



How do biotechs stay the course in uncharted waters?

Beyond borders: EY biotechnology
report 2022

Texas: an emerging biotech hub



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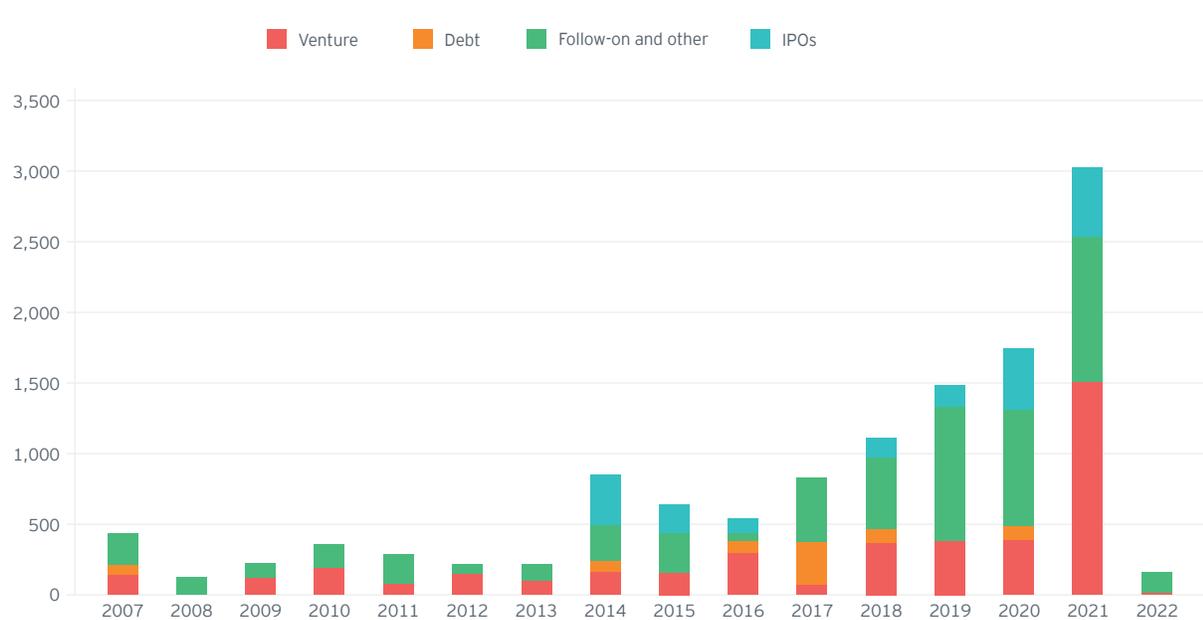
Biotech performed exceptionally well in 2021, not in spite of but because of the COVID-19 crisis.



This Texas addendum to the 32nd edition of our Beyond borders report provides a closer look at the biotechnology (biotech) industry's noteworthy performance in the country's second largest state, which has long been an innovation hub for tech, energy and other industries. Despite challenges around the same disruptive forces that have impacted every sector across the globe, Texas biotech has seen upsurges in the number of biotechs that have gone public, private company investment and the impact of the state's Cancer Prevention & Research Institute of Texas, which provides crucial grants for leading cancer research and prevention efforts.

When we last published our Beyond borders overview five years ago, we noted the growing geopolitical complexities set to impact biotech. Titling our 2017 report "Staying the course," we observed that the industry would have to navigate a business environment in which, increasingly, uncertainty is the only certainty. From the perspective of 2022, we can affirm that biotech has indeed successfully stayed the course, despite the upheavals that have affected global business since the last edition of this report – and this is particularly true for biotechs in the Lone Star State. As such, this report addendum focuses specifically on Texas-specific data.

Figure 1. 2021 biotech financing saw huge inflow from venture investments



Source: EY analysis, Capital IQ, Forbes and VentureSource.

