



# The Biotech Growth Trust

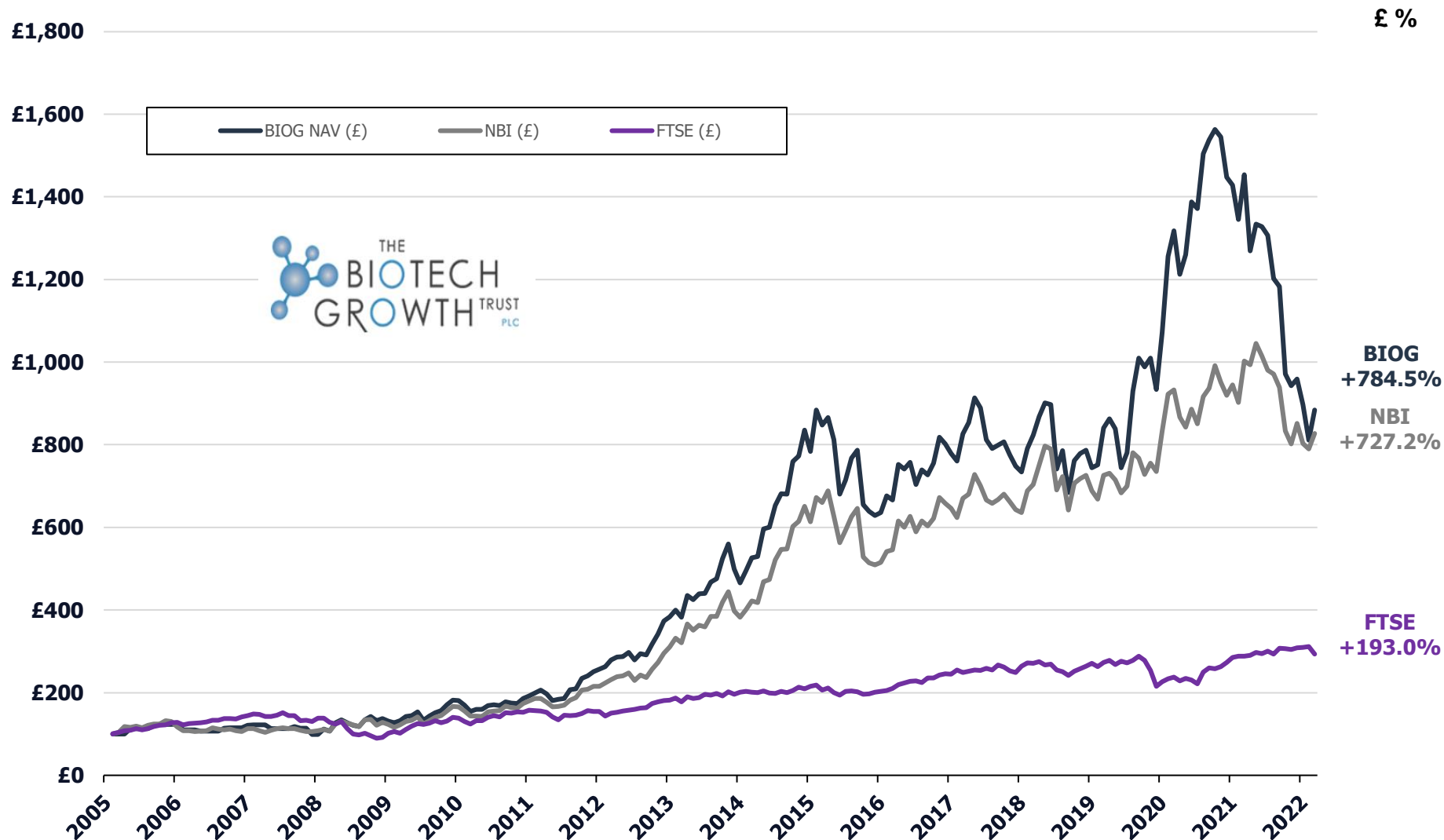
Annual General Meeting

19 July 2022

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# BIOG Performance since Inception

18 May 2005 through 30 June 2022

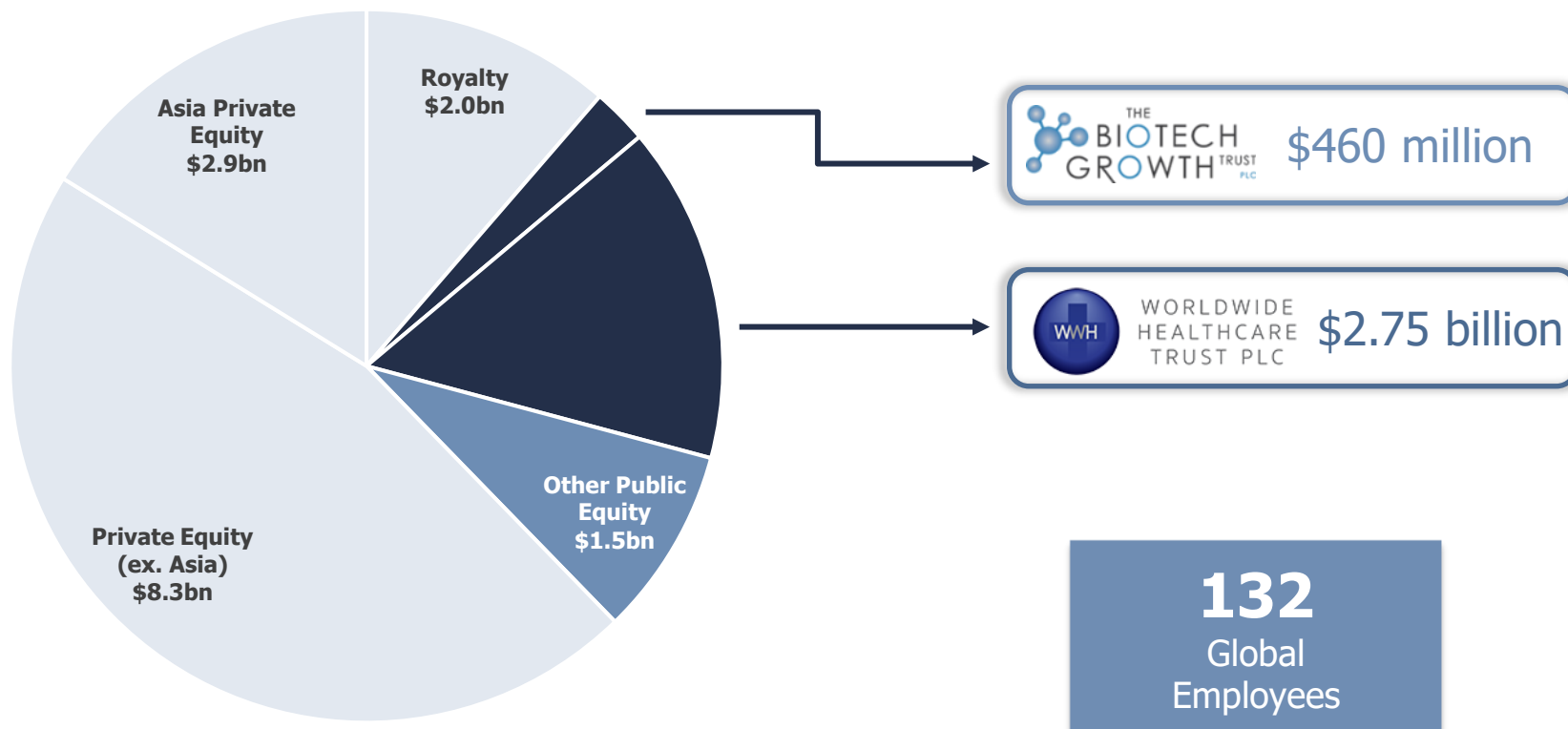


Source: Frostrow, Bloomberg

Note: See Endnotes for additional information, including with regard to the calculation of these results and the index shown above.

