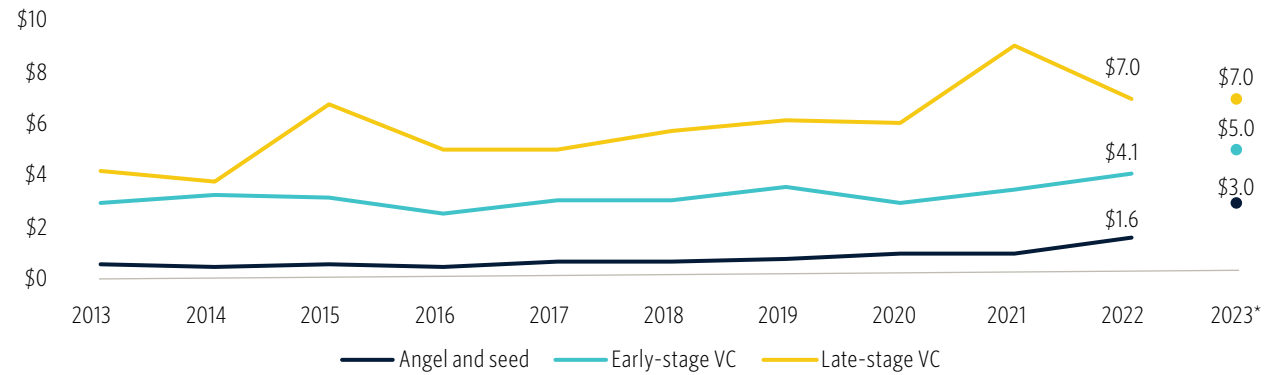
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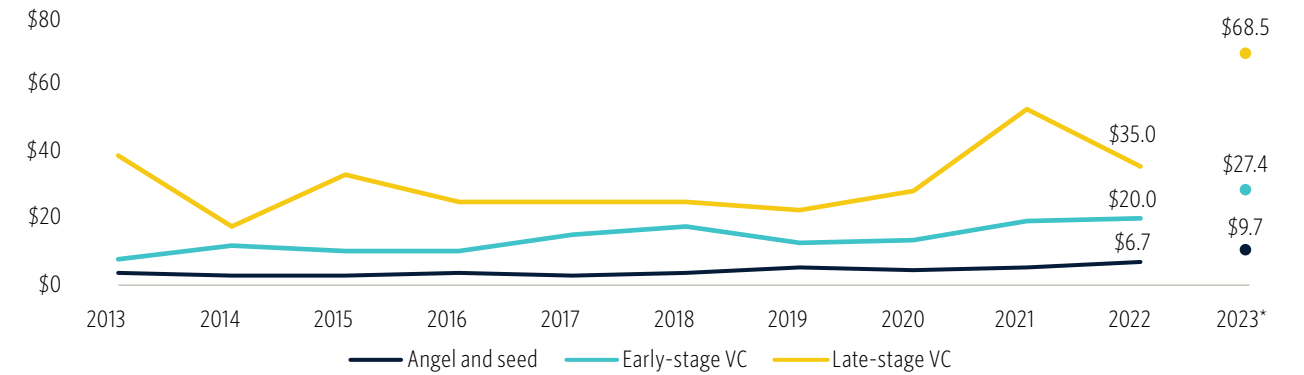
## VC ACTIVITY

### Median foodtech VC deal value (\$M) by stage



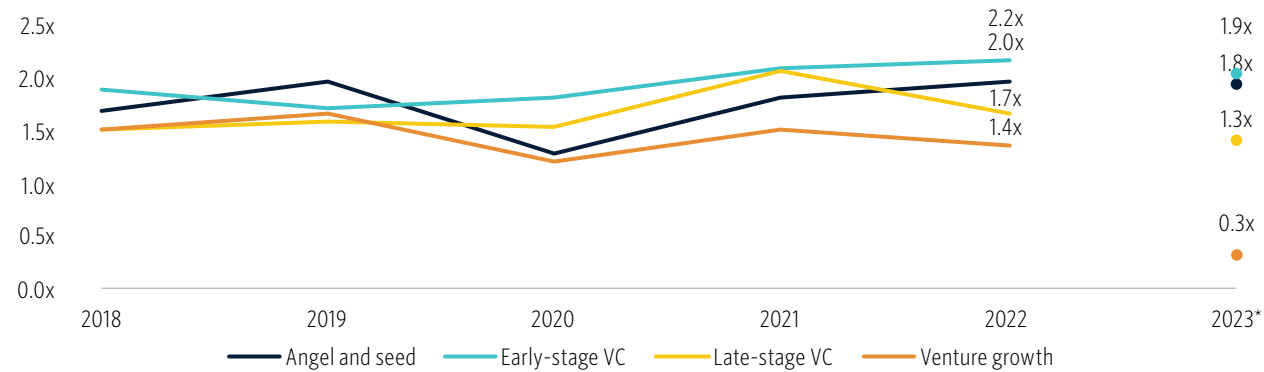
Source: PitchBook • Geography: Global • \*As of March 31, 2023

### Median foodtech VC pre-money valuation (\$M) by stage



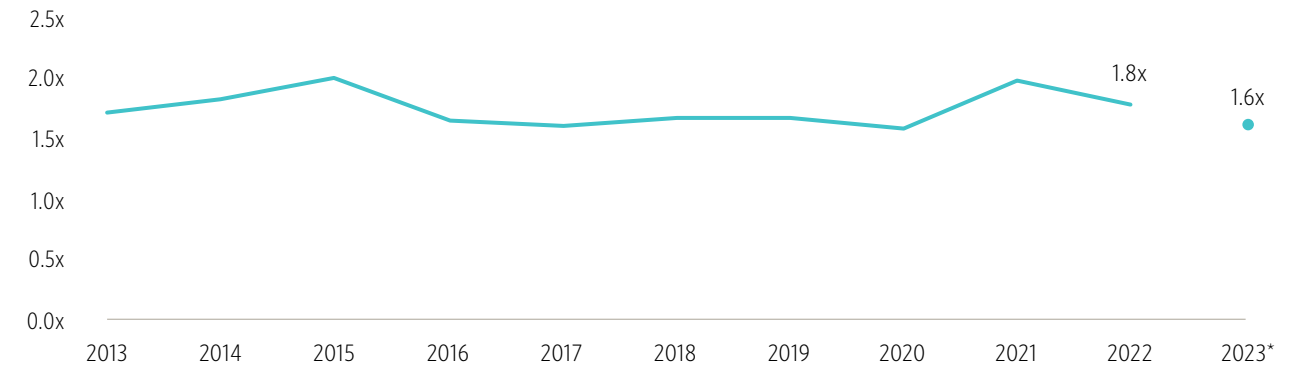
Source: PitchBook • Geography: Global • \*As of March 31, 2023

