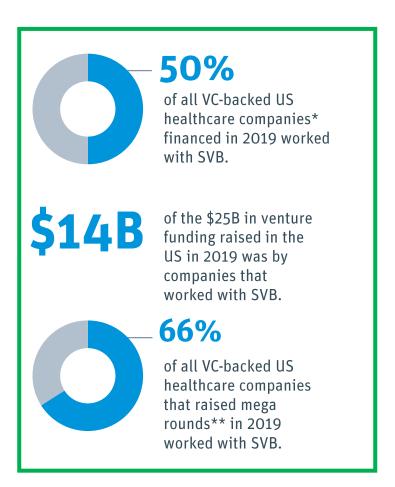


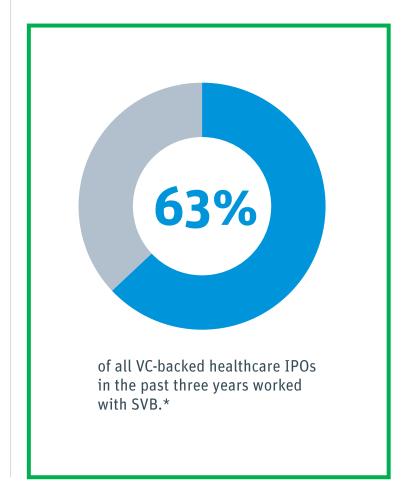
# Silicon Valley Bank Market Share Stats



## **US Financings**



### **Healthcare IPOs**



### Device and HealthTech Investment Rises, Dx/Tools Dollars Dip

Total investment dollars are slightly down from 2018's record. Still, this figure is a 50% increase from 2017.

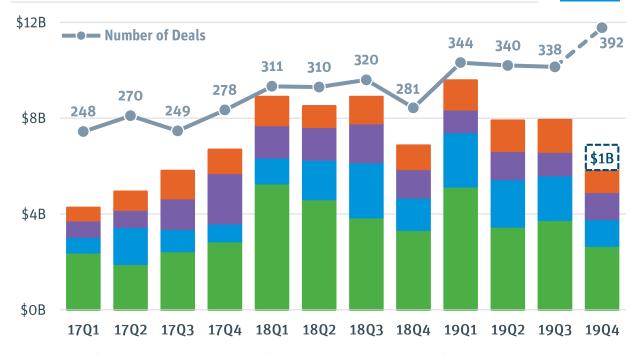
European investment showed a 50% uptick year over year in 2019 and has increased each of the last three years.

Biopharma almost doubled in 2018 and was slightly down in 2019.

Dx/Tools saw the largest decline in 2019 at -20%. This was driven by a reduction in the number of large mezzanine financings (>\$50M) in the sector.

# **VC Dollars and Deals by Healthcare Sectors US and Europe**





		2017			2018			2019*		
	Sectors (\$M)	us	Europe	Total	us	Europe	Total	us	Europe	Total
	Biopharma	\$7,700	\$1,914	\$9,614	\$14,390	\$2,710	\$17,100	\$12,168	\$3,472	\$15,640
	HealthTech	\$3,320	\$541	\$3,861	\$5,898	\$480	\$6,378	\$6,073	\$1,440	\$7,513
_	Dx/Tools	\$4,431	\$354	\$4,785	\$5,116	\$422	\$5,538	\$3,659	\$760	\$4,419
	Device	\$2,944	\$499	\$3,443	\$3,617	\$538	\$4,155	\$4,019	\$907	\$4,926
	Total	\$18,395	\$3,308	\$21,703	\$29,021	\$4,150	\$33,171	\$25,919	\$6,579	\$32,498

## **Biopharma Deals by Top Indications US and Europe**

Total Deals and S **US and Europe** 





We have monitored \$40M+ private mezz financings by Top 15 Crossover investors as a proxy for IPO sentiment and pipeline

Over the past three years, 52% of these companies went public or were acquired.

2017: 31 deals, **81%** went public or been acquired.

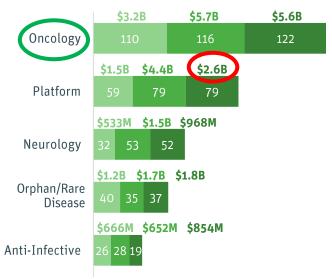
2018: 61 deals, **48%** went public.

