

# Frostrow Investment Seminar 10 May 2023





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# Proven

20+ year strong returns across public and private equity and debt markets

# Global

11 locations, including New York, San Francisco, Hong Kong, Shanghai, Mumbai, Herzliya

# Health

100% healthcare: biopharma, devices, diagnostics, digital health, and services

# Leader

\$17.1 billion AUM 138 professionals 100% employeeowned

# Flexible

Investing across stages, sub-sectors, geographies and capital structures



Leading Global Healthcare Investment Firm

# Portfolio Managers

**Sven Borho, CFA**Managing Partner



Trevor M. Polischuk, PhD
Partner



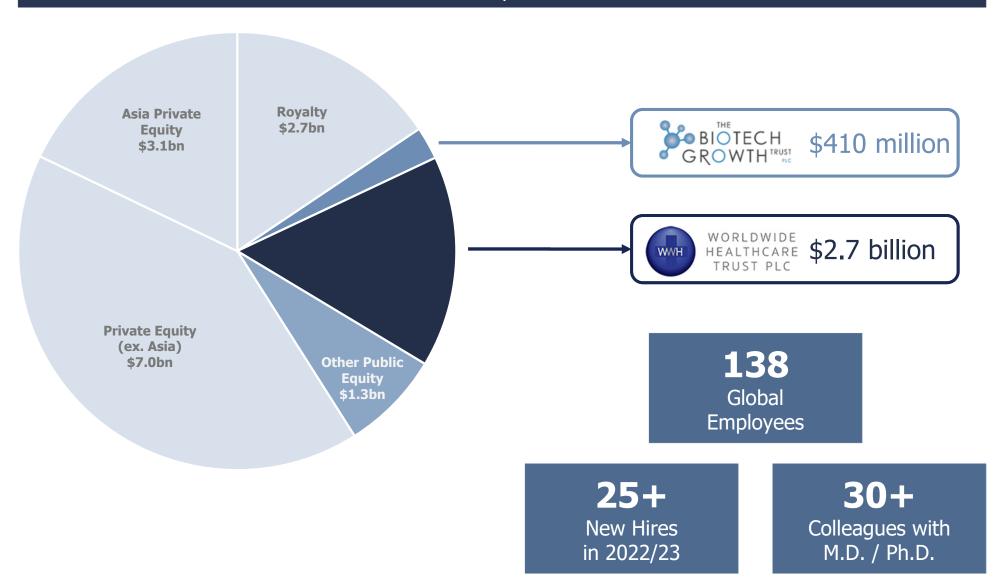
Geoffrey Hsu, CFA
Partner





# OrbiMed Corporate Update

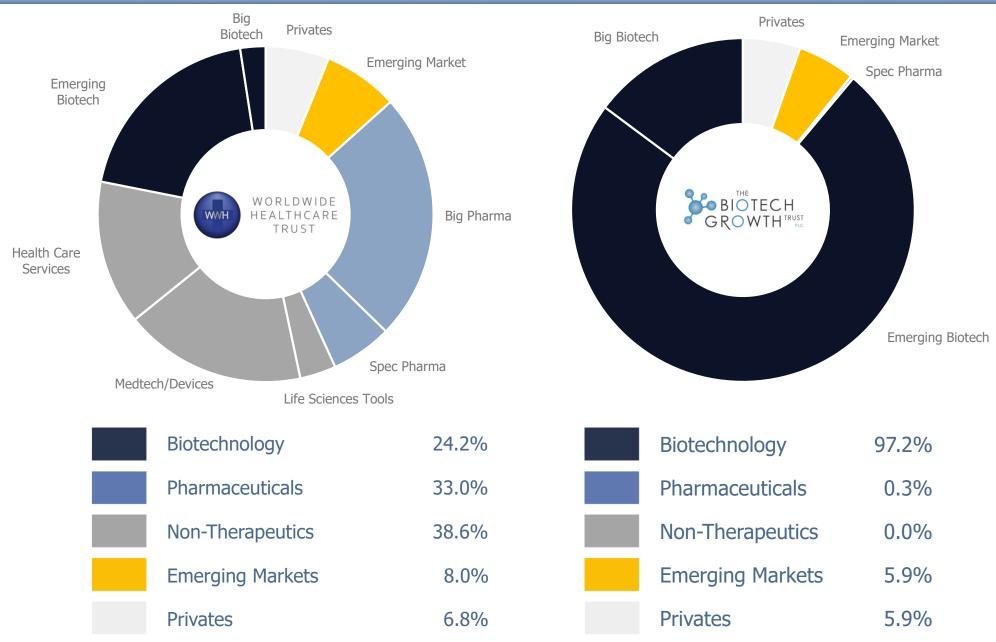
### **Total AUM: \$17.1 billion**



Source: OrbiMed; Data updated as of 31 March 2023



# WWH/BIOG – Subsector Allocation Comparison



Note: As of 31 March 2023. Percentages may not sum to 100% due to cash and/or leverage. Portfolio composition is estimated and as of the date hereof, and may differ in the future.