### Median foodtech VC valuation step-up by stage



Source: PitchBook • Geography: Global • \*As of March 31, 2023

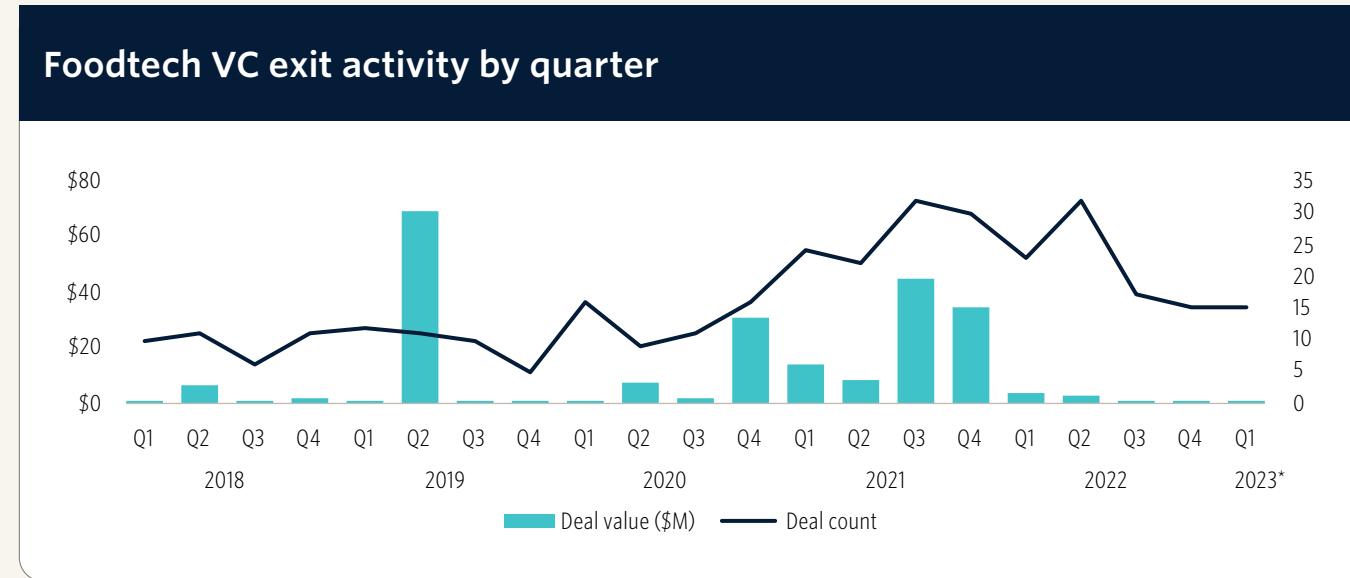
### Median foodtech VC valuation step-up



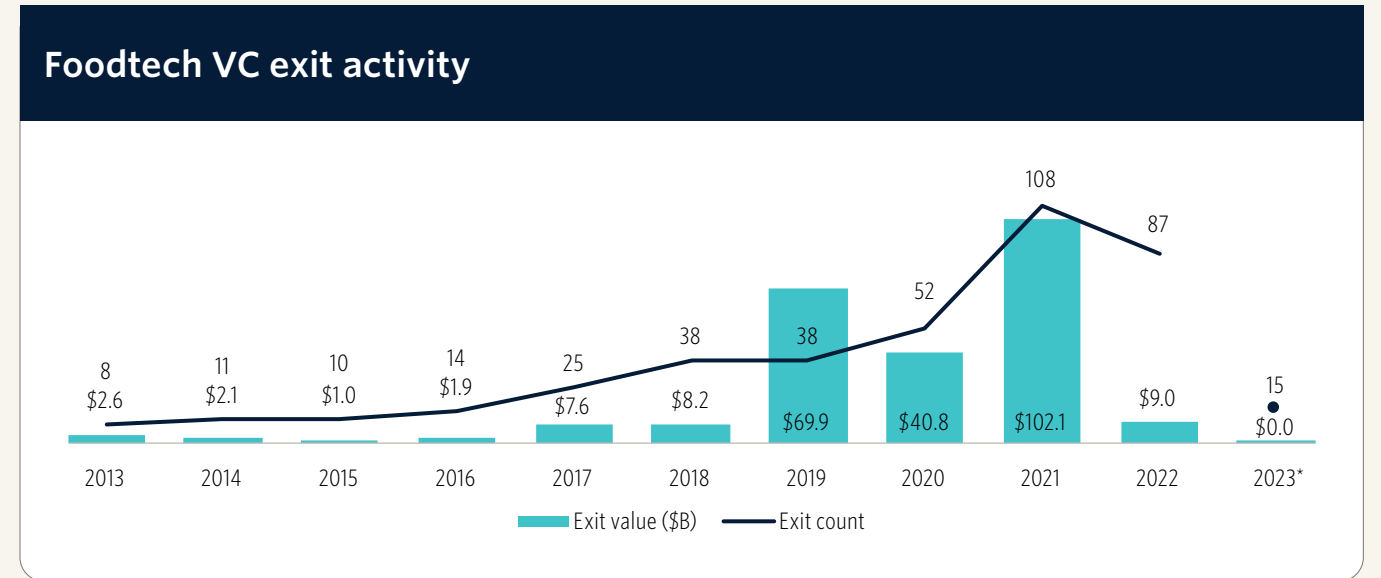
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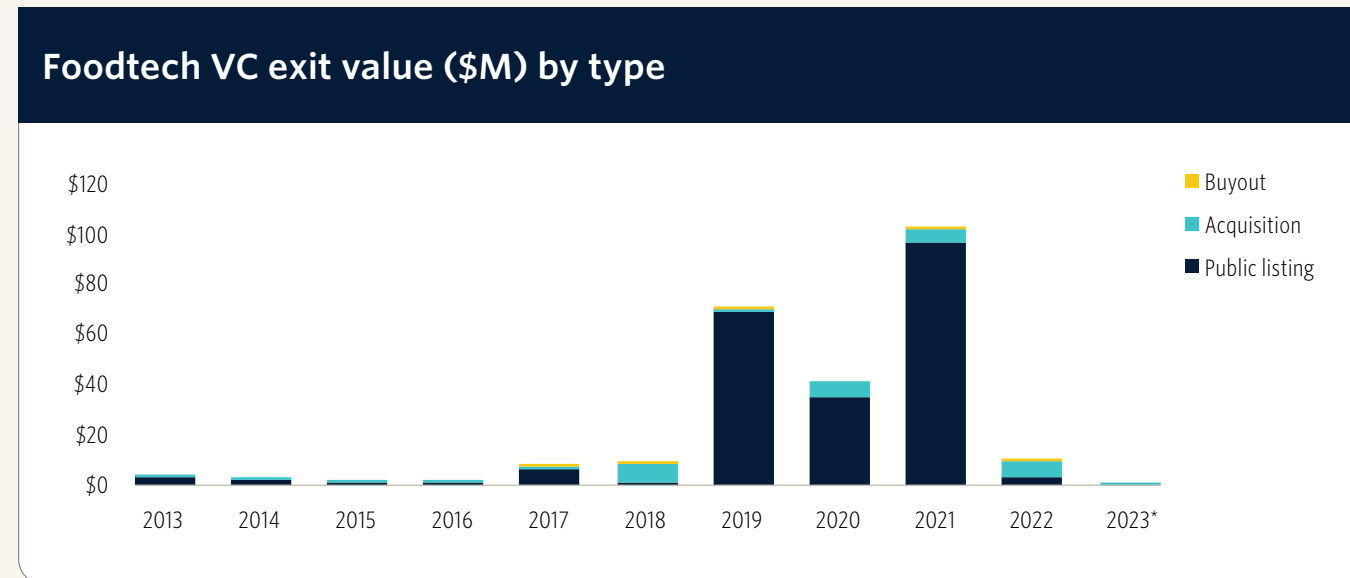
## VC ACTIVITY