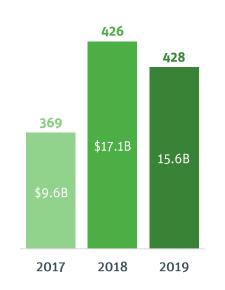
2019: 45 deals, **31%** have already gone public.

Based on this exit trend, we see positive IPO sentiment and robust IPO pipeline for 2020.

Note, the median time from mezz to IPO for these deals has been 6 months.

# **■**2017 **■**2018 **■**2019





### **2019 Deals**









### **VCs Lead Series A Deals: Crossovers Favor Later Stage**

The active venture investors list has stayed remarkably stable over the last few years. Deal pace, however, is down from 2018. Apart from Novo, every firm listed invested in fewer new deals in 2019.

Crossovers and later-stage investors continued funding mezzanine pre-IPO rounds. Invus is a new entry to the list of Top 15 Crossovers, focusing on large oncology and platform company financings (median round size of \$85M).

Similar to venture, many crossover investors pulled back investment pace from 2018, including RA Capital, Fidelity and EcoR1, while Redmile Group was the only firm to increase in 2019.

# Biopharma Most Active New Investors\*

**Number of Deals (US and Europe, 2018–2019)** 

V	enture Capital	Cor	porate Investor	Crossover & Late-Stage Investor		
19	OrbiMed Healthcare Fund Management	42	ALEXANDRIA.	25	RACAPITAL	
18	novo holdings Investors in life science	17	G/	24	PERCEPTIVE ADVISORS	
16	ARCH Venture Partners	16	U NOVARTIS	20	Red <b>mile</b> Group	
15	<b>HBM</b> Healthcare Investments	13	Pfizer	20	DEERFIELD	
13	SAMSARA BIOCAPITAL	12	Jose J Innovation	19	INVUS	
13	SOFINNOVA	9	abbvie	19	CORMORANT ASSET MANAGEMENT	
12	通航和承 6 Dimensions Capital	9	Celgene	14	Fidelity	
12	NEA	7	MERCK	13	ECOR1	

### **Platform and Oncology Dominate Valuations, Lead M&A and IPOs**

10/15 companies are either platform or oncology, which mirrors overall investment (top in deals and dollars) and private M&A/IPOs [oncology (21) and platform (11)].

7/15 companies closed a financing in 2019. Median round size was \$108M and pre-money of \$660M, representing a 3.1x step-up from the last round.

These post-money values are pricy-double the pre-money IPO median. Those that did IPO ('18/'19) showed a pre-money IPO step-up median of 1.2x (0.3 to 2.7). Post-IPO performance has been below water with a median and average decrease of -7% and -11%, respectively. Allogene and Viela Bio, however, were both up over 40% from their IPO price.

### Post-Money Private Biopharma Companies (\$575M+) **US and Europe, 2018–2019**



### **Platform Companies**



5/4/18 \$125M Round \$7,125M Post









6/25/18 \$101M Round \$576M Post



\$650M Post



Post IPO +53%

**Anti-Infective** 

# Orphan/Rare

8/13/18 Orchard \$149M Round therapeutics \$729M Post

# **Oncology**

### **Rakuten Medical**

7/31/2019 \$100M Round \$1,150M Post



4/19/18 \$412M Round \$687M Post



## **Dermatology**



1/28/19 \$100M Round \$1,100M Post

Company went public -18 - '19

2/8/19 \$179M Round \$1,165M Post

## SCHRÖDINGER.

5/8/2019 \$108M Round \$623M Post

Post IPO +194%

### **Auto-Immune**

# **VIELA**BIO

6/12/19 \$75M Round \$735M Post

# **Neurology**





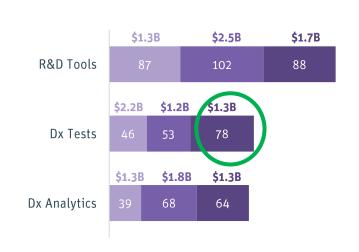
### **Dx/Tools Investment** Hits 3-Year Low

R&D tools experienced a 30% decline in dollars invested and 14% fewer deals in 2019. This was partly related to the 2018 pre-IPO mega financings by 10X and Twist and the \$400M+ private round closed by Zymergen. However, in 2019 we did see large \$100M+ deals closed by Ginkgo Bioworks and Inscripta.