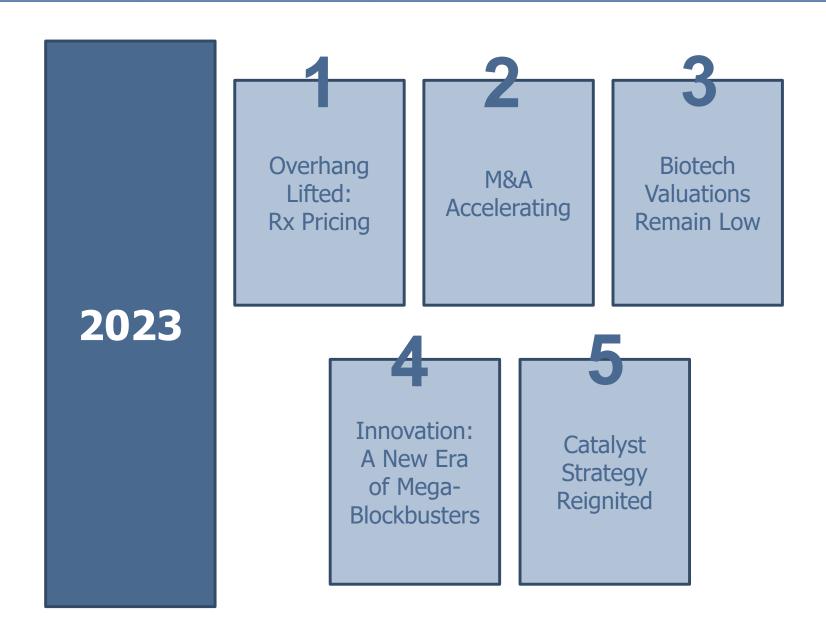




# **2023 Investment Themes**



# 2023 Investment Themes



# U.S. Drug Price Reform: Overhang Lifted

# Three Main Components to the IRA 2022 re: Drug Price Reform



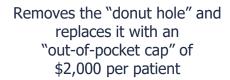
# Drug Price Inflation Cap

Requires drug co.s to pay rebates to Medicare if they increase drug prices faster than inflation

### NEUTRAL

- Price is no longer a revenue driver for pharma
- LIST prices do rise today, but < levels of inflation
- NET prices are cut even further due to rebating
- Curbs bad actors = positive for industry image

### Medicare Part D Redesign



### **POSITIVE**

- Lowers out of pocket expenses
- Increases affordability of medicines
- Increases adherence / treatment duration of times
- Increases patient access
- Should result in increased volumes

### Medicare Price Negotiations



Enables Health & Human Services to set the prices of certain costly drugs within the Medicare program