# OrbiMed Corporate Update

**Total AUM: \$18 billion**



Source: OrbiMed, AUM as of 30 April 2022, employee data as of 30 June 2022

# OrbiMed – BIOG Investment Team



**Geoffrey Hsu, CFA**  
Portfolio Manager

A.B. Chemistry, Harvard University  
M.D. Program, Harvard Medical School (2 years)  
M.B.A.: Harvard University  
Prior: Lehman Brothers



**Joshua Golomb**  
Biotechnology

B.S.: Operations Research, Columbia University  
Prior: HealthCor, Millennium, Citadel, Diamondback, ProMed



**Lidia Liu**  
Biotechnology

M.Sc.: Biotechnology, University of Pennsylvania  
B.S.: Physiology, University of Toronto  
Prior: Citadel, Point72, Jefferies & Co.



**Jingren Deng, Ph.D.**  
Biotechnology

M.P.H.: Epidemiology & Biostatistics, Boston University  
M.B.A.: Health Sector Management, Boston University  
Ph.D.: Biological Sciences, Virginia Tech



**Elizabeth Krane**  
Biotechnology

B.A. & B.B.A.: Southern Methodist University  
Prior: Cowen



**Stella Xing**  
Emerging Markets

B.B.A.: The University of Hong Kong  
Prior: UBS, Nomura



**Tianqi Leng, Ph.D.**  
Emerging Markets

B.S.: Biological Sciences, Peking University  
Ph.D.: Clinical Medicine, University of Oxford  
Prior: Merck KGaA



**Raj Patel**  
Biotechnology

BSE: Chemical Engineering, University of Michigan  
Prior: Leerink



**Seth Cassel, M.D., Ph.D.**  
Biotechnology

A.B.: Biology, Harvard University  
M.D.: Harvard Medical School  
Ph.D.: Biological & Biomedical Sciences, Harvard Medical School



**Xavier Cheng, Ph.D.**  
Biotechnology

B.S.: Biological Chemistry, University of Toronto  
Ph.D.: Analytical Chemistry, University of Toronto  
Prior: L.E.K Consulting



**Charlie Steinman**  
Life Science Tools & Diagnostics

B.S.: Finance & Accounting, Georgetown University  
Prior: Goldman Sachs, BMO Capital Markets



**Niko Liu**  
Emerging Markets

B.S.: Finance, Nankai University  
M.Sc.: Finance, Chinese University of Hong Kong  
Prior: Credit Suisse, Jefferies



**Claire Hu**  
Emerging Markets

B.S.: Finance, Shanghai Jiao Tong University  
Prior: JPM China Healthcare Investment Banking