Numbers may appear to be inconsistent due to rounding. Private investments in public equity (PIPEs) included in "Follow-on and other."

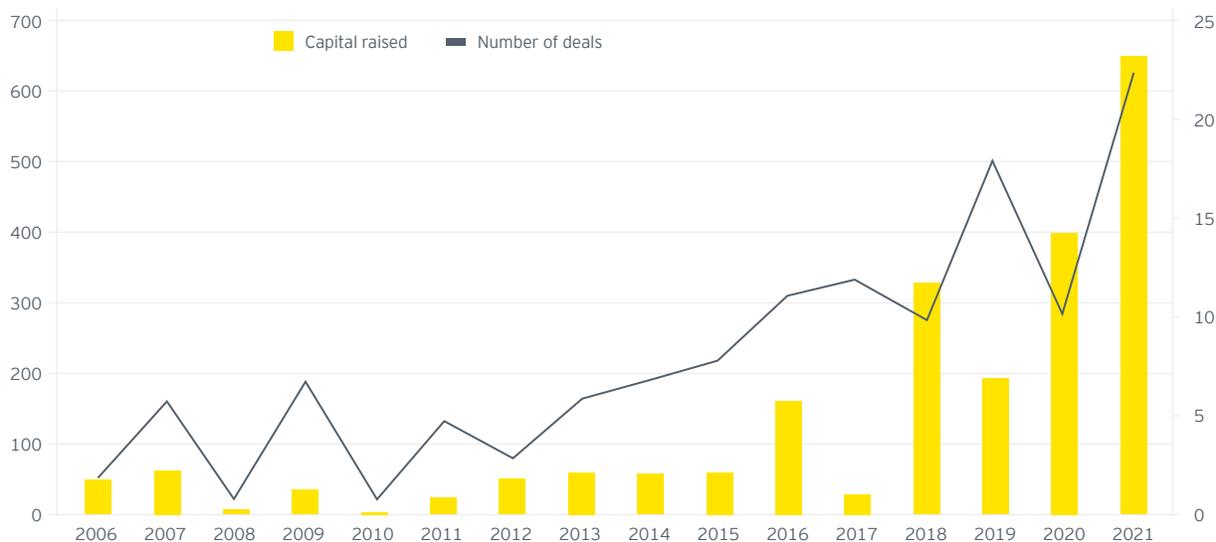
In 2018, Texas biotechs began to see a continuous inflow of capital through IPOs that continued into 2021 before dropping sharply in 2022. For that same time period, the total raised amount was US\$453 million in 2021 and the compound annual growth rate (CAGR) was a healthy 91%. Moreover, IPOs accounted for about 22% of the total financings for 2021.

From 2018 to 2021, follow-on and other investments witnessed a CAGR of approximately 24%, with a total raised amount of US\$1.0397 billion in 2021 before dropping sharply to US\$152 million in H1 2022.

There has been less focus on raising capital through debt financing, with a total maximum raised amount of US\$242 million in 2017 before dropping sharply in 2021 and H1 2022.

In the case of venture financings, there was a significant increase after 2017, with a total raised amount of US\$1.5312 billion in 2021 (including US\$830 million for Caris Life Sciences, which is the third-largest round in biotech history), achieving a CAGR of approximately 62% from 2018 to 2021. Moreover, in 2021, the financings accounted for approximately 46% of the total amount raised. However, H1 2022 witnessed a significant drop in venture funding, the total amount raised being US\$28 million.

In terms of overall growth, these financings saw a CAGR of about 44% from 2018 to 2021.

Figure 2. Texas early-stage venture investment, 2006 - 2021

Source: EY analysis, Capital IQ, Forbes and VentureSource.

The total early-stage biotech capital for 2016 amounted to an impressive US\$166 million across 11 deals. In 2021, however, this figure increased nearly fourfold for a record US\$649 million in capital raised across 22 deals. The largest of these rounds went to Vyripharm Enterprises, L.L.C., a biotechnology company that develops drugs for cancer and metabolic diseases, which raised US\$300 million – the largest round in biotech history for early-stage venture investment.