### **NEGATIVE but MANAGEABLE**

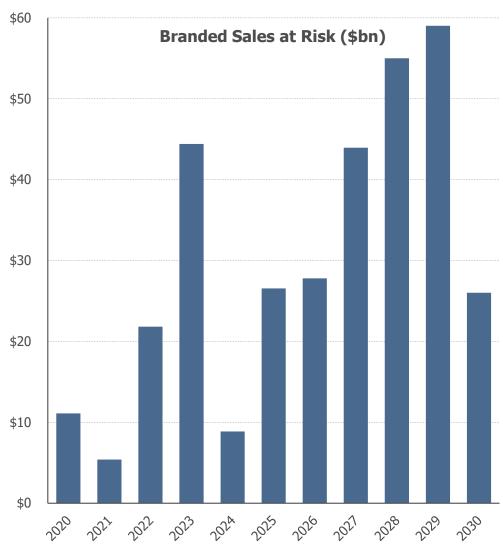
- Not in effect until 2026
- Only 10 drugs per year are negotiated
- Targets medicines that are near the end of their life cycles but do not yet have generic competition (9 yrs small molecules / 13 yrs biologics)
- Only a potential \$40 billion incremental hit to U.S. Rx revenues to 2032 (out of \$660 billion)

The IRA will have an impact but the net of it is manageable. Perhaps the biggest benefit is that the headline risk is now behind us.



# Large Cap Pharma: Patent Cliff Approaching

### Nearly \$250 billion in branded sales are at risk (2025-2030)



Source: Evaluate,	"The Patent	Winter is	Coming",	May 25,	2022.

Co.	Drug	US Loss of Exclusivity (Projected)	'22 Global Sales* (\$bn)
abbvie	HUMIRA adalimumab	2023	\$21.2
MERCK	KEYTRUDA* (pembrolizumab) Injection 100 mg	2028	\$20.9
Pfizer	Eliquis. (apixaban) tablets 5mg.	2026	\$18.2
abbvie Johnson Johnson	imbruvica	2027	\$9.8*
Johnson Johnson	Stelara* (ustekinumab)	2023	\$9.7
ر <sup>ااا</sup> Bristol Myers Squibb"	OPDIVO. (nivolumab)	2028	\$8.3
<b>₹</b> Pfizer	IBRANCE palbociclib	2027	\$5.4*
MERCK	Januvia	2023	\$5.3*

Source: S&P Global report, data as of February 17, 2022; Company Reports

\*2021 sales

# M&A Activity Surging

2022 Acquisitions			
Date	Target	Acquirer	% Premium
11/29/22	HORIZON	AMGEN	48%
11/29/22	neo/gene	AstraZeneca	\$320m (private)
11/21/22	Imago 🔭	MERCK	107%
10/23/22	MYOVANT	Sumitomo	50%
10/18/22	ONCOLOGY	<b>U</b> LG Chem	43%
10/18/22	VKONOS	Lilly	121%
10/03/22	LogicBio	AstraZeneca	667%
09/01/22	forma THERAPEUTICS	novo nordisk <sup>®</sup>	49%
08/08/22	<i></i> ВТ <sup></sup> ҈	<b>Pfizer</b>	102%
08/04/22	CHEMOCENTRYX	AMGEN	116%
08/04/22	mıröbio	<b>GILEAD</b>	\$405m (private)
07/11/22	<b>⋄</b> VIACYTE	VERTEX	\$320m (private)
07/11/22	La Jolla	INNOVIVA	84%
07/05/22	TeneoTwo	AstraZeneca	\$1,270 (private)
06/17/22	<b>Seagen</b>	MERCK	Rumored
06/03/22	<b>Turning Point</b> Therapeutics	ر <sup>ااا</sup> Bristol Myers Squibb ّ	122%
05/31/22	<b>♦</b> Affinivax	GSK	\$2,650 (private)
05/10/22	biohaven	<b>₹</b> Pfizer	79%
04/13/22	SIERRA	GSK	39%