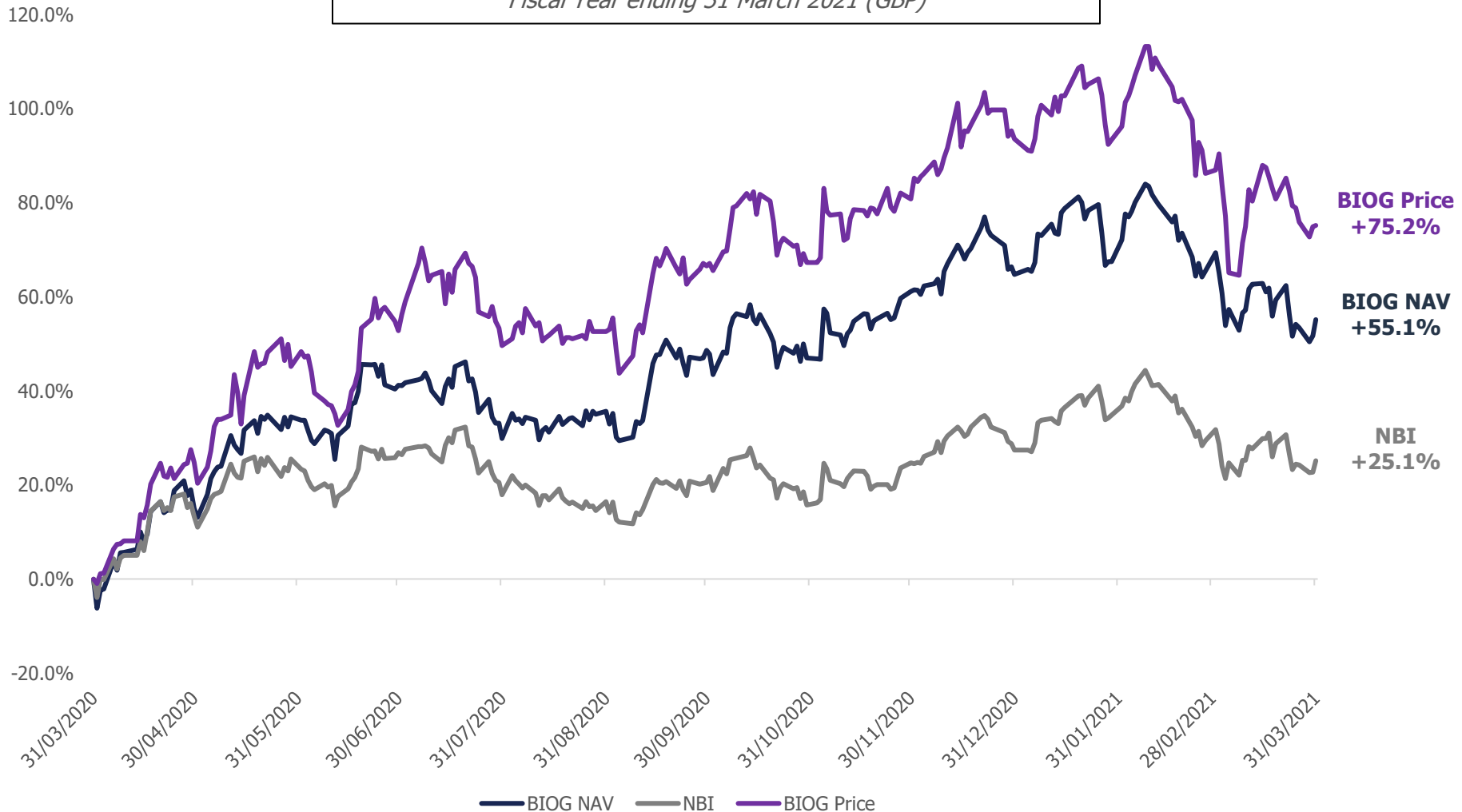


# The Biotech Growth Trust

# BIOG vs NBI – Fiscal Year Ending 31 March 2021 (GBP)

## BIOG vs Nasdaq Biotechnology Index

*Fiscal Year ending 31 March 2021 (GBP)*

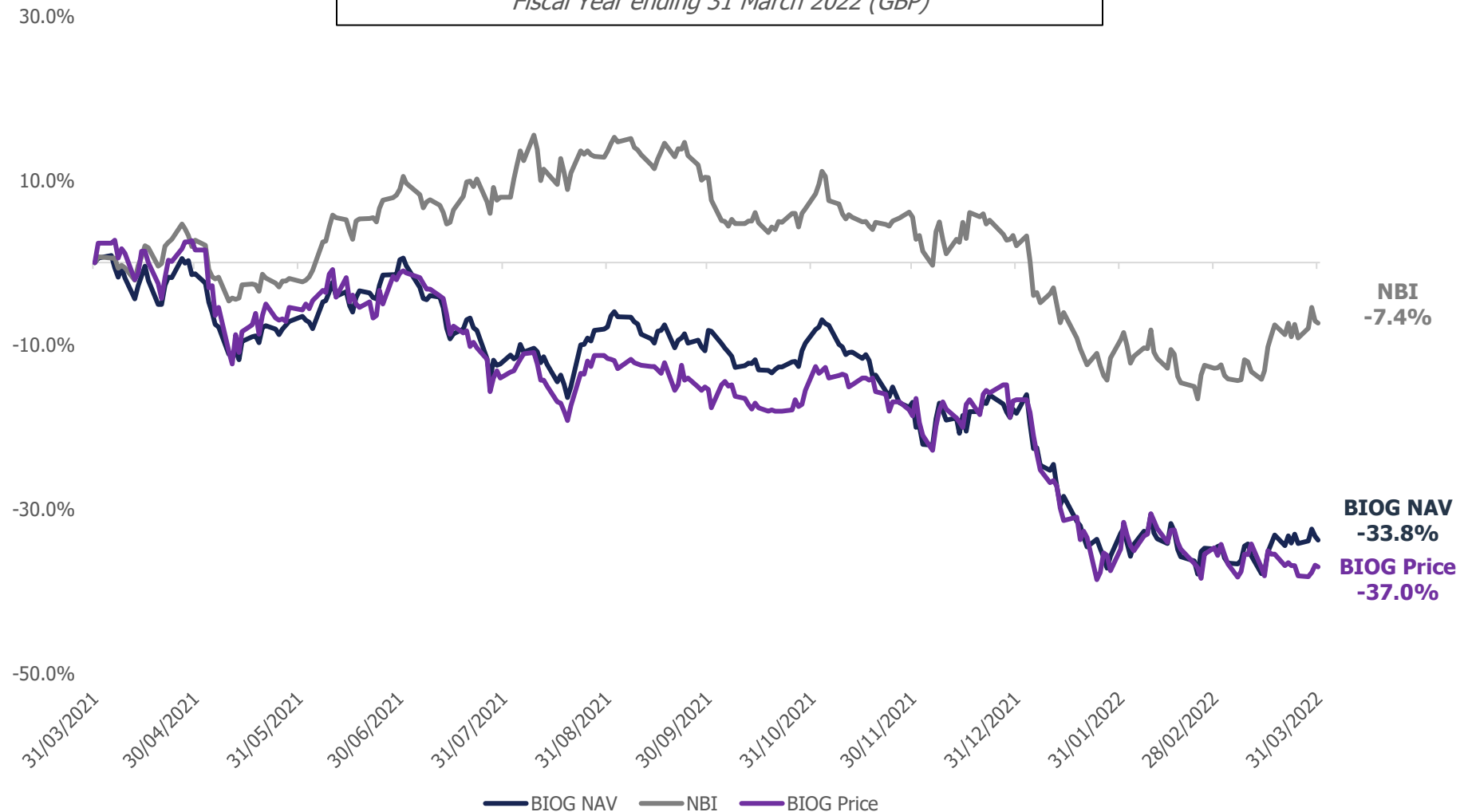


*Note: See Endnotes for additional information, including with regard to the calculation of these results and the index shown above.*

# BIOG vs NBI – Fiscal Year Ending 31 March 2022 (GBP)

## BIOG vs Nasdaq Biotechnology Index

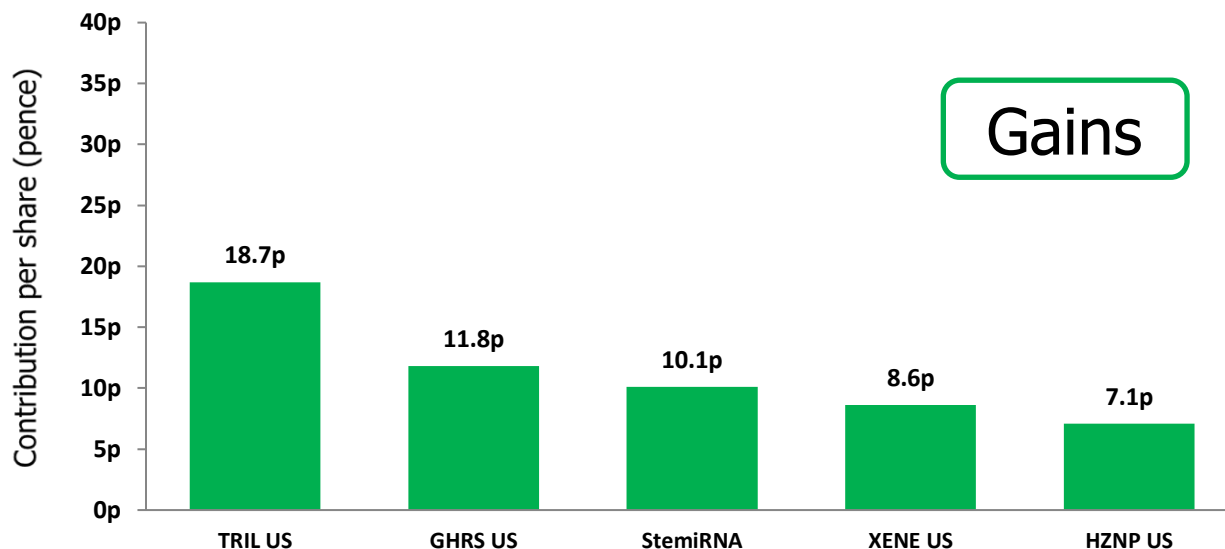
*Fiscal Year ending 31 March 2022 (GBP)*



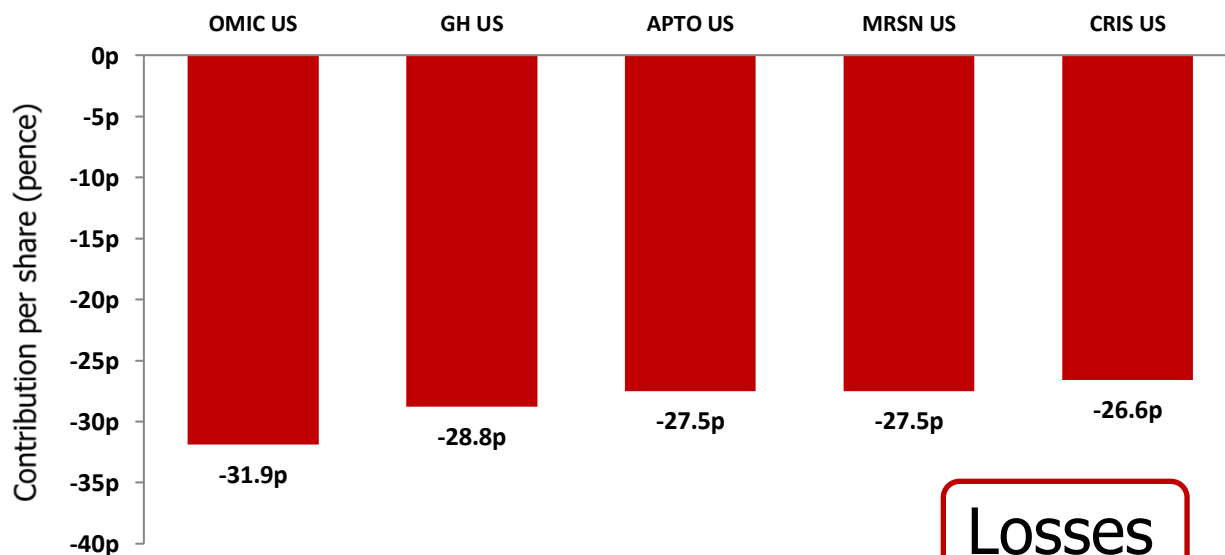
*Note: See Endnotes for additional information, including with regard to the calculation of these results and the index shown above.*