Larger deals (\$50M+) declined to 20 in 2019 vs. 26 in 2018. Of these deals, dx test companies had the highest median deal value at \$110M. These deals, including Freenome, Grail, Thrive Earlier Detection and Lamoncogroup (LAM), all focused in the oncology liquid biopsy space.

### Dx/Tools Deals by All Subsectors **US and Europe**







Total Deals and \$

**US and Europe** 

### **2019 Deals**











### **VCs Lead Series A Deals: Corporates Favor Later Stage**

Series A investment is the focus for active venture investors. Only Northpond has completed more Series B+ deals

The corporate investors listed are varied. With the exception of Alexandria, every corporate investor on this list focused on later-stage (Series B+).

In previous years, the most active crossover and latestage investors would dominate large mega (\$50M+) financings. However, in this group, only Casdin, T. Rowe Price, and Baillie Gifford focused on big deals.

### **Dx/Tools Most Active New Investors\*** Number of Deals (US and Europe, 2018-2019)

V	enture Capital	Cor	porate Investor	Crossover & Late-Stage Investor		
8	Northpond Ventures	11	<b>(L)</b> A L E X A N D R I A₀	5	CASDIN C A P I T A L	
7	KEIRETSU F O R U M	6	Baidu. <b>ventures</b> 百度风投	3	Viking	
6	ALUMNI VENTURES GROUP	4	Agilent	3	T.RowePrice	
5	ARCH Venture Partners	4	G/	3	PARKWALK Advisors	
4	DC   Data >C   Collective	3	多 明 康 德 WuXi AppTec	3	PERCEPTIVE ADVISORS	
4	CIVILIZATION VENTURES	3	MAYO CLINIC	2	DEERFIELD	
4**	GENOA V E N T U R E S	3**	<b>Example 1</b> LabCorp	2**	BAILLIE GIFFORD	

# Mw.S

### Highest Valued Deals Find Their Niche; Ready for Public Market

The vast majority of these companies are dx analytics and R&D tools (12/14).

Note that while not a lot of private competition amongst these highly valued companies, there is competition in the public sector, coming from both relatively recent IPOs/exits (Guardant Health for Grail; Flatiron Health for Tempus) and long-standing industry pillars (Natera for Progenity; Illumina for 10X and Omniome). Keep an eye out for this latter category of competition to be potential near-term acquirers.

The likely exit path for these companies is to go public first, as M&A has lagged in the sector.

Despite mixed pre-money IPO stepups, both Twist (.6x) and 10X (2.6x) showed strong post-IPO performances (Twist +57% and 10X +100%).

# Post-Money Private Dx/Tools Companies (\$350M+) US and Europe, 2018–2019

### **R&D Tools**





SHINE'
Health. Illuminated:

5 BERKELEY LIGHTS

1/7/19 \$35M Round \$1,280M Post 6/28/19 \$18M Round \$368M Post 6/28/18 \$95M Round \$797M Post



GINKGO BIOWORKS

HI INSCRIPTA

**□MNI**ME

4/17/19 \$60M Round \$375M Post 9/19/19 \$290M Round \$4,000M Post 12/10/19 \$125M Round \$515M Post 12/10/19 \$40M Round \$400M Post

### **Dx Analytics**



6/13/19 \$65M Round \$1,565M Post

**u**Biome

9/21/18

\$83M Round

\$600M Post

### TEMPUS

5/30/19 \$200M Round \$3,100 Post



1/4/19 \$64M Round \$494M Post

### **Dx Tests**

# GRAIL

5/21/18 \$300M Round \$3,200M Post

progenity\*

9/13/19 \$25M Round \$515M Post Company went public



# **Healthcare Exits**

High-Flying IPOs Make for Second Banner Year of Returns



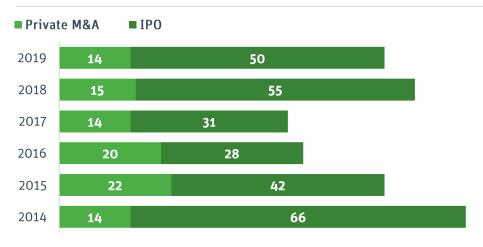
### **IPO Surge Drives Healthy Investor Returns**

A) Robust mezzanine valuations and positive IPO step-ups continue to encourage biopharma companies to go public, as seen by the sector's 50 IPOs in 2019. Since 2017, acquisition of venturebacked companies has shifted from the private to the public market, and private M&A deal count has dropped.