2023 Acquisitions			
Date	Target	Acquirer	% Premium
04/30/23	IVERIC	astellas	23%
04/25/23	SPECTRUM PHARMACEUTICALS	-ASSERTIO=	~94%*
04/18/23	Bellus	GSK	>100%
04/16/23	Prometheus Biosciences	MERCK	75%
03/27/23	<b>Jounce</b>	Concentra Biosciences	75%
03/13/23	<b>Seagen</b>	<b>₹</b> Pfizer	42%
03/13/23	proventionbio	sanofi	278%
01/19/23	CONCERT Pharmaceuticals Inc.*	SUN PHARMA	~67%*
01/09/23	CINCOR	AstraZeneca	>200%*
01/09/23	Albireo	Innovation for patient core	>100%
01/08/23	AMRYT	<b>⊕</b> Chiesi	>100%

M&A: Material Inflection YOY			
	# of Deals	\$ Value of Deals	
FY 2021	17	\$31 billion	
FY 2022	30	\$113 billion	
YOY	+76%	+265%	

Source: FactSet, Company Websites Note: Public companies shown here are not necessarily representative of portfolio holdings

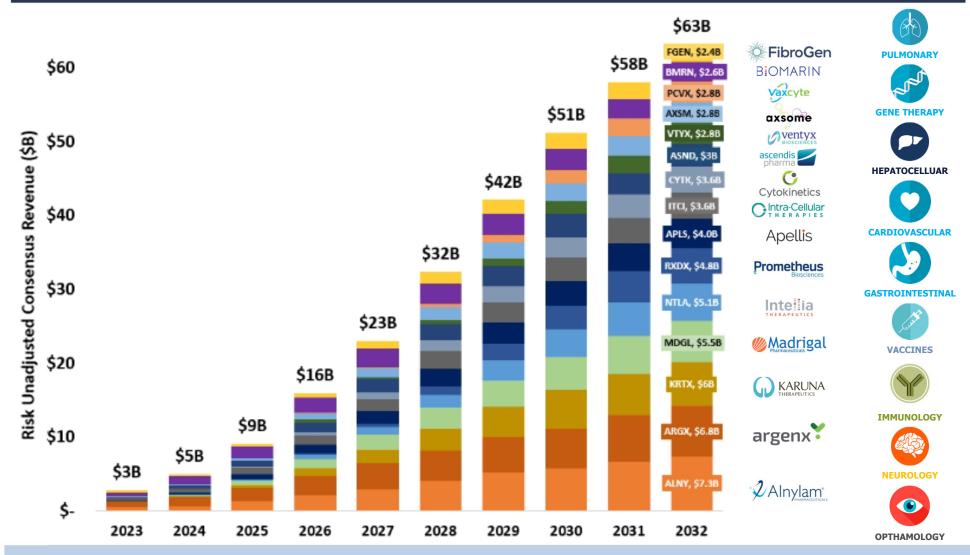
<sup>\*</sup>Represent announced transactions where the target was a publicly traded company.