# Major Movers in Fiscal Year 2022 (Contribution per share)

31 March 2021 to 31 March 2022



Ticker	Name
TRIL US	Trillium Therapeutics
GHRS US	GH Research
StemiRNA	StemiRNA Therapeutics
XENE US	Xenon Pharmaceuticals
HZNP US	Horizon Therapeutics



Ticker	Name
OMIC US	Singular Genomics
GH US	Guardant Health
APTO US	Aptose Biosciences
MRSN US	Mersana Therapeutics
CRIS US	Curis

Source: BIOG Annual Report 2021

Past performance is not indicative of future results. Please see Endnotes for additional information.

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# Explanation of Fiscal 2022 Performance vs Benchmark

Fiscal 2022 results were affected by a “perfect storm” of macro factors.

The portfolio, which emphasizes emerging biotech over large cap biotech, was structurally mismatched with prevailing market conditions.

## **Small cap underperformance**

- Market-wide shift from growth to value
- Russell 2000 index (small/mid caps) underperformed the Russell 1000 index (large caps) by 18.5% during the fiscal year
- Unprofitable tech generally (which includes most of biotech) sold off significantly during the latter part of the fiscal year
- Fears over rising interest rates exacerbated the underperformance of pre-revenue companies

## **Significant IPO retracement and pause in IPO/crossover activity**

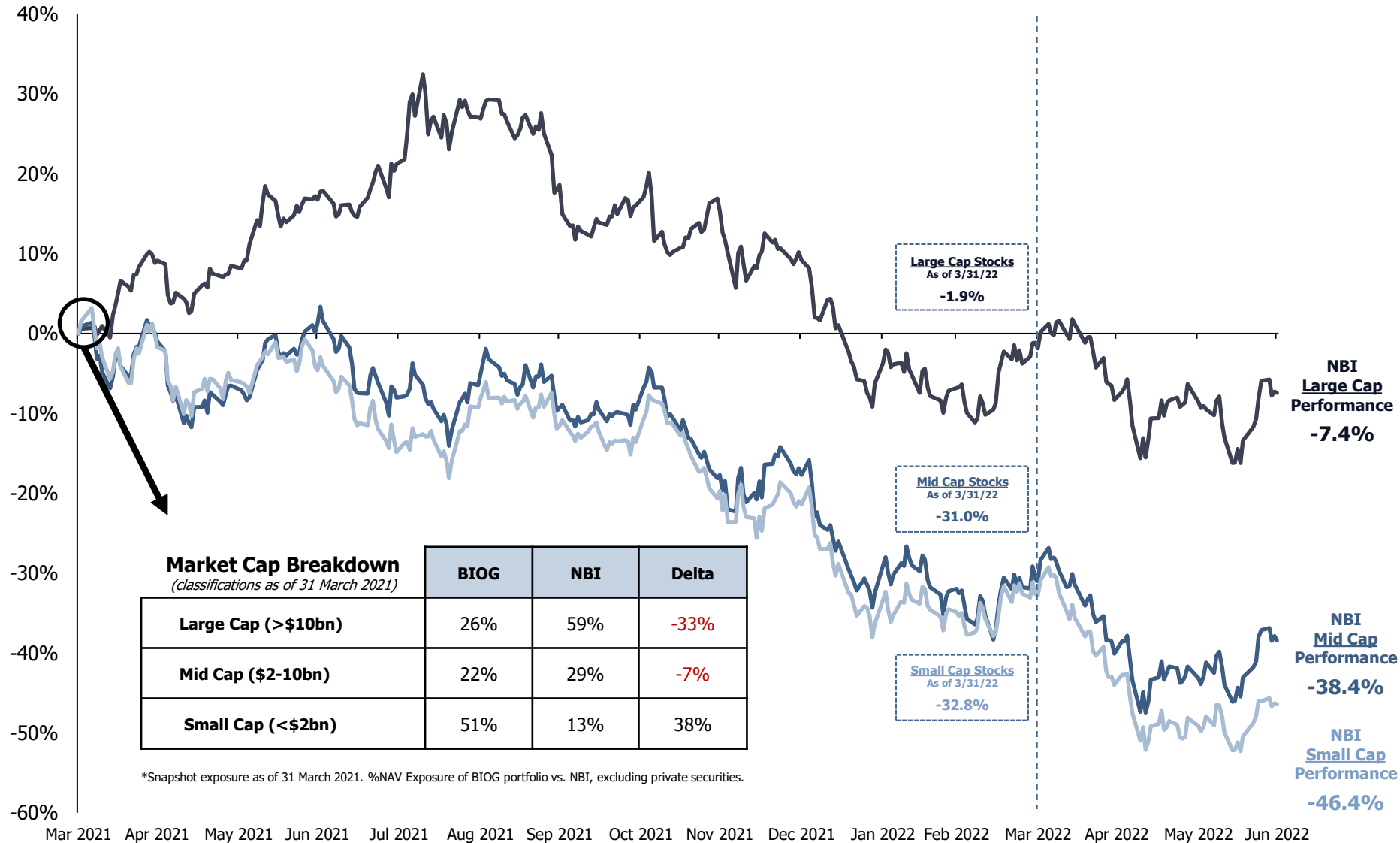
- BIOG had been active in the crossover and IPO market in 2020
- Average share price decline for biotech IPOs was -28% (for deals priced in 2020) and -46% (for deals priced in 2021) through 31 March 2022

## **China market-wide drawdown starting in June 2021**

- Regulatory tightening by China on Internet, real estate, and for-profit tutoring companies spooked investors. Importantly, there was no regulatory tightening in healthcare.
- Potential delisting of Chinese ADRs from the U.S. stock market
- COVID lockdowns due to the government “zero COVID” policy towards the end of the fiscal year dampened the economic outlook of China generally

# Market Cap Performance Divergence in Biotechnology

## NBI Performance by Market Cap Classification



Note: Chart shows equal-weighted performance of NBI stocks in their respective market cap buckets, using market cap classifications as of 31 March 2021. Updated as of 6/30/22, performance calculated in USD.