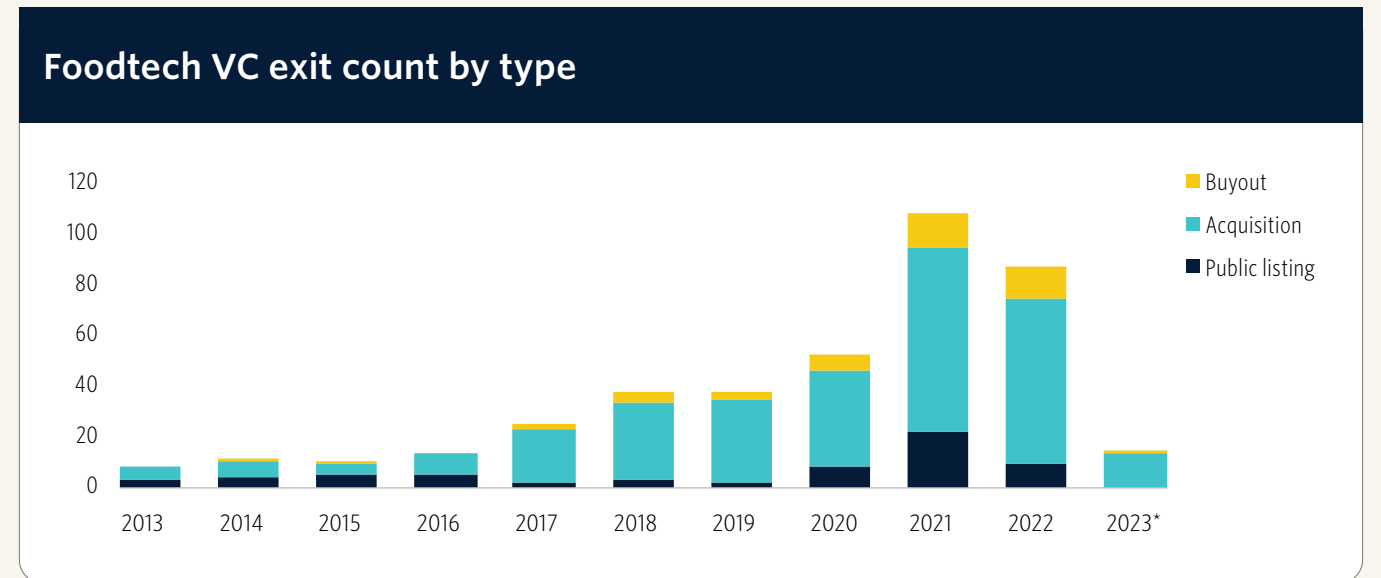
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## VC ACTIVITY

### Key foodtech angel and seed VC deals\*

Company	Close date (2023)	Category	Stage	Deal value (\$M)	Lead investor(s)
<a href="#">Planetarians</a>	February 16	Fermented protein, upcycled foods	Seed	\$15.5	Mindrock Capital
<a href="#">New School Foods</a>	February 2	Plant-based protein	Seed	\$12.0	Lever VC
<a href="#">Future Fields</a>	February 22	Cultivated protein	Seed	\$11.2	N/A
<a href="#">Project Eaden</a>	January 11	Plant-based protein	Seed	\$10.7	Creandum
<a href="#">OpenCity</a>	February 2	Restaurant marketplaces	Seed	\$10.1	1st Course Capital
<a href="#">Atmosfy</a>	January 1	Food & beverage discovery	Seed	\$9.7	N/A
<a href="#">Zitti</a>	January 19	Sales & operations tech	Seed	\$8.0	Crossbeam Venture Partners, Oceans Ventures, Serena Ventures
<a href="#">Aqua Cultured Foods</a>	March 29	Fermented protein	Seed	\$7.7	Stray Dog Capital
<a href="#">Diferente</a>	January 31	Restaurant marketplaces	Seed	\$7.0	Caravela Capital
<a href="#">Klikit</a>	February 1	Kitchen enablement software	Seed	\$6.2	Wavemaker Partners

Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

### Key foodtech early-stage VC deals\*

Company	Close date (2023)	Category	Stage	Deal value (\$M)	Lead investor(s)	Valuation step-up
<a href="#">Flink</a>	March 30	Online grocers	Early-stage VC	\$107.0	N/A	N/A
<a href="#">Mondu</a>	January 12	Sales & operations tech	Series A	\$56.0	FinTech Collective, Valar Ventures	2.0x
<a href="#">Levels</a>	January 31	Personalized nutrition	Series A	\$45.0	N/A	N/A
<a href="#">Two</a>	March 21	Sales & operations tech	Series A	\$19.2	Antler, Shine Capital	N/A
<a href="#">Omie &amp; Cie</a>	February 9	Online grocers	Series A	\$16.3	2050, XAnge	N/A
<a href="#">BelliWelli</a>	January 20	Functional foods	Series A	\$15.4	N/A	N/A
<a href="#">RYZE</a>	March 16	Functional foods	Early-stage VC	\$15.0	N/A	N/A
<a href="#">Legit Group</a>	January 2	Ghost kitchens	Series A	\$13.7	MDI Ventures	1.9x
<a href="#">Paleo</a>	February 15	Fermented protein	Series A	\$13.0	DSM Venturing, Planet A	N/A
<a href="#">Forward</a>	February 17	Ghost kitchens	Series A	\$11.3	N/A	N/A

Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

### Key foodtech late-stage VC deals\*

Company	Close date (2023)	Category	Stage	Deal value (\$M)	Lead investor(s)	Valuation step-up
<a href="#">YFood</a>	March 1	Future food forms	Late-stage VC	\$230.3	N/A	N/A
<a href="#">Meati</a>	January 26	Fermented protein	Series C	\$172.0	Revolution/ROTR	1.6x
<a href="#">Nana</a>	February 7	Online grocers	Series C	\$133.0	Kingdom Holding Company, Uni Venture	N/A
<a href="#">Checkerspot</a>	February 14	Sustainable packaging	Series C	\$55.0	ArrowMark Partners	N/A
<a href="#">Cubiq Foods</a>	March 1	Cultivated protein	Series B	\$54.0	N/A	N/A
<a href="#">Daki</a>	February 6	Online grocers	Series C	\$50.0	N/A	N/A
<a href="#">Lemon Perfect</a>	February 9	Functional foods	Series B	\$36.8	N/A	1.3x
<a href="#">Andes</a>	March 16	Fermented protein	Series A	\$30.0	N/A	N/A
<a href="#">Slutty Vegan</a>	February 21	Restaurant marketplaces	Series A	\$29.7	Enlightened Hospitality Investments, New Voices	N/A
<a href="#">ByHeart</a>	January 13	Functional foods	Late-stage VC	\$29.6	N/A	N/A

Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

### Key foodtech venture growth deals\*

Company	Close date (2023)	Category	Stage	Deal value (\$M)	Lead investor(s)	Valuation step-up
<a href="#">Guayaki</a>	January 13	Functional foods	Late-stage VC	\$75.0	N/A	N/A
<a href="#">Human Interest</a>	January 20	Sales & operations tech	Late-stage VC	\$62.0	BlackRock	N/A
<a href="#">Gousto</a>	February 7	Meal kits	Late-stage VC	\$61.3	N/A	N/A
<a href="#">Scanntech</a>	January 19	Grocery store tech	Late-stage VC	\$40.0	N/A	N/A
<a href="#">Curefoods</a>	March 1	Ghost kitchens	Late-stage VC	\$36.5	Binny Bansal, Three State Capital	N/A
<a href="#">Soft Robotics</a>	February 21	Kitchentech & robotics	Series C	\$26.0	Marel, Tyson Ventures	1.3x
<a href="#">Foxtrot</a>	February 27	Online grocers	Late-stage VC	\$18.6	N/A	N/A
<a href="#">WhyQ</a>	January 26	Restaurant marketplaces	Series A2	\$16.4	Kairos Capital	N/A
<a href="#">Miso Robotics</a>	March 22	Kitchentech & robotics	Series A1	\$15.0	N/A	N/A
<a href="#">Pudu Tech</a>	February 15	Delivery robots	Series C3	\$14.7	N/A	N/A

Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

### Key foodtech VC exits\*

Company	Close date (2023)	Category	Exit value (\$M)	Exit type	Acquirer(s)/index
<a href="#">Onyon</a>	January 2	Restaurant marketplaces	\$1.0	Acquisition	Satsipay
<a href="#">Chefling</a>	January 4	Kitchen enablement software	N/A	Acquisition	Smarter
<a href="#">Fexy</a>	January 12	Kitchen enablement software	N/A	Acquisition	The Arena Group Holdings
<a href="#">EatsReady</a>	March 6	Restaurant marketplaces	N/A	Acquisition	Coverflex
<a href="#">Weinclub.ch</a>	March 31	Online grocers	N/A	Acquisition	Rutishauser Weinkellerei
<a href="#">Soylent</a>	February 22	Future food forms	N/A	Acquisition	Starco Brands
<a href="#">Kavall</a>	March 23	Online grocers	N/A	Acquisition	Mathem
<a href="#">Stor.ai</a>	January 3	Sales & operations tech	N/A	Acquisition	Relationship
<a href="#">FoodRazor</a>	February 16	Sales & operations tech	N/A	Acquisition	OrderEZ

Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

### Key foodtech incumments\*

Company	Category	Key products	EV/NTM revenue	EV/NTM EBITDA
<a href="#">Steakholder Foods</a>	Cultivated protein	3D printed meal alternatives	N/A	N/A
<a href="#">DoorDash</a>	Restaurant marketplaces	Restaurant delivery	4.0x	94.0x
<a href="#">Blue Apron</a>	Meal kits	Meal kits	0.2x	N/A
<a href="#">Beyond Meat</a>	Plant-based protein	Plant-based meat	4.0x	N/A
<a href="#">Ocado Group</a>	Online grocers	Online grocery	2.7x	580.4x

Source: PitchBook • Geography: Global • \*As of March 31, 2023





## VC ACTIVITY

### Most active foodtech accelerators by deal count\*

Investor	Deal count
<a href="#">Techstars</a>	21
<a href="#">EIT Food</a>	16
<a href="#">Y Combinator</a>	15
<a href="#">Big Idea Ventures</a>	13
<a href="#">Google for Startups Accelerator</a>	7
<a href="#">Startup Wise Guys</a>	6
<a href="#">ProVeg Incubator</a>	5
<a href="#">SKU</a>	5
<a href="#">Tech Incubator Program for Startups</a>	5
<a href="#">Plug and Play Tech Center</a>	4
<a href="#">i.d.e.a. Fund</a>	4

Source: PitchBook • Geography: Global • \*As of March 31, 2023

### Most active VC investors in foodtech companies since 2022\*

Investor	Deal count	Angel and seed	Early-stage VC	Late-stage VC	Venture growth
<a href="#">SOSV</a>	60	26	15	18	1
<a href="#">Big Idea Ventures</a>	25	13	9	3	0
<a href="#">Alumni Ventures</a>	24	11	7	5	1
<a href="#">Goodwater Capital</a>	21	7	9	3	2
<a href="#">AgFunder</a>	20	5	12	3	0
<a href="#">FJ Labs</a>	20	5	9	5	1
<a href="#">10X Capital</a>	20	7	6	7	0
<a href="#">S2G Ventures</a>	19	3	10	5	1
<a href="#">Lever VC</a>	18	7	9	2	0
<a href="#">Sustainable Food Ventures</a>	16	11	5	0	0
<a href="#">Good Startup</a>	16	2	10	3	1

Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

### Top strategic acquirers of foodtech companies since 2019\*

Investor	Deal count	Investor type
<a href="#">Delivery Hero</a>	4	Corporation
<a href="#">Koninklijke DSM</a>	2	Corporation
<a href="#">Getir</a>	2	VC-backed company
<a href="#">HelloFresh Group</a>	2	Corporation
<a href="#">PlantPlus Foods</a>	2	Corporation
<a href="#">Kraft Heinz</a>	2	Corporation
<a href="#">Nurture</a>	2	Corporation
<a href="#">Walmart</a>	2	Corporation
<a href="#">REEF Technology</a>	2	PE-backed company
<a href="#">John Deere</a>	2	Corporation

Source: PitchBook • Geography: Global • \*As of March 31, 2023

### Top PE investors in foodtech companies since 2018\*

Investor	Deal count	Primary investor type
<a href="#">Eat &amp; Beyond Global Holdings</a>	8	PE/buyout
<a href="#">General Atlantic</a>	4	Growth/expansion
<a href="#">SoftBank Investment Advisers</a>	4	Growth/expansion
<a href="#">Warburg Pincus</a>	4	PE/buyout
<a href="#">InvestEco Capital</a>	4	Growth/expansion
<a href="#">Enterprise Ireland</a>	3	PE/buyout
<a href="#">The CapStreet Group</a>	3	PE/buyout
<a href="#">Verdane</a>	3	PE/buyout
<a href="#">Bregal Sagemount</a>	3	PE/buyout
<a href="#">Kohlberg Kravis Roberts</a>	3	PE/buyout

Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

### Key angel and seed VC-backed foodtech companies by total VC raised to date\*

Company	Category	VC (\$M) raised to date	Post-money valuation (\$M)	Most recent VC deal type
<a href="#">Mowito</a>	Grocery store tech	\$336.0	N/A	Seed
<a href="#">Jüsto</a>	Online grocers	\$244.0	N/A	Series B
<a href="#">Live Fish</a>	Online grocers	\$134.2	N/A	N/A
<a href="#">Starship</a>	Delivery robots	\$128.2	\$371.0	Late-stage VC
<a href="#">Ecovative</a>	Fermented protein, sustainable packaging	\$97.4	N/A	Series D
<a href="#">Gourmey</a>	Cultivated protein	\$90.3	N/A	Series A
<a href="#">Miso Robotics</a>	Kitchentech & robotics	\$81.9	N/A	Series A1
<a href="#">Kadenwood</a>	Functional foods	\$81.7	N/A	N/A
<a href="#">Yummy</a>	Restaurant marketplaces	\$81.4	N/A	N/A
<a href="#">Dom's Kitchen &amp; Market</a>	Online grocers	\$49.5	N/A	N/A

Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

### Key early-stage VC-backed foodtech companies by total VC raised to date\*

Company	Category	VC (\$M) raised to date	Post-money valuation (\$M)	Most recent VC deal type
<a href="#">Nuro</a>	Delivery robots	\$2,132.0	\$8,600.0	Series D
<a href="#">CloudKitchens</a>	Ghost kitchens	\$1,950.0	\$15,000.0	N/A
<a href="#">Flink</a>	Online grocers	\$1,164.4	N/A	Early-stage VC
<a href="#">Wonder</a>	Ghost kitchens	\$850.0	\$3,850.0	Series B
<a href="#">JOKR</a>	Online grocers	\$500.0	\$1,350.0	Series C
<a href="#">Daki</a>	Online grocers	\$480.0	\$1,300.0	Series C
<a href="#">Zume</a>	Sustainable packaging	\$445.7	N/A	Early-stage VC
<a href="#">Believer Meats</a>	Cultivated protein	\$390.3	\$803.0	Series B2
<a href="#">Motif FoodWorks</a>	Fermented protein	\$343.5	N/A	N/A
<a href="#">Livekindly</a>	Plant-based protein	\$342.5	\$1,220.0	Early-stage VC

Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

### Key late-stage VC-backed foodtech companies by total VC raised to date\*

Company	Category	VC (\$M) raised to date	Post-money valuation (\$M)	Most recent VC deal type
<a href="#">Xingsheng Selected</a>	Online grocers	\$5,440.0	\$12,000.0	Late-stage VC
<a href="#">Instacart</a>	Online grocers, restaurant marketplaces	\$2,734.8	\$39,000.0	Series I
<a href="#">Rappi</a>	Restaurant marketplaces	\$2,362.3	\$5,358.6	Series F
<a href="#">Nuro</a>	Delivery robots	\$2,132.0	\$8,600.0	Series D
<a href="#">CloudKitchens</a>	Ghost kitchens	\$1,950.0	\$15,000.0	N/A
<a href="#">Getir</a>	Online grocers	\$1,794.0	\$11,800.0	Series E
<a href="#">Pupumall</a>	Online grocers	\$1,106.5	N/A	N/A
<a href="#">Picnic</a>	Online grocers	\$1,093.2	N/A	Late-stage VC
<a href="#">SaltPay</a>	Sales & operations tech	\$994.6	\$1,000.0	Series C
<a href="#">Just Egg</a>	Cultivated protein, plant-based protein	\$863.5	N/A	N/A