Source: FactSet, data as of April 30, 2023

OrbiMed

# M&A: "Filling the Gap"

### 15 Novel Biotech-Sourced Launches with >\$60 billion in Cumulative Revenues

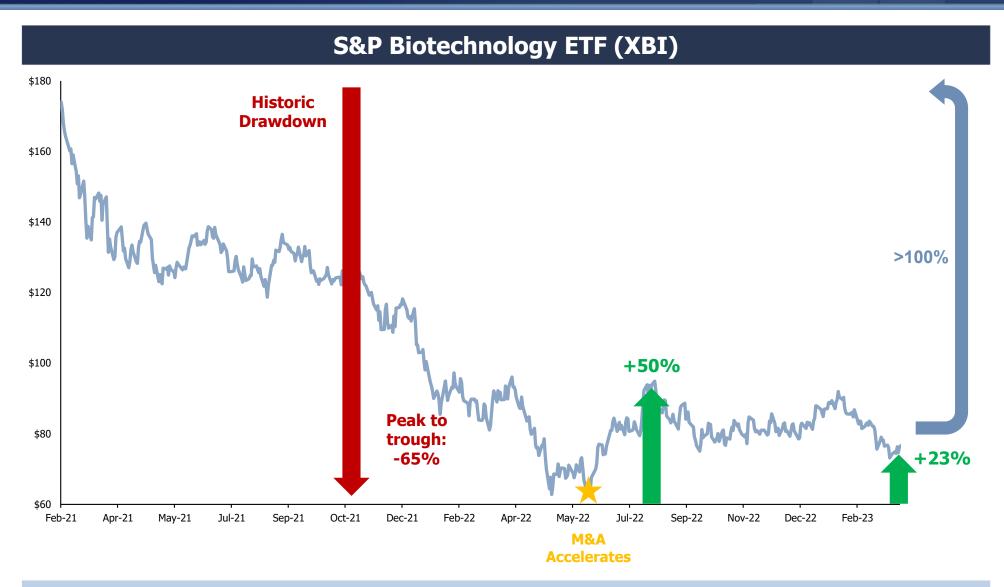


Stretching the list to 25 products could fill an additional >\$20 billion in revenues.

11



# Biotech Rebounding From Lows

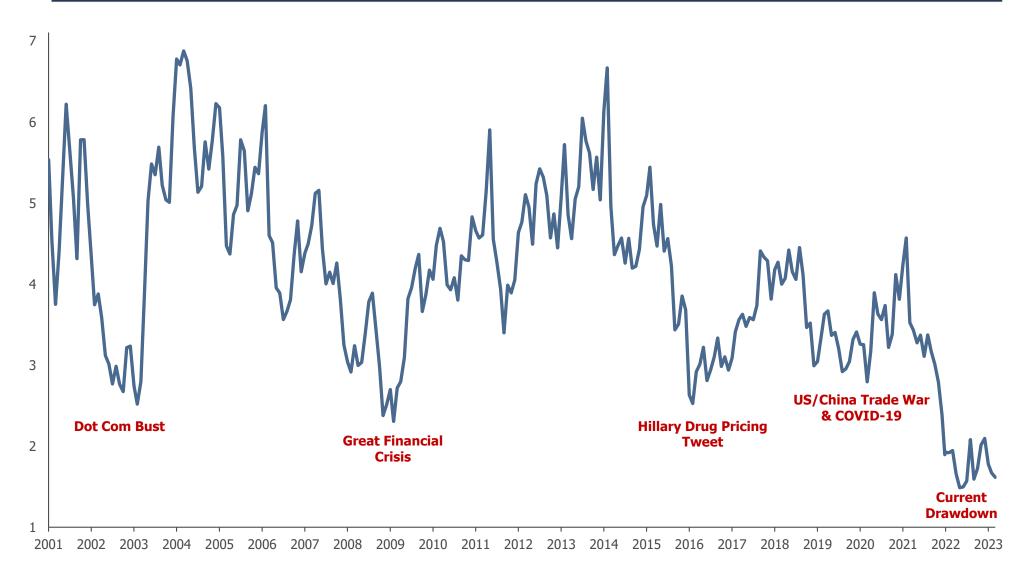


XBI moved as much as +50% off the lows, but is still >100% away from all-time highs



# Biotech Valuations at 20-Year Lows

### Ratio of Market Cap to Net Cash on Balance Sheet (Median)



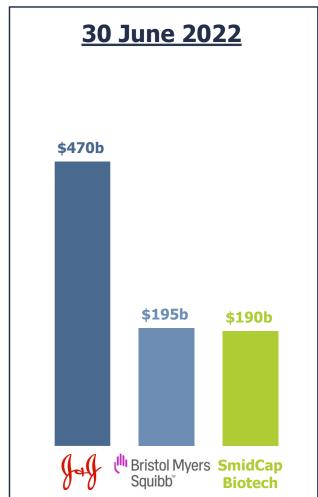
Note: Monthly chart of all GICs defined biotechnology greater than \$10mm, using historical cash and debt sourced from Bloomberg, with annual GICS biotechnology universe refreshes. Updated through 31 March 2023.