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# Unprofitable Tech Has Declined Meaningfully

## Goldman Sachs Non-Profitable Tech Basket

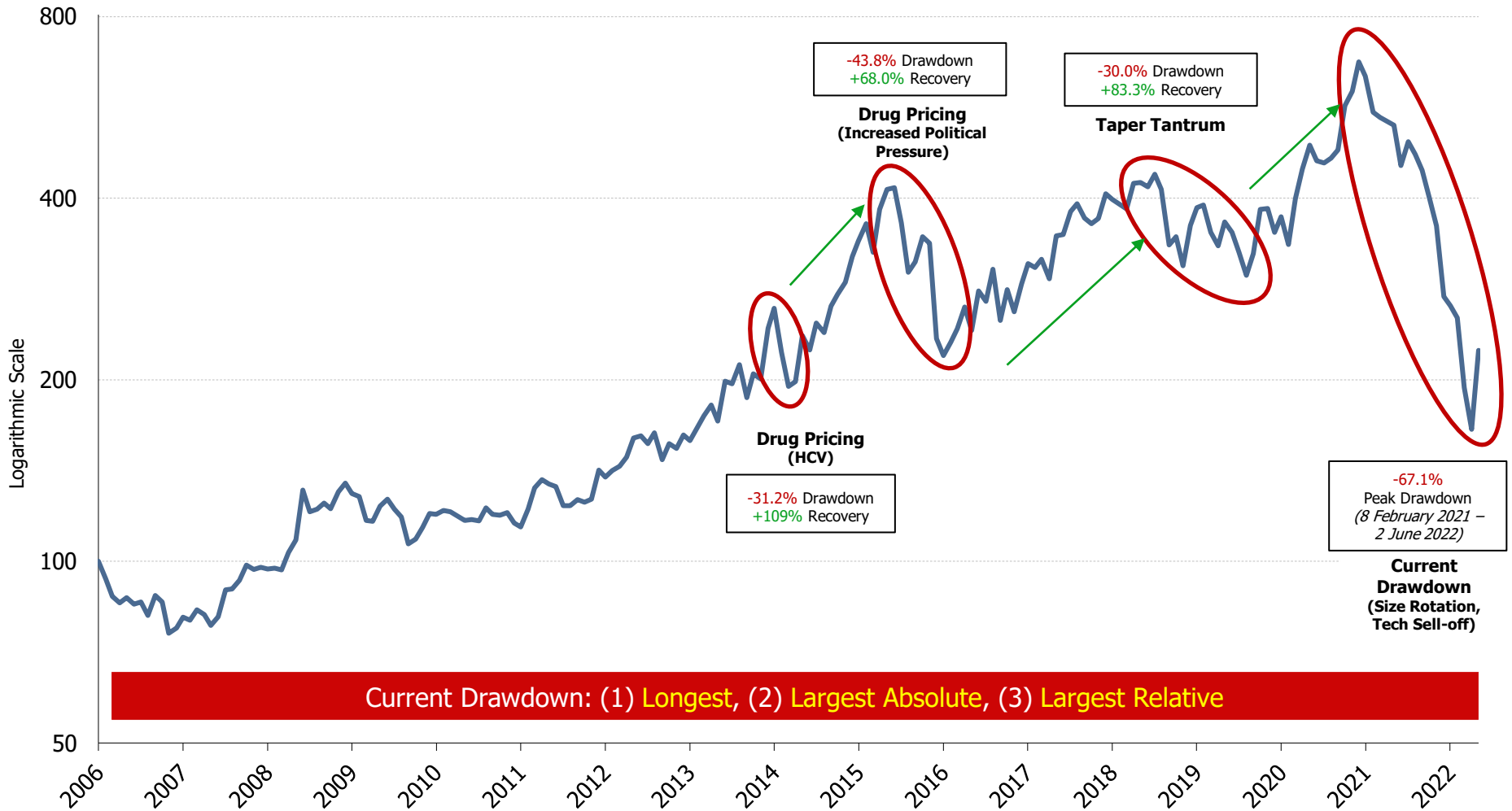


The GS Non-profitable tech basket (GSXUNPTC) consists of non-profitable US listed companies in innovative industries. Technology is defined broadly to include new economy companies across GICS industry groupings. Date range for chart is from 31 March 2021 to 30 June 2022.

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

Drawdowns in spread followed by historically strong recoveries

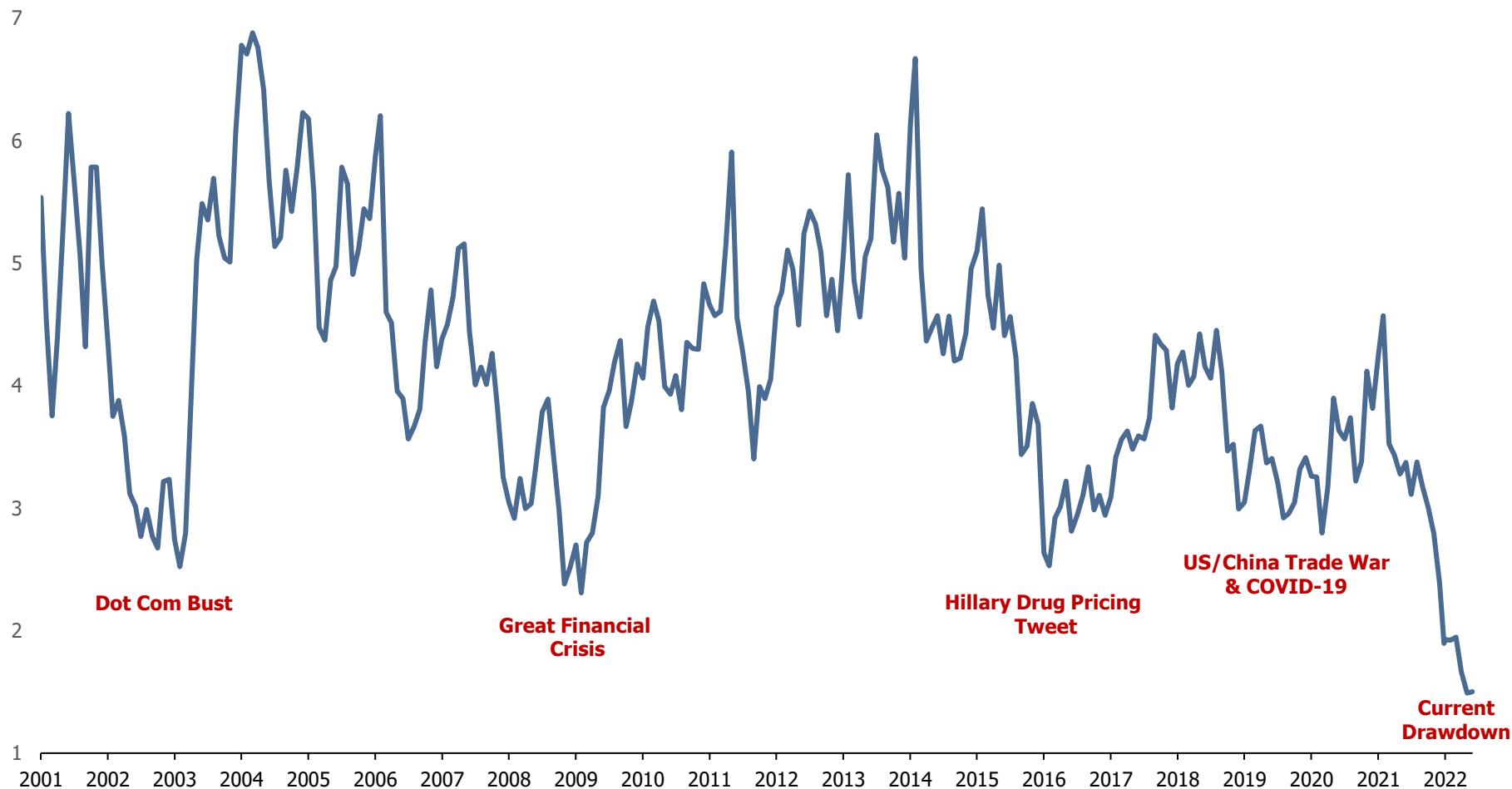
## XBI - SPX spread since XBI inception



Note: Drawdowns are calculated using daily closing prices, while chart is shown using monthly periodicity for smoothing purposes. Updated as of 30 June 2022.  
Source: JPM [Drawdowns and Recoveries] | OrbiMed (XBI - SPX Spread Chart since XBI Inception).