Over the past five years, early-stage VC investment in Texas totaled US\$1.733 billion – nearly four times the US\$434.6 million the industry raised over the previous 10 years.





Figure 3. Texas biotechnology at a glance

	2021	2020	2019	% change (2021-20)	% change (2020-19)
Public company data					
Revenues	0.2	0.6	0.8	-60%	-25%
R&D expense	1.0	0.8	0.7	25%	14%
Net income	(1.5)	(0.9)	0.1	67%	-1,473%
Market capitalization	10.3	14.7	11.1	-30%	33%
Number of employees	2,479	2,768	2,399	-10%	15%
Financing					
Capital raised by public companies	0.7	0.5	0.1	52%	338%
Number of IPOs	2	5	3	-40%	67%
Number of companies					
Public companies	26	26	25	0%	4%

Source: EY analysis, Capital IQ and company financial statement data.
Numbers may appear inconsistent because of rounding.

- ▶ Emerging leaders (companies with less than US\$500 million in annual revenue) recorded a lower annual revenue growth rate (60%) in 2021 compared to the previous year with a hit of only US\$238 million in total revenues. Net incomes also witnessed a steep decrease of US\$600 million, going from US\$(0.9) billion in 2020 to US\$(1.5) billion in 2021.
- ▶ In addition, the employee count for Texas biotechs went down by 10%, from 2,768 in 2020 to 2,479 in 2021. Market caps also fell by around 30% to just above US\$10 billion. However, this represented a steep decline from the 33% market cap growth in 2020, presaging the huge fall in biotech valuations that began late in 2021.
- ▶ At the same time, R&D expense rose by around 25% in 2021, a higher increase than that seen in 2020, highlighting the importance of R&D for biotech companies.

Figure 4. Texas biotechnology IPOs by year

Year	Company	Amount raised (US\$m)
2014	Bellicum Pharmaceuticals	\$160.60
	ZS Pharma	\$123.05
2015	Mirna Therapeutics	\$43.75
	Neos Therapeutics	\$82.80
	Xbiotech	\$76.00
2016	Aeglea BioTherapeutics	\$54.82
	Moleculin Biotech	\$9.24
	Reata Pharmaceuticals	\$69.58
2018	Genprex	\$6.40
	XERIS Pharmaceuticals	\$98.33
2019	Castle Biosciences	\$73.60
	CNS Pharmaceuticals	\$9.78
	TFF Pharmaceuticals	\$22.00
2020	Shattuck Labs	\$232.30
	Taysha Gene Therapies	\$181.00
	Lantern Pharma	\$26.25
	Kiromic BioPharma	\$15.00
	Greenwich LifeSciences	\$7.25
2021	Vaxxinity, Inc.	\$85.00
	Instil Bio	\$368.00

Source: EY analysis, Capital IQ, Forbes and VentureSource.

Year	Company	Therapeutic focus of lead candidate	Clinical stage of lead candidate	Gross raised (US\$m)	Quarter	Post-IPO performance (31 December 2021)
2019	Castle Biosciences	Cancer	NA	\$73.60	Q3	100%
	CNS Pharmaceuticals	Cancer	Phase II	\$9.78	Q4	-85%
	TFF Pharmaceuticals	Pulmonary	Phase II	\$22.00	Q4	75%
2020	Shattuck Labs	Cancer	Phase I	\$232.30	Q4	-56%
	Taysha Gene Therapies	Neurology	Phase I/II	\$181.00	Q3	-52%
	Lantern Pharma	Cancer	Phase II	\$26.25	Q2	-47%
	Kiromic BioPharma	Cancer	Pre-clinical	\$15.00	Q4	-87%
	Greenwich LifeSciences	Cancer	Phase II	\$7.25	Q3	387%
2021	Vaxxinity, Inc.	Multiple	Phase III	\$85.00	Q4	-58%
	Instil Bio	Cancer	Phase II/III	\$368.00	Q1	-35%

Source: EY analysis, Capital IQ, Forbes and VentureSource.