B) Exit values continue to be spectacular. While market cap at IPO is an important metric, post-IPO performance (and the ability to trade out of a stock) matters more to investors. 2019 IPOs have performed extremely well after their public offerings (average: +56%, median: +25%).

C) With 17 IPO and four M&A deals in 2019, oncology dominated exit activity vs. other indications. Platform (9/2), orphan/rare (6/3), and neuro (6/3) had significant exits as well.

## A) Biopharma Private M&A Deals & IPOs by Year



### B) Exit Values by Year C) Top M&A and IPOs by Indication 2014-2019 ■ Private M&A Milestones ■ Private M&A ■ IPO ■ Private M&A Upfront \$51B ■ IPO Market Cap \$46B Oncology 26 70 Orphan/Rare 13 35 \$30B \$28B \$26B \$22B Neurology 15 31 Platform 32 Anti-Infective 21 2014 2015 2016 2017 2018 2019



# **Private Biopharma M&A by Stage**



### **Quick Early Stage Exits Generate Healthy Returns**

For private M&A exits, overall time to exit decreased again, upfront deal value set a six year high, and total deal value matched 2016's record. Most deals exited early. with nine of 14 deals transacting with pre-clinical or phase I data. This group required less capital (median \$57M), leading to robust 4x upfront and 11x total deal multiples on invested capital.

\*Only nine of 29 acquisitions since 2018 had a Big Pharma collaboration (four oncology, four neuro, one metabolic). Five were subsequently bought by their collaborator, and all of these M&A deals were early stage. We think this may lead to more collaboration-to-acquisition and build-to-buy deals.



### Biopharma Collaborations Leads to Acquisitions, 2018 to 2019\*

Acquisition*	BlueRock	Therapeutics	POTENZA therapeutics	<b>ViraT</b> herapeutics	Inception 5
Acquirer	B BAYER R	Boehringer Ingelheim	**astellas	Boehringer Ingelheim	Roche
Upfront (Total)	\$240M (\$600M)	\$364M (\$477M)	\$165M (\$405M)	\$244M (\$244M)	Not Reported



### **Pre-Money IPO Values Hit Another** Record

Mezzanine rounds led by Top 15 Crossover investors made up 67% of all 2019 IPOs and had a median time from crossover round to IPO of just six months.

Early stage (pre-clinical or phase I) IPOs dominated 1H 2019 (15/27). with a steep drop-off in 2H(4/23). Median time from Series A to IPO for the class of 2019 was 3.4 years.

Strong post-IPO performance (average: +56%, median: +25%) defined 2019 IPOs. Karuna Therapeutics, NextCure, **Cortexyme, Turning Point** Therapeutics, and Aprea Therapeutics all showed +200% performance at year end.

Oncology (+57%/+6%), neuro (+96%/+10%), and platform (+52%/16%) IPO's performed well during after-market trading, while orphan/rare (+48%/+60%) staged a late Q4 rally to come back from negative performance for much of the year.

# VC-Backed Biopharma IPOs by Year



### **IPO Pre-Money Valuation\***

### IPO Proceeds\*





2014 2015 2016 2017 2018 2019

2014 2015 2016 2017 2018 2019

### 2019 IPOs by Top Indications

Indication	Number of Deals	% Early Stage (Pre-Clinical & Phase I)	Median Step-Up from Venture to Mezz Round	Median Step-Up from Mezz Round to Pre-Money IPO
Oncology	17	53%	1.8x	1.0x
Platform	9	33%	2.0x	1.3x
Orphan/Rare	6	33%	2.6x	1.6x
Neurology	6	33%	1.8x	1.2x