Source: PitchBook • Geography: Global • \*As of March 31, 2023



## VC ACTIVITY

### Key venture growth VC-backed foodtech companies by total VC raised to date\*

Company	Category	VC (\$M) raised to date	Post-money valuation (\$M)	Most recent VC deal type
<a href="#">Ele.me</a>	Restaurant marketplaces	\$7,335.5	\$30,000.0	Late-stage VC
<a href="#">Gojek</a>	Restaurant marketplaces	\$6,801.0	N/A	N/A
<a href="#">Gopuff</a>	Online grocers	\$4,934.7	N/A	N/A
<a href="#">Swiggy</a>	Restaurant marketplaces	\$3,530.4	\$10,616.8	Series K
<a href="#">Instacart</a>	Online grocers, restaurant marketplaces	\$2,734.8	\$39,000.0	Series I
<a href="#">Rappi</a>	Restaurant marketplaces	\$2,362.3	\$5,358.6	Late-stage VC
<a href="#">Impossible Foods</a>	Plant-based protein	\$1,862.5	N/A	N/A
<a href="#">Getir</a>	Online grocers	\$1,794.0	\$11,800.0	Series E
<a href="#">Bolt</a>	Restaurant marketplaces	\$1,727.3	\$8,371.8	Series F
<a href="#">Trax Retail</a>	Grocery store tech	\$1,087.5	\$2,250.0	Late-stage VC

Source: PitchBook • Geography: Global • \*As of March 31, 2023



# Emerging opportunities

## Restaurant management systems

New software tools are driving restaurant efficiencies.

## Seafood alternative proteins

A wave of alternative protein innovation is hitting the food industry.

## The decline of ghost kitchens

The future of food delivery could pivot away from the app-only restaurant model.



# Restaurant management systems

The digital transformation of the restaurant industry is underway, driven significantly by the rise of restaurant management software (RMS). This revolutionary tool streamlines and optimizes operations, from inventory management to customer relationship management. This technological leap forward is enabled by VC funding, which is facilitating rapid innovation and accessibility in the sector.

RMS is a type of comprehensive digital platform designed to help restaurateurs manage various operational aspects. It typically includes inventory management, table and reservation management, online ordering and delivery coordination, labor management, customer relationship management, analytics tools, and even point-of-sale (POS) systems. Integrating these functions into a single software solution improves operational efficiency, reduces costs, and enhances customer service, offering a significant competitive advantage to restaurants adopting these technologies.

Despite the clear benefits of RMS, the required initial capital investment has historically been a hurdle for many restaurant businesses. However, VC-backed startups have emerged to tackle these challenges, offering scalable, affordable solutions that democratize access to advanced restaurant management tools.

Examples of successful VC-backed RMS startups illustrate this trend. [Foodics](#) has raised \$194.0 million in VC funding, disrupting the industry with a cloud-based, comprehensive software suite that includes tools for managing labor, food inventory, and sales. Their business model is based on subscription pricing, with additional charges for premium modules, which provides scalability for restaurants of all sizes.

## Restaurant management software VC deal activity



Source: PitchBook • Geography: Global • \*As of March 31, 2023





## RESTAURANT MANAGEMENT SYSTEMS

Another notable startup is [Vita Mojo](#), which offers an integrated RMS solution and a unique business model that includes a kitchen management platform, digital ordering, operations management, and marketing tools. Similarly, startup [SpotOn](#) provides POS, online ordering, waitlist, and reservations management, offering different tiers of monthly subscriptions to cater to individual business needs. The RMS company [7shifts](#) has carved a niche for itself by focusing on labor management, offering intuitive scheduling, time tracking, and employee communication services. They operate a “freemium” model, providing basic services for free and charging for advanced features.

RMS startups are increasingly integrating AI and machine learning into their platforms. They offer advanced features such as predictive analytics and automated inventory management, providing unparalleled insights and efficiencies for restaurant operations. One startup, [Nory](#), provides restaurants with AI-powered analytics tools, offering performance, labor, and operations management services.

Despite the benefits, implementing RMS is not without challenges, including data security, staff training, and reliable internet connectivity. Startups mitigate these issues by investing in robust security infrastructures, providing comprehensive training, and developing offline functionality.

The VC-backed RMS industry represents a promising frontier in the restaurant business. As technology continues to shape the industry, VC funding plays a critical role in fostering innovation and growth within the sector. This new era of restaurant management, bolstered by VC funding, is transforming operations and customer experiences, providing a tangible competitive edge in the ever-evolving restaurant space.

### Key VC-backed restaurant management software companies by total VC raised to date\*

Company name	VC raised to date (\$M)	Post-money valuation (\$M)
<a href="#">SpotOn</a>	\$928.0	\$3,600.0
<a href="#">TouchBistro</a>	\$209.7	N/A
<a href="#">7shifts</a>	\$133.9	\$120.0
<a href="#">Vita Mojo</a>	\$55.7	\$90.8
<a href="#">Superb</a>	\$16.1	\$33.3
<a href="#">BevSpot</a>	\$22.6	\$36.4
<a href="#">Innovorder</a>	\$14.5	\$28.5
<a href="#">Poing</a>	\$11.5	N/A
<a href="#">SynergySuite</a>	\$14.3	N/A
<a href="#">Last.app</a>	\$2.8	N/A

Source: PitchBook • Geography: Global • \*As of March 31, 2023



# Seafood alternative proteins

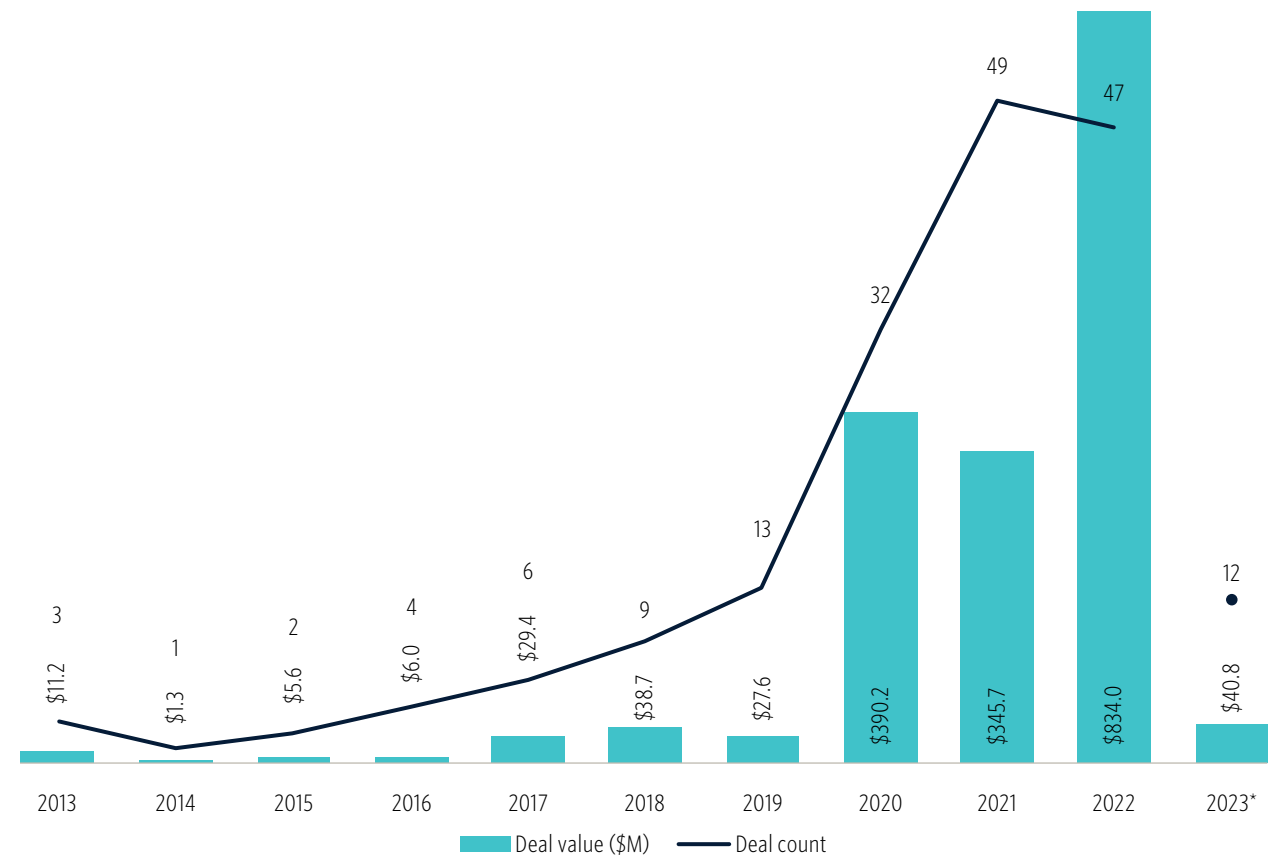
Seafood is a fundamental part of food culture across the globe, but with the world's fish stocks increasingly under pressure from overfishing, pollution, and climate change, there is a growing need for sustainable alternatives. Enter the rising sector of seafood alternative proteins, an industry experiencing a swell of innovation backed by strategic investments, pioneering startups, and advanced food technologies.