## Dislocated Biotech Valuations

### **Enterprise Value**





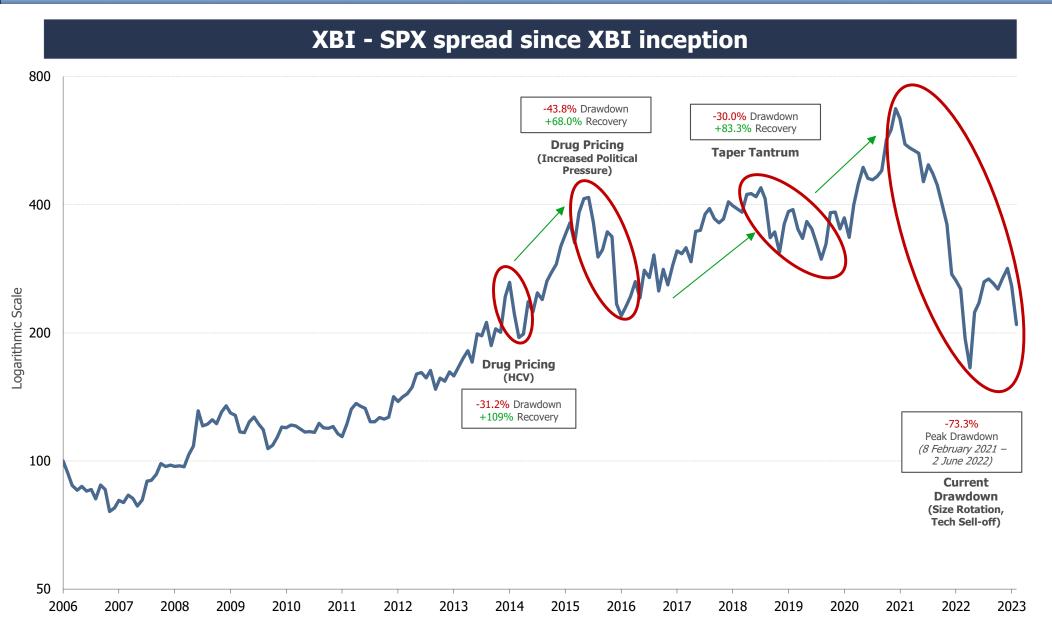


**Biotech valuations have been crushed compared to their Pharma counterpart** 



# XBI vs. S&P 500 (SPX) Spread

Drawdowns in spread followed by historically strong recoveries

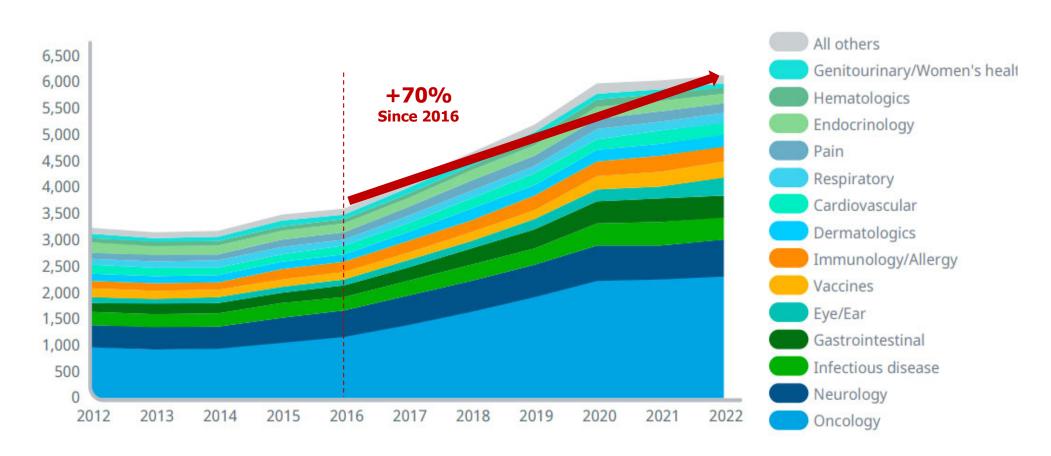


Note: Drawdowns are calculated using daily closing prices, while chart is shown using monthly periodicity for smoothing purposes. Updated as of 31 March 2023. Source: JPM [Drawdowns and Recoveries] | OrbiMed (XBI - SPX Spread Chart since XBI Inception).