# Biotech Valuations at Unprecedented Low Levels

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



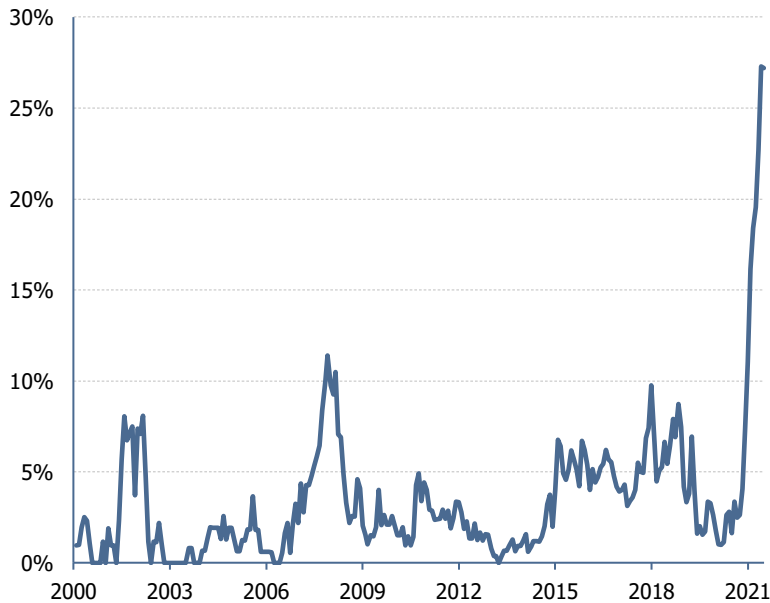
Note: Monthly chart of all GICs defined biotechnology greater than \$10mm, using historical cash and debt sourced from Bloomberg, with annual GICS biotechnology universe refreshes. Updated as of 30 June 2022.

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# Biotech Valuations at Unprecedented Low Levels

## Biotech stocks trading below cash:

**Percent of Biotech Companies Trading Below Net Cash on Balance Sheet**



**Number of Biotech Companies Trading Below Net Cash on Balance Sheet**



*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 30 June 2022*

# 10 Year U.S. Government Yields Have Risen Rapidly

## But current level already anticipates significant rate hikes



Source: Bloomberg, data as of 30 June 2022

# China Saw a Market-wide Drawdown But Beginning to Stabilize

## Hang Seng Healthcare Index (HSHCI)



Source: Bloomberg, OrbiMed Advisors  
Note: Chart updated from 31 March 2021 through 30 June 2022.

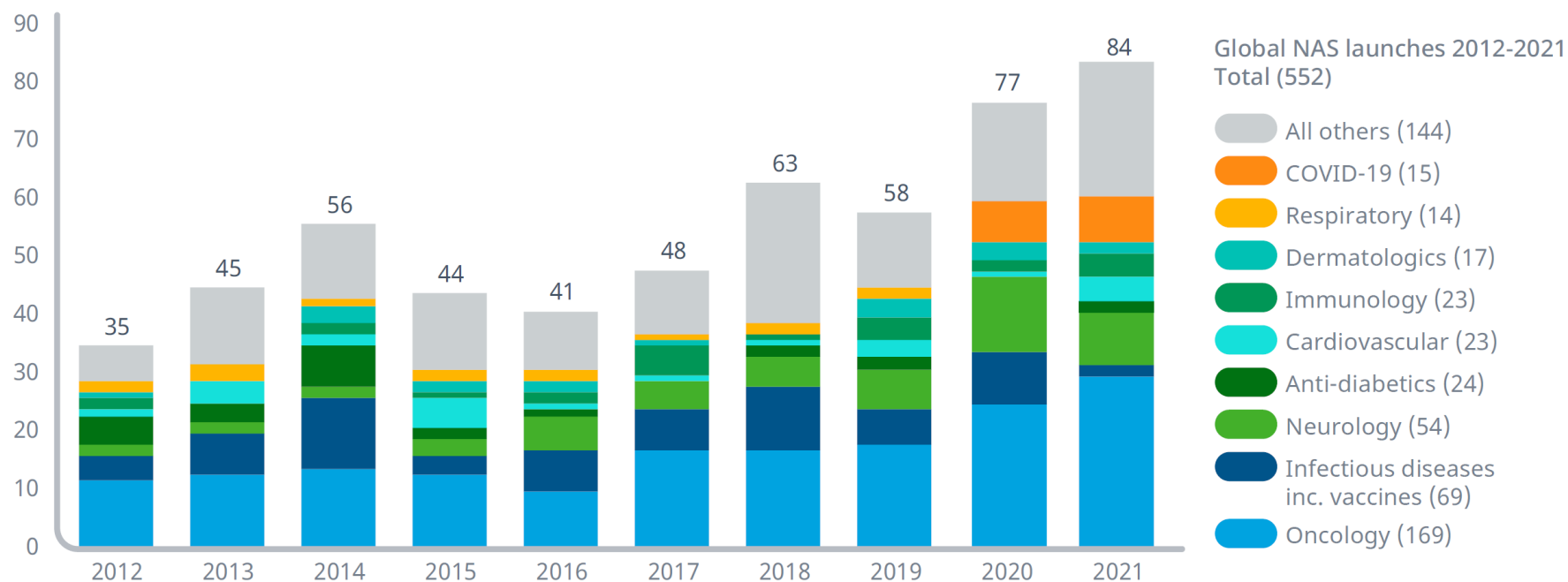




# Investment Themes

# Innovation Engine Still Robust

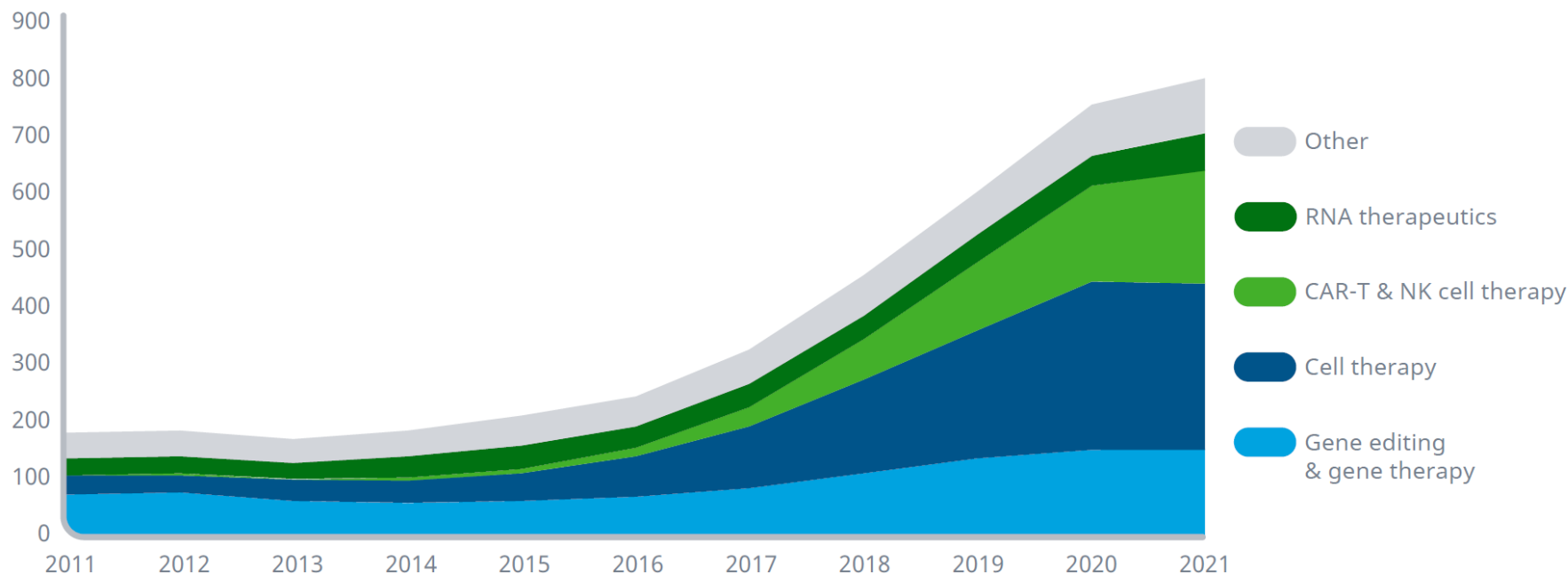
## Global Launches of Novel Active Substances (NASs) by Therapy Area, 2012 - 2021