Alternative proteins refer to protein sources that act as substitutes for conventional animal-based proteins. In the context of seafood, these alternatives aim to mimic the taste, texture, and nutritional profile of traditional seafood products using plant-based sources, cultivated cells, or fermentation processes.

This burgeoning sector is attracting significant interest from investors and entrepreneurs alike. A prime example is [Wildtype](#), a food technology company focused on developing cell-cultured seafood products that taste and perform like conventional seafood in all cooking and consumption scenarios. In December 2022, the company announced a partnership with [Solaris Biotechnology](#) to develop large-scale bioreactors to scale production. [Wildtype's](#) successful funding history totals \$139.0 million and underlines the growing investment interest in the sector.

Another trailblazing company, [New Wave Foods](#), is using plant- and seaweed-based sources to create shrimp alternatives, while [Finless Foods](#) is leveraging cell-culturing technology to produce lab-grown and plant-based alternatives to bluefin tuna, a species currently facing overfishing challenges.

## Alternative seafood protein VC deal activity



Source: PitchBook • Geography: Global • \*As of March 31, 2023



## SEAFOOD ALTERNATIVE PROTEINS

Simultaneously, companies like [Aqua Cultured Foods](#) are pioneering in the field of fermentation-derived seafood proteins. By using fungi and harnessing their fermentation process, they are developing seafood alternatives, including tuna, whitefish, squid, and shrimp alternatives, that maintain the distinctive taste and texture of conventional seafood.

The business model in this sector largely focuses on B2B sales, with companies selling their innovative protein alternatives to restaurants, food service providers, and manufacturers. However, some companies like [Wicked Kitchen](#), which offers a range of plant-based tuna and seafood products, are also tapping into the B2C market by selling directly to consumers via retail outlets and online channels.

Despite the exciting progress in this field, the sector faces some significant challenges. Regulatory hurdles, consumer acceptance, and the ability to scale production to meet potential demand are key issues that companies must navigate. However, these challenges are surmountable with continued technological advancements, regulatory progress, and growing consumer awareness about sustainability and health.

The wave of innovation in seafood alternative proteins presents a promising solution to the pressing need for more sustainable and ethical food choices. Through the efforts of pioneering startups and the backing of strategic investments, the future of seafood may well lie in these innovative, alternative protein sources. This emerging industry not only signifies a seismic shift in food technology, but also illustrates how businesses can play a critical role in addressing global sustainability challenges.

### Key VC-backed alternative seafood companies by total VC raised to date\*

Company name	Category	VC raised to date (\$M)
<a href="#">UPSIDE Foods</a>	Cultivated protein	\$608.2
<a href="#">Seasogood</a>	Plant-based protein	\$400.0
<a href="#">Wildtype</a>	Cultivated protein	\$135.0
<a href="#">Starfield Food Science Technology</a>	Plant-based protein	\$124.8
<a href="#">BlueNalu</a>	Cultivated protein	\$84.5
<a href="#">Algisys</a>	Plant-based protein	\$51.2
<a href="#">Prime Roots</a>	Fermented protein	\$47.1
<a href="#">Finless Foods</a>	Cultivated protein	\$47.7
<a href="#">Shiok Meats</a>	Cultivated protein	\$37.8
<a href="#">Nourish Ingredients</a>	Fermented protein	\$36.8

Source: PitchBook • Geography: Global • \*As of March 31, 2023



# The decline of ghost kitchens

The evolution of the digital economy paved the way for “ghost kitchens”—cooking facilities optimized for delivery with no dine-in option. These enterprises, once hailed as the future of dining, now find themselves wrestling with numerous challenges, casting a shadow over their long-term viability.

One prime example of this struggle is the mobile ghost kitchen provider [Wonder](#), which has seen its business model flounder despite raising \$850.0 million at a \$3.9 billion valuation. Initially, [Wonder's](#) chefs prepared fresh meals curbside in a mobile kitchen delivery van—a unique approach that set them apart in the market. However, a report from The Wall Street Journal in January revealed a major pivot in business strategy, resulting in the company laying off staff, abandoning its distinctive truck model, and pivoting to a more conventional ghost kitchen operation with plans to open approximately 10 physical locations in New York and New Jersey in 2023.<sup>1</sup>

Furthermore, food delivery apps, the principal sales channel for ghost kitchens, have been inundated by an influx of virtual restaurants, many being low-quality imitators, undermining the overall reputation of the sector. Consequently, [Uber Eats](#) recently announced plans to remove 5,000 such entities from its platform for policy violations, showcasing a potential tightening of corporate oversight in this space.<sup>2</sup>