### **Recent IPOs Exit in Public Market, Driving \$1B+ Exits**

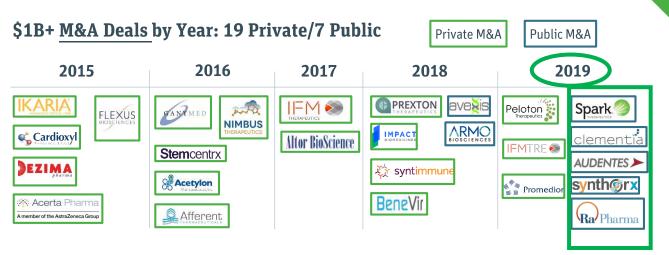
Every IPO class has added \$1B+ market cap companies from midyear to end of year: 2017 IPO class increased from seven to 10: 2018 IPO class almost doubled from seven to 13 and 2019 IPO class almost tripled from seven to 20.

The 20 \$1B+ end-of-year market caps for the class of 2019 IPOs are the highest \$1B+ companies we have seen in any IPO class. Even more impressive is that 12 of the 20 IPOs had market caps less than \$1B at IPO (median \$582M) and grew into \$1B+ value in the public market.

\$1B+ public M&A of recent IPOs also picked up in 2019, with five deals exiting at great premiums, selling for a combined deal value of more than \$13B. These exits provided amazing returns, especially for crossover investors.

## \$1B+ VC-Backed Biopharma M&A and IPO Market Cap Values





### \$1B+ Public Deals by IPO Vintage: 53 Companies



# **Active Crossover Investor IPO Performance Still Solid**

Biopharma IPOs Between 2017 - 12/27/19 (Deals Where Crossover Invested in Private Round)

Company Performance Key:		<mark>600%+</mark>	500%+	± 400%-	t	300%+	200%+		,
Crossover Firm	2017 IPOs	2017 Avg Perf (12/27/19)	2018 IPOs		2019 IPOs	2019 Avg Perf (12/27/19)	Total IPOs '17-'19	Overall Avg Performance (12/27/19)	100%+ Company Performers (12/27/19)
Cormorant	8	10%	12	70%	10	55%	30	49%	Principia, Eidos, Turning Point, Constellation, Zai Lab, Bridgebio, Apellis, Tricida
RA CAPITAL	6	28%*	7	61%***	6	30%	19	68%	<mark>Synthorx</mark> , Eidos, Biohaven, Arvinas
Red <mark>mile</mark> Group	4	54%**	5	69%	9	68%	18	66%	Allakos, Deciphera, Aprea, IGM, BionTech
<b>Fidelity</b>	4	72%	9	6%	5	70%	18	1%	Karuna, Constellation, Biontech
ROCK SPRINGS CAPITAL	7	46%*	7	51%	4	71%	18	54%	Allakos, Aprea, Biohaven, Zai Lab
PERCEPTIVE ADVISORS	1	243%	8	117%	6	48%	15	98%	Kodiak, Eidos, Zymeworks, Bridgebio, Spiringworks
ECOR1	0	n/a	7	43%	4	4%	11	26%	n/a
DEERFIELD	1	35%	5	39%	4	30%	10	35%	Arvinas
INXUS	0	n/a	3	17%	6	19%	9	7%	BionTech
ARROWMARK	1	60%	3	207%	4	99%	8	119%	Kodiak, NextCure, Spingworks
CASDIN Capital	1	47%	4	18%	2	1%	7	4%	Constellation
TAVISTOCK®  —GROUP—	1	84%	0	n/a	6	27%	7	36%	Springworks
FORESITE CAPITAL	1	47%	2	4%	3	78%	6	33%	Turning Point
CITADEL	0	n/a	2	10%	4	106%	6	74%	Nextcure, Springworks
BVF	0	n/a	0	n/a	5	42%	5	42%	Springworks



IPO defined as private, venture-backed company IPO raising at least \$25M in proceeds.

Assuming all investments were equal and held to current date Includes all Fidelity Entities

<sup>\*</sup>Does not include Clementia M&A

<sup>\*\*</sup>Does not include Nightstar M&A

<sup>\*\*\*</sup>Does include announced Synthorx M&A Source: PitchBook, press releases and SVB proprietary data.