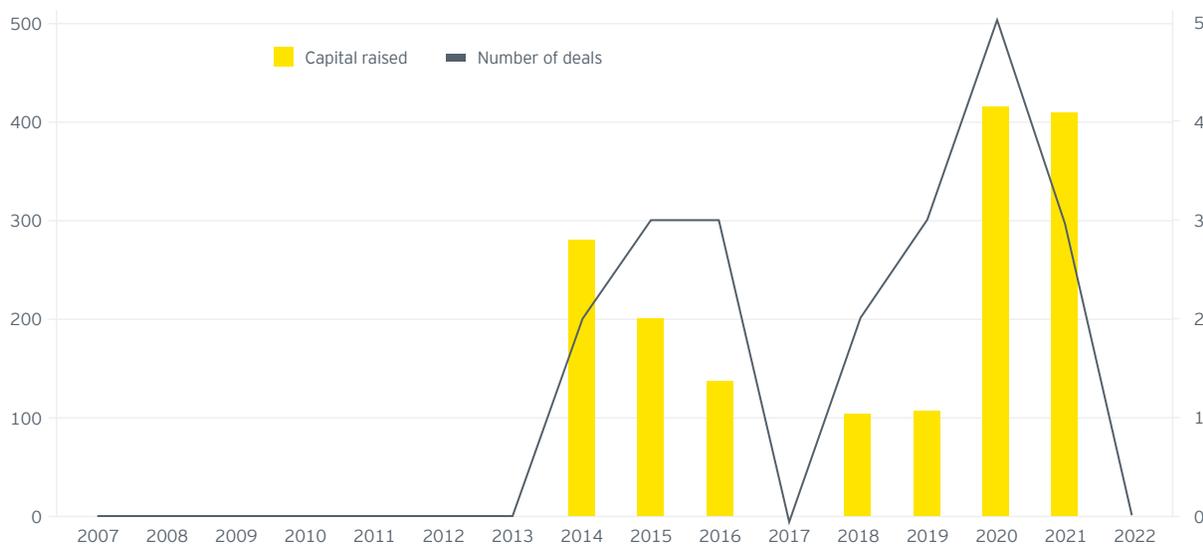
In 2020 and 2021, Texas biotechs saw an impressive total of seven IPOs, raising a cumulative US\$915 million.

Once again, oncology was the major target, generating US\$731 million or approximately 81% of the total amount raised.

The majority of 2020 IPOs were linked to drug candidates in Phase I or II of the development stage. By contrast, the two IPOs in 2021 went to companies with lead drug candidates in Phase II or III of clinical development.

Instil Bio, a clinical-stage biopharmaceutical company focused on developing an innovative cell therapy pipeline of autologous Tumor Infiltrating Lymphocytes (TIL) therapies for the treatment of patients with cancer, had the most notable IPO among Texas biotechs in 2021, raising about US\$368 million.

Figure 5. Texas biotech IPOs settling capital peaked in 2020



Source: EY analysis, Capital IQ, Forbes and VentureSource.

Following the success of 2020 and 2021, the pace of Texas biotech IPOs significantly slowed in the fourth quarter of 2021, with 19% of the year's total coming in the final three months. With biotech stock valuations beginning to decline in the third quarter, post-IPO performance saw an average decline in value by approximately 47% as of 31 December 2021. In the first half of 2022, no Texas biotechs executed IPOs. This slow start to the year leaves biotechs across Texas on track to raise their lowest total IPO capital in 2022.

The past five years have delivered an irrefutable lesson in the resilience of biotech: despite these challenges, we can be confident that the industry will continue to stay the course.

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