# Innovation: Pipelines are Full

### **Record Number of Molecules Under Development**



Source: IQVIA Pipeline Intelligence, Dec 2022; IQVIA Institute, Jan 2023

**Pipeline Products:** (Phase I  $\rightarrow$  Filing / Therapeutic Class / 2012-2022)

# Innovation: The Next Big Thing?

### Oncology



# **ADCs**













AstraZeneca 2

New Standard of Care in HER2+ "low" metastatic BC TIGIT missed PFS endpoint at interim analysis

Disease Free Survival surpasses 5 years in EGFR+ lung cancer

### **Obesity**



### tirzepatide



2.5 mg | 5 mg | 7.5 mg | 10 mg | 12.5 mg | 15 mg

Tirzepatide for chronic weight management (SURMOUNT-2) Tirzepatide for chronic weight management (SURMOUNT-3) Tirzepatide for chronic weight management (SURMOUNT-4)

### semaglutide



SELECT Cardiovascular **Outcomes Trial** 

NEXT GENERATION cagri-sema

### orals





### **Alzheimer's**



**GRADUATE 1/2** 

dantenerumab

**CLINICAL TRIALS** 





Patients on drug improved; but outcome was not SS







Met all endpoints & reduced cognitive decline by -27%

### donanemab

**TRAILBLAZER** ALZ-3



Note: Examples may not be representative of portfolio holdings.



# New Era of Mega-Blockbuster Drugs

Peak Sales			
Revenue	Drug	Company	
>\$30bn	COVID-19 Vaccine, mRNA)	Pfizer	
	HUMIRA adalimumab	abbvie	
	KEYTRUDA* (pembrolizumab) Injection 100 Imp	MERCK	
> <b>\$20bn</b>	spikevax~ COVID-19 Vaccine, mRNA	moderna	
	PAXLOVID™ (nirmatrelvir tablets   ritonavir tablets)	<b>₹</b> Pfizer	
>\$10bn	Eliquis. (apixaban) tablets 52%,	الله Bristol Myers Squibb	
	Revlimid (lenalidomide):apposites	الا Bristol Myers Squibb	
	imbruvica° (ibrutinib)	abbvie	
	Stelara* (ustekinumab)	Johnson Johnson	

# Drug Company Company Company Semaglutide injection 2.4 mg Company Com









(tirzepatide) injection

ENHERTU°
fam-trastuzumab deruxtecan-nxki







Bristol Myers Squibb











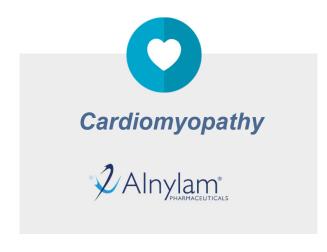


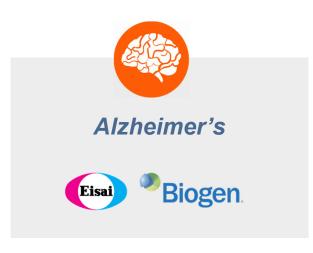




# Catalyst Driven Strategy Rebounds in 2H22 and into 2023

### The market had grown overly negative about clinical catalysts...

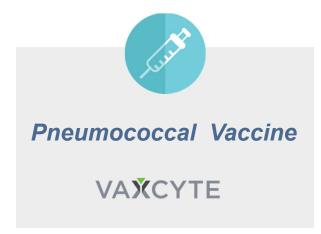












...but 2H22 saw many of these catalysts deliver positive outcomes.



# 2023 "Catalysts to Watch": Gene Therapy

After years of promise, 2023 could mark inflection point for gene therapies





The first and only FDA-approved gene therapy for hemophilia B





- For hemophilia A
- Approved in the EU
- US approval expected
  June 2023



delandistrogene moxeparvovec

- For DMD
- US approval expected May 2023
- EU filing expected '23

These newer therapies will impact thousands of patients' lives.