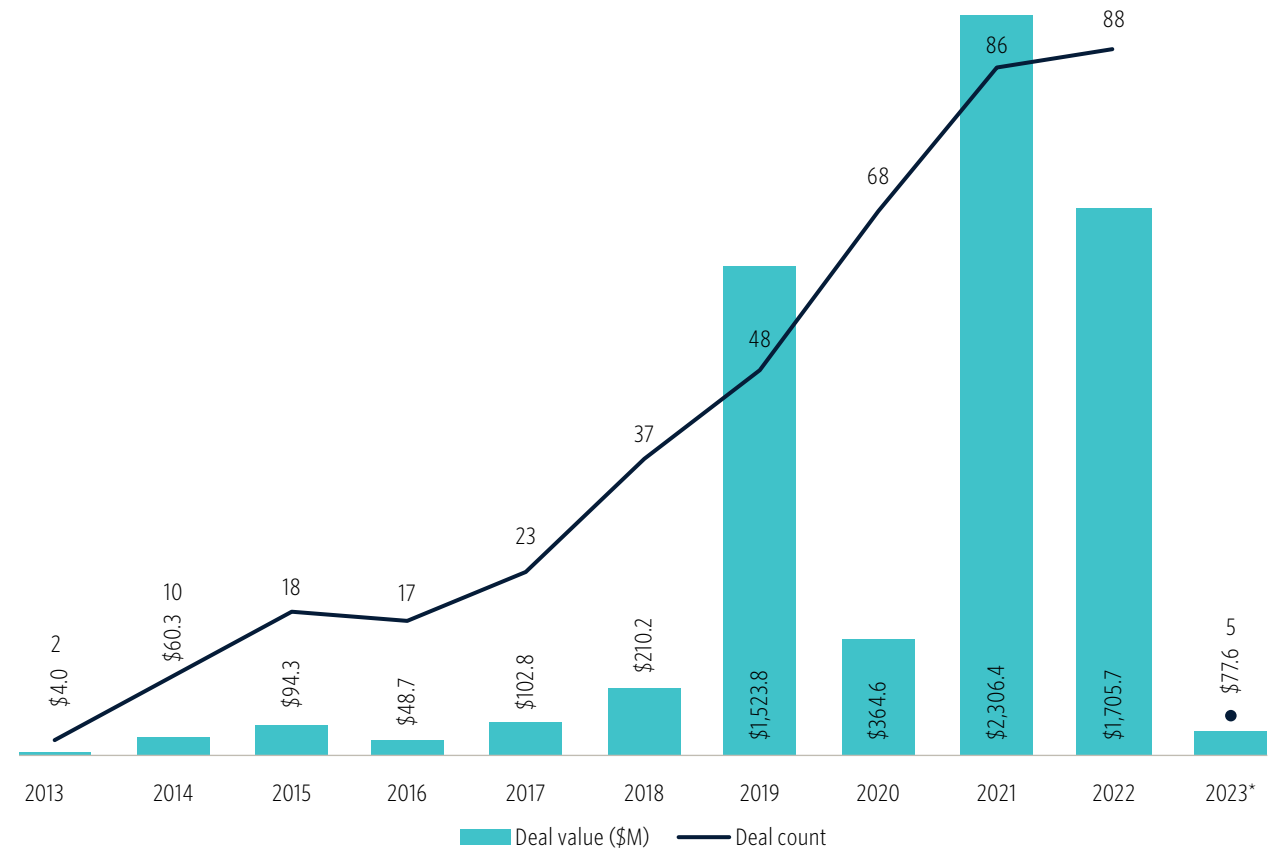
Even well-established fast-food chains have encountered difficulties navigating the ghost kitchen model. [Wendy's](#), a stalwart of the fast-food industry, declared plans in 2021 to open 700 virtual restaurants across the US, Canada, and the UK. However, by May 2023, the chain decided to permanently end its US ghost kitchen operations, highlighting the industry's volatility and the pitfalls of a delivery-only model.<sup>3</sup>

1: “Food Delivery Startup Wonder Scraps Food Truck Strategy,” Sarah Nassauer, *The Wall Street Journal*, January 9, 2023.

2: “Uber Eats is Shutting Down Thousands of Virtual Restaurants to Make the App Less Spammy,” Emma Roth, *The Verge*, March 27, 2023.

3: “Ghost Kitchens Are Dying and Nobody Noticed,” Leticia Miranda, *Bloomberg*, May 15, 2023.

## Ghost kitchen & virtual restaurant company VC deal activity



Source: PitchBook • Geography: Global • \*As of March 31, 2023



## THE DECLINE OF GHOST KITCHENS

The harsh realities of this evolving sector have culminated in a significant attrition rate, resulting in over 40 businesses being acquired or going out of business. There are several reasons for this decline. After the peak of the COVID-19 pandemic, as dining restrictions ease and consumers are rediscovering the joy of dining out, the demand for delivery services has plateaued. Additionally, escalating food prices, coupled with delivery fees, have caused consumers to lean toward more cost-effective meal options, including fast food and cooking at home.

The challenges confronting the ghost kitchen industry suggest a need for recalibration. While ghost kitchens have several advantages, such as lower overhead costs due to the absence of dining areas, they must grapple with multiple issues, including competition, labor costs, an impersonal dining experience, and their reliance on food delivery platforms.

For ghost kitchens, the crux of their struggle lies in the inherent instability of their business model. Much of the initial surge in demand for ghost kitchens was prompted by lockdown measures during the pandemic. As normalcy resumes, the demand for dining experiences beyond convenience is re-emerging, pushing these virtual kitchens into turbulent waters.

The struggles of [Wonder](#), [Uber Eats'](#) policy changes, and [Wendy's](#) retreat from the ghost kitchen model point to the challenges in this sector. The economic turbulence, rising food costs, and shifting consumer behavior in a postpandemic world underscore the need for ghost kitchens to re-evaluate their strategies and adapt to this dynamic environment. A failure to do so might render them another footnote in the ever-evolving annals of the food and beverage industry. The ghost kitchen phenomenon presents an illuminating case study in the opportunities and threats posed by the digital disruption of traditional sectors and the necessity for sustainable innovation.

### Key VC-backed ghost kitchen companies by total VC raised to date\*

Company name	VC raised to date (\$M)	Post-money valuation (\$M)
<a href="#">CloudKitchens</a>	\$1,950.0	\$15,000.0
<a href="#">REEF Technology</a>	\$900.0	N/A
<a href="#">Wonder</a>	\$850.0	\$3,850.0
<a href="#">Kitopi</a>	\$835.0	\$1,550.0
<a href="#">Rebel Foods</a>	\$458.4	\$1,400.0
<a href="#">Revolution Foods</a>	\$271.9	N/A
<a href="#">Meican</a>	\$189.6	N/A
<a href="#">Kitchen United Mix</a>	\$175.0	\$500.0
<a href="#">Curefoods</a>	\$174.0	N/A
<a href="#">Clone</a>	\$105.0	\$171.5

Source: PitchBook • Geography: Global • \*As of March 31, 2023



# Select company highlights



## SELECT COMPANY HIGHLIGHTS: KURLY



Founded  
**2015**

**430+ employees**  
based in Seoul,  
South Korea

**Total VC raised:**  
\$714.8M over eight rounds

**Last financing:**  
\$7.7M in  
late-stage VC funding

**Last financing valuation:**  
\$2.3B post-money

**Lead investor:**  
Anchor Equity Partners

### Business overview

Established in 2015, [Kurly](#) is a pioneering South Korean e-commerce startup that runs Market Kurly, an online grocery platform known for its unique “dawn delivery” service. This service offers high-quality fresh produce delivered to the customer’s doorstep by 7:00 a.m. for orders placed before midnight. This innovative approach to offering premium products with unmatched delivery speed has characterized [Kurly’s](#) commitment to customer satisfaction.

In a notable expansion move, [Kurly](#) recently partnered with [Alibaba’s](#) Redmart to extend its operations to Singapore,<sup>4</sup> demonstrating the company’s ambition to expand beyond its domestic market.

### Leadership

[Kurly](#) is spearheaded by its founder, Sophie Kim, a former [Goldman Sachs](#) analyst and [McKinsey & Company](#) consultant. Kim’s strategic acumen and deep understanding of consumer behavior have

<sup>4</sup>: “Alibaba Helps Korean Grocery Pioneer Take K-Food to Singapore,” Yoolim Lee and Sohee Kim, Bloomberg, August 9, 2023.

enabled [Kurly](#) to navigate the competitive e-commerce landscape, focusing on premium product selection, quick delivery, and an overall enhanced customer experience.

### Competition

[Kurly](#) operates in a competitive e-commerce environment with substantial rivals like Coupang, E-Mart, and SSG.com all offering similar online grocery services. Despite this, [Kurly](#) has carved out a unique space for itself, courtesy of its dawn delivery service and an unwavering emphasis on premium and fresh products. Though [Kurly’s](#) competitors are backed by larger conglomerates and enjoy established brand reputations, [Kurly’s](#) dedication to quality and speedy delivery has allowed it to cultivate a robust and loyal customer base.

### Outlook

[Kurly](#) has demonstrated significant growth since its inception. In 2021, the company posted \$1.2 billion in sales, and its gross merchandise value (GMV) reached \$1.5 billion, up 65% from the previous year. This growth rate is triple the annual average of other e-commerce firms in Korea, reflecting [Kurly’s](#) successful business model. By the end of 2021, [Kurly](#) had over 10 million users.



## SELECT COMPANY HIGHLIGHTS: KURLY

Despite these impressive figures, profitability remains a challenge for the company. [Kurly](#) reported an operating loss of \$166.7 million in 2021, an increase from its losses of \$77.6 million in 2019 and \$89.0 million in 2020. The high cost of maintaining its premium product quality and swift delivery service continues to pose a significant challenge to the company's profitability.