Source: IQVIA Institute, January 2022, Copyright IQVIA. All rights reserved.

# Novel Technologies Driving R&D Pipeline Growth

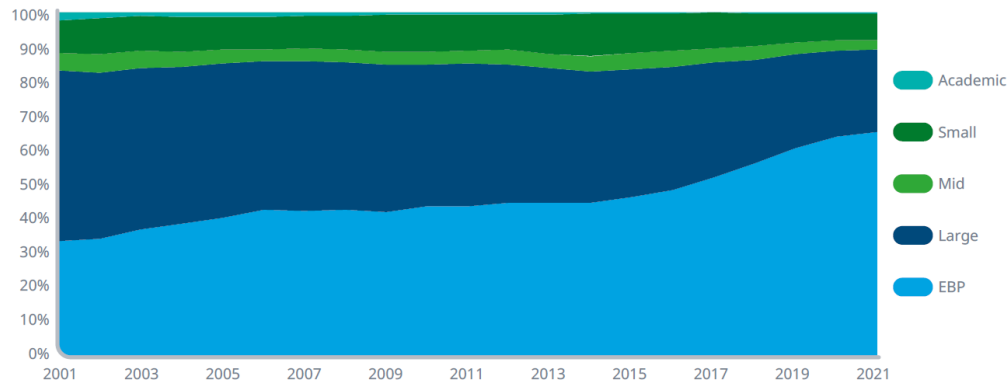
## Next-Generation Biotherapeutics Phase I to Regulatory Submission Pipeline by Mechanism, 2011–2021



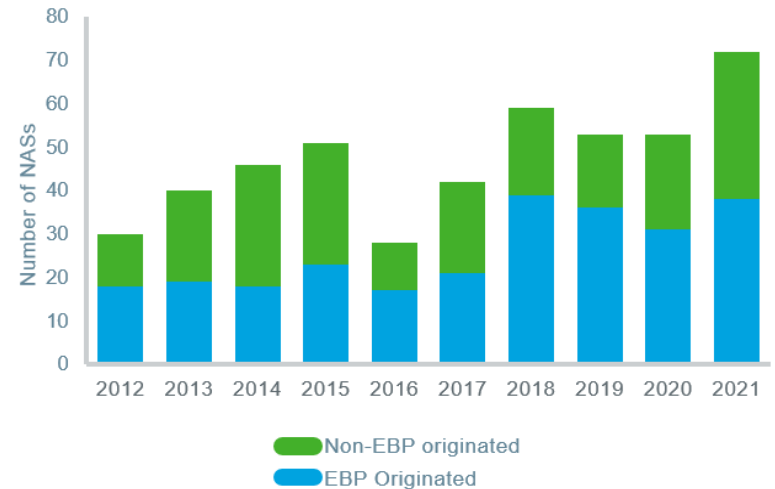
Source: IQVIA Pipeline Intelligence, Dec 2021; IQVIA Institute, Jan 2022. Copyright IQVIA. All rights reserved.

# Majority of Industry Drug Pipeline and Approved Novel Drugs Originated by Emerging Biotech Companies

Share of Industry R&D Pipeline by Company Type



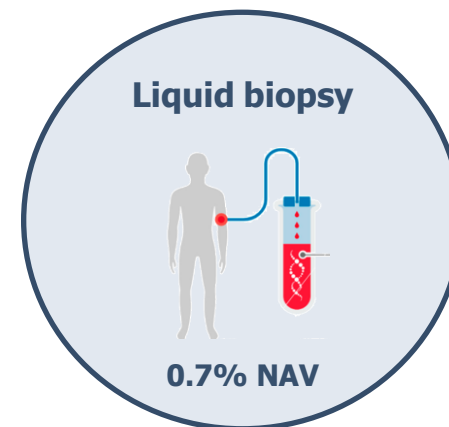
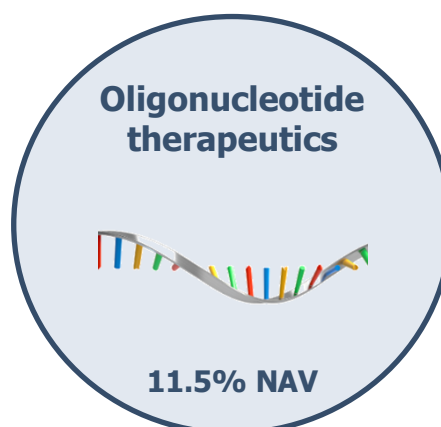
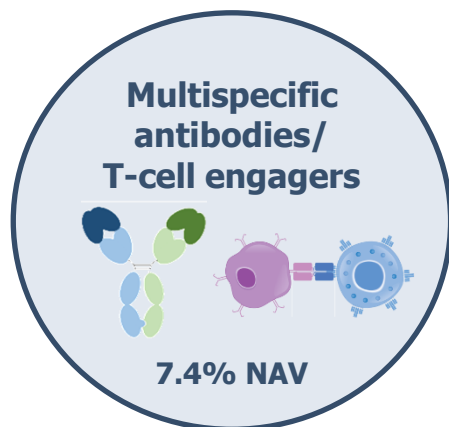
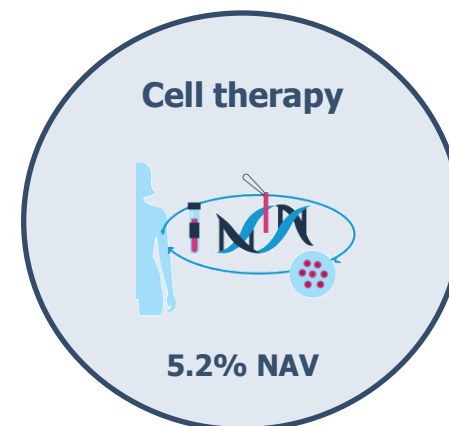
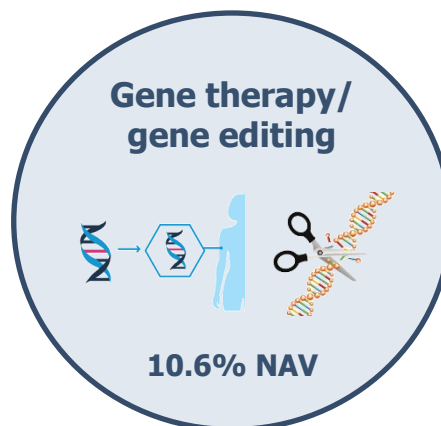
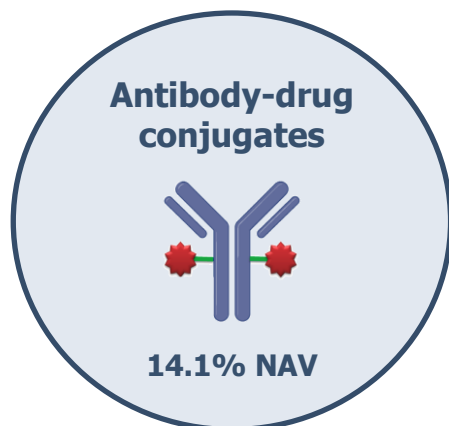
Source of Origination for Novel Active Substances (NASs) Launched