# 2023 "Catalysts to Watch": Biotech Catalyst Basket

### Imminent catalyst basket provides exposure to highly anticipated 2023 events







For GVHD









Commercial launch ongoing





axatilimab



ADC

For Ovarian Cancer

Pivotal Data mid-'23





**Paltusotine** 

For acromegaly

Multiple pivotal data readouts '23



Bristol Myers Squibb





 anti-BCMA CART cell therapy

For Multiple Myeloma

- Blockbuster Potential
- Pivotal Data '23



VTX958

For psoriasis
Pivotal data '23

VTX002

For ulcerative colitis

Pivotal data 2H23



sparsentan

For IgA Neuropathy

- Approved Feb 2023
- Phase III FSGS
- Data expected 2Q23



Bellus HEALTH

BLU-5937





zetomipzomib

- For Lupus Nephritis
- POC Data Expected '23



KarXT

- For Schizophrenia
- NDA submission mid-23
- Potential approval and launch 2H24



AT-GAA

- For Pompe Disease
- Inspection scheduled 2Q23
- Approval expected 3Q23

Positive outcomes would inflect the valuations of these companies.



# 2023 "Catalysts to Watch": Large Cap Pharmaceuticals

### There are many highly anticipated catalysts in pharma.







Cardiovascular Outcomes Trial

- For Obesity
- Pivotal Data 1H23







Dato-DXd TROPION-Lung01 Monotherapy

- ADC
- For 2L Lung Cancer
- Pivotal Data 2Q23



tiragolumab

Phase III SKYSCRAPER-01

- Novel IO Agent
- For 1L Lung Cancer
- Pivotal Data mid-23





Dupixent®A COPD

- Additional Indication
- Pivotal Data 1H23



donanemab

**TRAILBLAZER** 

- For Alzheimer's
- Pivotal Data 1H23

Positive clinical trial readouts will inflect the valuations of these companies.



# 2023 "Catalysts to Watch": Medical Technology

### Significant improvements in current technologies can materially impact sales.





Investors are eagerly awaiting the best kept secret in medical technology: the unveiling of the latest version of the DaVinci surgical robot.



SAGES March 2024?





**FARAPULSE**Pulsed Field Ablation (PFA)

The atrial fibrillation market is the fastest growing market in medical technology.

Boston Scientific's latest electrophysiology offering is perhaps "best in class".

The ADVENT IDE clinical trial in paroxysmal Afib is expected to read out in 2H23E.

These catalysts can drive end market demand in two "hot" technology areas.



# Playbook for 2023

1	Continue to Invest in Innovation	-
2	Key Overhangs Lifted	
3	Continued High Expectations for M&A	
4	Re-ignite our Catalyst Strategy	
5	Great Entry Point for Biotech	ENTER HERE
6	Valuations Undemanding	\$
7	Overall Bullish Outlook	AS.





Q&A



### **Endnotes**

### **General Notes**

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# Endnotes (continued)

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The MSCI World Health Care Index is a market-value weighted index of health care sector equities within the MSCI World Index, a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. Index data for the MSCI World Health Care Index is available since December 30, 1994. For the period from the Fund's inception through December 30, 1994, returns of the MSCI World Health and Personal Care Index are used as a proxy for the MSCI World Health Care Index. Return numbers for these indices include reinvestment of dividends net of withholding taxes, as calculated by the index provider.

The MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. The NASDAQ Biotechnology Index includes securities of NASDAQ-listed companies classified according to the Industry Classification Benchmark as either Biotechnology or Pharmaceuticals which also meet other eligibility criteria, and is calculated under a modified capitalization-weighted methodology. The SPDR S&P Biotech ETF seeks to provide investment results that, before fees and expenses, correspond generally to the total return performance of the S&P Biotechnology Select Industry. The FTSE All-Share Index is a market-capitalization weighted index representing the performance of all eligible companies listed on the London Stock Exchange's main market, which pass screening for size and liquidity. The Russell 2000 Index measures the performance of the small-cap segment of the U.S. equity universe. It includes approximately 2000 of the smallest securities based on a combination of their market cap and current index membership.