[Kurly's](#) IPO plans, initially viewed as a solution to its financial challenges, were put on hold in January 2023 due to rocky financial market conditions spurred by inflation and high interest rates.<sup>5</sup>

Overall, [Kurly's](#) future hinges on its ability to tackle its profitability challenges and to continue delivering superior customer value. With a dedicated customer base, unique value proposition, and recent international expansion, [Kurly](#) retains strong potential for future growth, albeit with the caveat of effectively navigating its financial challenges. The firm's extraordinary growth rate reflects a successful business model that, with strategic adjustments, could lead to a sustainable and profitable future.

<sup>5</sup>: "S.Korea's IPO Market Sours as Kurly Postpones Listing," Ye-Jin Jun, The Korea Economic Daily, January 4, 2023.

### Financing history

Series C1	Series D	Series E	Series F	Late-stage VC	Late-stage VC
<p><b>July 17, 2018</b></p> <p><b>Total raised:</b> \$6.0M</p> <p><b>Investors:</b> DST Global, Sequoia Capital</p>	<p><b>March 29, 2019</b></p> <p><b>Total raised:</b> \$113.0M</p> <p><b>Investors:</b> Fuse Venture Partners, Sequoia Capital China</p>	<p><b>May 4, 2020</b></p> <p><b>Total raised:</b> \$163.6M</p> <p><b>Investor:</b> DST Global</p>	<p><b>July 1, 2021</b></p> <p><b>Total raised:</b> \$200.2M</p> <p><b>Pre-money valuation:</b> \$1,756.9M</p>	<p><b>December 20, 2021</b></p> <p><b>Total raised:</b> \$210.0M</p> <p><b>Pre-money valuation:</b> \$3,090.0M</p> <p><b>Investor:</b> Anchor Equity Partners</p>	<p><b>April 10, 2023</b></p> <p><b>Total raised:</b> \$7.7M</p> <p><b>Pre-money valuation:</b> \$2,288.5B</p> <p><b>Investor:</b> Anchor Equity Partners</p>





## SELECT COMPANY HIGHLIGHTS: NOTCO



Founded  
**2015**

**673+ employees**  
based in  
Santiago, Chile

**Total VC raised:**  
\$433.3M

**Last financing:**  
\$70.0M in a Series D1

**Last financing valuation:**  
\$1.5B post-money

**Lead Investor:**  
Princeville Capital

**First disclosed  
institutional round:**  
\$14.4M in a Series B

### Business overview

Founded in 2015, [NotCo](#) is a foodtech startup based in Chile that uses AI to create plant-based food alternatives that closely mimic the taste, texture, and nutritional value of animal-based products. With a mission to disrupt the food industry and lessen environmental impact, [NotCo](#) offers a range of products that includes alternatives to mayonnaise, milk, and meat. Notably, [NotCo](#) has entered a joint venture with [Kraft Heinz](#), leading to the launch of two notable products: a mayo alternative named NotMayo and a [Kraft](#)-branded cheese alternative called NotCheese slices.

### Leadership

[NotCo](#)'s leadership includes Co-founder and CEO Matias Muchnick, a former investment banker turned entrepreneur. Muchnick, along with biochemist Pablo Zamora and computer scientist Karim Pichara, founded [NotCo](#) to tackle the environmental and health issues associated with animal-based food products. Under Muchnick's leadership, [NotCo](#) has grown from a small startup to a global disruptor in the food industry.

### Competition

[NotCo](#) operates in the growing but competitive market of plant-based meat and dairy alternatives. The company faces competition from established brands like [Beyond Meat](#) and [Impossible Foods](#), as well as newer entrants in the market. However, [NotCo](#)'s use of artificial intelligence to develop its products is a significant differentiator. The company uses an AI platform called Giuseppe to analyze molecular structures and develop plant-based alternatives that closely resemble animal-based foods in taste and texture.

The partnership with [Kraft Heinz](#) also gives [NotCo](#) a competitive edge, providing the startup greater market access and brand recognition. The launch of NotMayo and NotCheese in collaboration with [Kraft Heinz](#) underlines the potential of this partnership.



## SELECT COMPANY HIGHLIGHTS: NOTCO

### Outlook

The future appears promising for [NotCo](#) given the increasing consumer demand for plant-based foods and the company's unique approach to creating these alternatives. While competition in the market is intense, [NotCo's](#) innovative use of technology, coupled with strategic partnerships, like the one with [Kraft Heinz](#), positions the company well for future growth.

The company will need to continue to innovate and expand its product offerings to maintain its competitive edge. The success of recently launched products like NotMayo and NotCheese will

also play a crucial role in shaping the company's future trajectory. With rising environmental and health consciousness among consumers, the demand for plant-based food alternatives is expected to grow, offering [NotCo](#) numerous opportunities for expansion and growth.

### Financing history

Early-stage VC	Series B	Series C	Late-stage VC	Series D	Series D1
<p>January 1, 2018</p> <p><b>Total raised:</b> \$3.0M</p>	<p>February 25, 2019</p> <p><b>Total raised:</b> \$30.0M</p> <p><b>Investor:</b> The Craftory</p>	<p>April 17, 2020</p> <p><b>Total raised:</b> \$85.0M</p> <p><b>Pre-money valuation:</b> \$215.0M</p> <p><b>Investors:</b> Future Positive, L Catterton</p>	<p>May 28, 2021</p> <p><b>Total raised:</b> \$10.0M</p> <p><b>Investor:</b> Enlightened Hospitality Investments</p>	<p>July 28, 2021</p> <p><b>Total raised:</b> \$235.0M</p> <p><b>Pre-money valuation:</b> \$1,265.0M</p> <p><b>Investor:</b> Tiger Global Management</p>	<p>December 2, 2022</p> <p><b>Total raised:</b> \$70.0M</p> <p><b>Pre-money valuation:</b> \$1,430.0M</p> <p><b>Investor:</b> Princeville Capital</p>

# About PitchBook Emerging Tech Research

## Independent, objective, and timely market intel

As the private markets continue to grow in complexity and competition, it's essential for investors to understand the industries, sectors and companies driving the asset class.

Our Emerging Tech Research provides detailed analysis of nascent tech sectors so you can better navigate the changing markets you operate in—and pursue new opportunities with confidence.

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## PitchBook Data, Inc.

**John Gabbert** Founder, CEO

**Nizar Tarhuni** Vice President, Institutional Research and Editorial

**Paul Condra** Head of Emerging Technology Research

## Additional research

**Eric Bellomo**  
eric.bellomo@pitchbook.com  
Gaming  
E-Commerce

**Brendan Burke**  
brendan.burke@pitchbook.com  
Internet of Things  
Information Security  
Artificial Intelligence & Machine Learning

**Aaron DeGagne**  
aaron.degagne@pitchbook.com  
Medtech  
Digital Health

**Alex Frederick**  
alex.frederick@pitchbook.com  
Agtech  
Foodtech

**Jonathan Geurkink**  
jonathan.geurkink@pitchbook.com  
Supply Chain Tech  
Mobility Tech

**Derek Hernandez**  
derek.hernandez@pitchbook.com  
Enterprise SaaS

**Ali Javaheri**  
ali.javaheri@pitchbook.com  
Emerging Spaces

**Robert Le**  
robert.le@pitchbook.com  
Insurtech  
Crypto

**John MacDonagh**  
john.macdonagh@pitchbook.com  
Carbon & Emissions Tech  
Clean Energy Tech

**Rebecca Springer**  
rebecca.springer@pitchbook.com  
Healthcare Services  
Healthcare IT

**Rudy Yang**  
rudy.yang@pitchbook.com  
Enterprise Fintech  
Retail Fintech

**Coming soon**  
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Pharma Services