# Leveraging Prior Deals to Help CEOs Understand Mezz Landscape

Firm	# IPOs 2017- 2019		Venture-Mezz Step Up Media	Pre Money n Median	Mezz-Pre- Money IPO Step Up	_	Later Stage (Ph II & Later)	Oncology	Platform	Neuro	Orphan/ Rare
Cormorant	30	\$175	2.0X	\$340	1.3X	13	17	10	5	1	8
RA CAPITAL	19	\$158	1.8X	\$306	1.5X	8	11	4	2	3	6
Redmile Group	18	\$200	1.8X	\$299	1.2X	9	9	9	2	0	2
Fidelity ROCK	18	\$235	2.1X	\$379	1.1X	9	9	4	6	1	4
SPRINGS CAPITAL	18	\$181	2.2X	\$315	1.4X	5	13	3	3	2	4



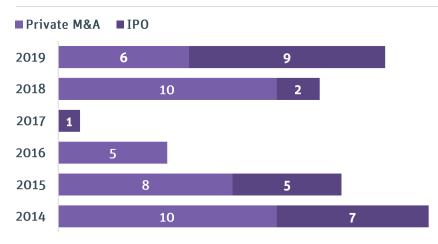
### Dx/Tools Sees Record IPO Values and Post-IPO Success

A) 2019 was the year of the tools IPO, with R&D tools companies comprising six of nine offerings, two of which (10X Genomics and Adaptive Biotechnologies) achieved \$2B+ IPO valuations, M&A remained active with six venture-backed transactions, but deal values decreased substantially.

B) The IPO market drove almost all the value in 2019. M&A contributed the smallest exit values in the past six years outside of 2017's drought. Market cap at IPO value in 2019 hit a record of \$7.6B, 3x higher than any other year.

C) Post-IPO performance is impressive in 2019, but even more so for the 11 venturebacked IPOs since 2018 (+77% average, +57% median). These companies boosted their value since IPO by 2.4x with a 2019 end-of-year market cap total of \$22B, led by Guardant (+315%), Castle (+112%), and 10X (+100%). This will help provide significant returns back to venture investors after lock-up. Of note, Adaptive and Hotgen are up over their IPO price, but off first-day performance increases.

## A) Dx/Tools Private M&As & IPOs by Year



### B) Exit Values by Year



### C) 2019 Top Post-IPO Performance

	IPO Price (Date)	Price 12/27/19	Price +/-	Market Cap* 12/27/19
10× GENOMICS	\$39.00 (9/13/19)	\$78.15	+100%	\$7.5B
Adaptive	\$20.00 (6/27/19)	\$29.27	+46%	\$3.6B
C/STLE BIOSCIENCES	\$16.00 (7/25/19)	\$33.99	+112%	\$580M
Hotgen	\$4.20 (9/30/19)	\$6.61	+58%	\$411M
Exagen* Patient focused Discovery Diseas.	\$14.00 (9/19/19)	\$25.74	+84%	\$323M

### Weak M&A Pushes **Dx/Tools to IPO Track**

M&A deal size dramatically decreased in 2019 with record-low median upfront and total deal values. Dx/Tools IPOs have been the value creator in the sector. Similar to previous years, R&D tools companies led M&A in 2019.

While AI/ML is core for two exits (Jungla, Just Biotherapeutics), most deals focused on expanding established markets or optimizing industrial processes. All companies were commercial at time of acquisition.

We continue to wait for large technology companies to transition from investors into acquirers, specifically around AI/ML analytics and dx tests. This group could create a market around a specific indication. In addition, R&D tools leveraging AI/ML in drug discovery and/or optimization may move from large biopharma service contracts or collaborations to acquisitions.

### Private Dx/Tools M&A by Subsector







# 2020 Healthcare Outlook



### **Predictions for Biopharma and Dx/Tool Sectors**

- US fundraising will likely slow, however there is a lot of venture and other capital in the market to continue to invest in new deals and support existing portfolio.
- Overall biopharma investment will decrease by 10% to 15% as larger private crossover-led deals decline. We expect between 28 to 35 biopharma IPOs, with stable or slightly higher pre-money valuations.
- Dx/Tools investment should remain stable and we look for multiple \$B IPOs/Exits in this sector (possibly in 2020) as there are a number of \$B+ privately valued venture-backed companies.
- We look for a very active first half of the year IPO push second half of 2020 is more uncertain.



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