- Emerging biopharma companies (EBPs)\* are now responsible for nearly two-thirds of the drug industry's R&D pipeline
- EBPs originated 53% of new drugs launched in 2021
- These emerging biopharma companies are well reflected in the portfolio, consistent with the growing share of innovation occurring in this company segment

# Innovation Well Reflected in BIOG

- Portfolio has exposure to a wide swath of novel technologies, as shown below:



*% of BIOG NAV as of 30 June 2022. Some positions are double counted because they use more than one technology.*

# FDA Regulatory Climate Expected to Remain Favorable

## Agency operating “near normal” despite COVID pressures



Dr. Robert Califf

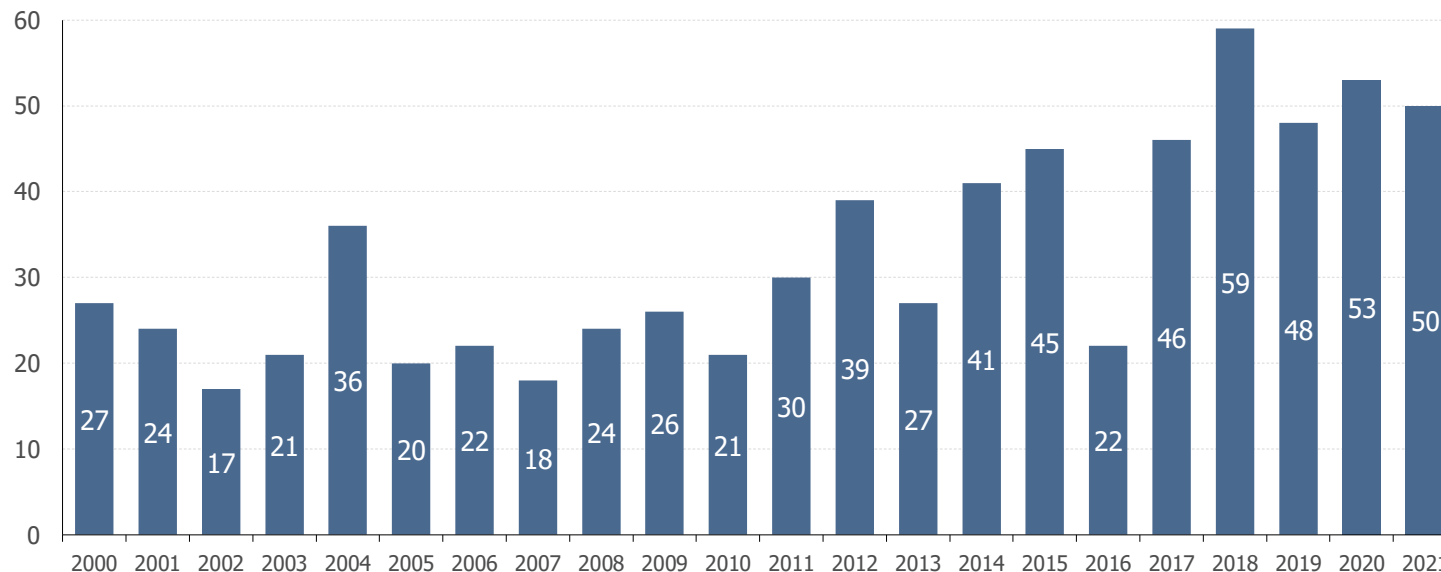
### Dr. Robert Califf confirmed as new FDA Commissioner in Feb. 2022

- World renowned cardiologist from Duke University
- Former FDA Commissioner under President Obama from 2015-2017
- Viewed as “industry friendly” and “science based”
- Will likely continue constructive policies towards new drug approvals at the agency

### COVID-related delays from 2020-2021 have been largely resolved

- COVID-related inspection delays are being resolved as restrictions lift
- Pace of new drug approvals remains robust

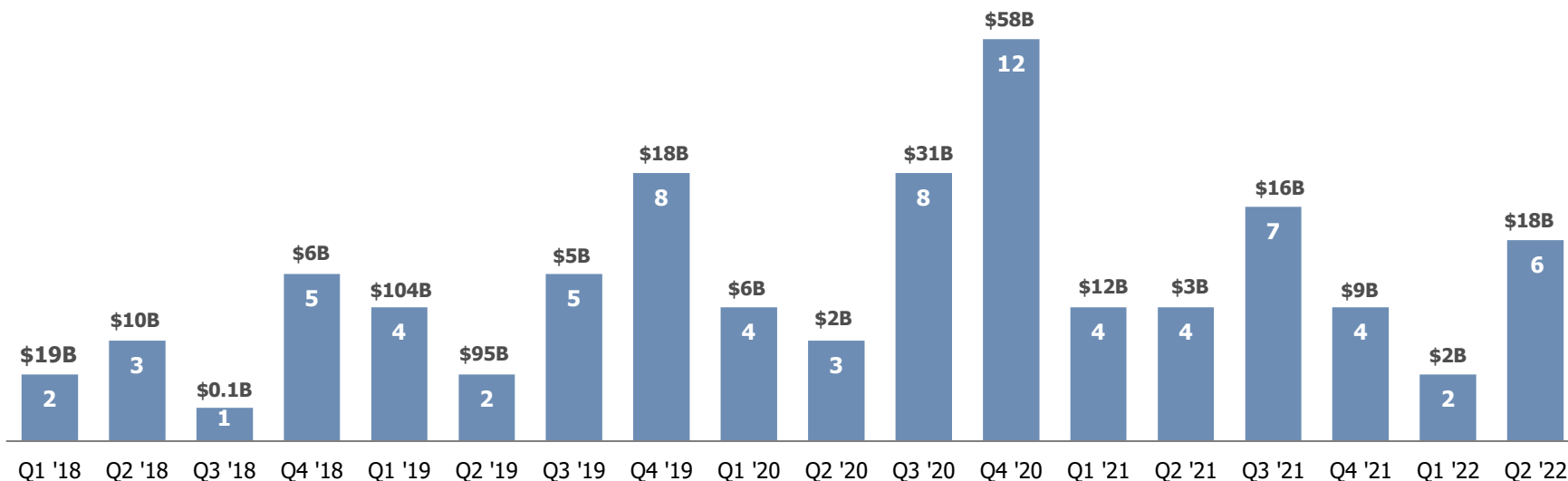
FDA New Molecular Entity Approvals



Source: FDA, “Novel Drug Approvals for 2021”, January 6, 2022

# Biopharma M&A: Acceleration Expected

## Announced Public Biotech M&A Transactions



Source: FactSet

- M&A activity should accelerate now that biotech targets are trading at lower valuations and their financing options are less attractive

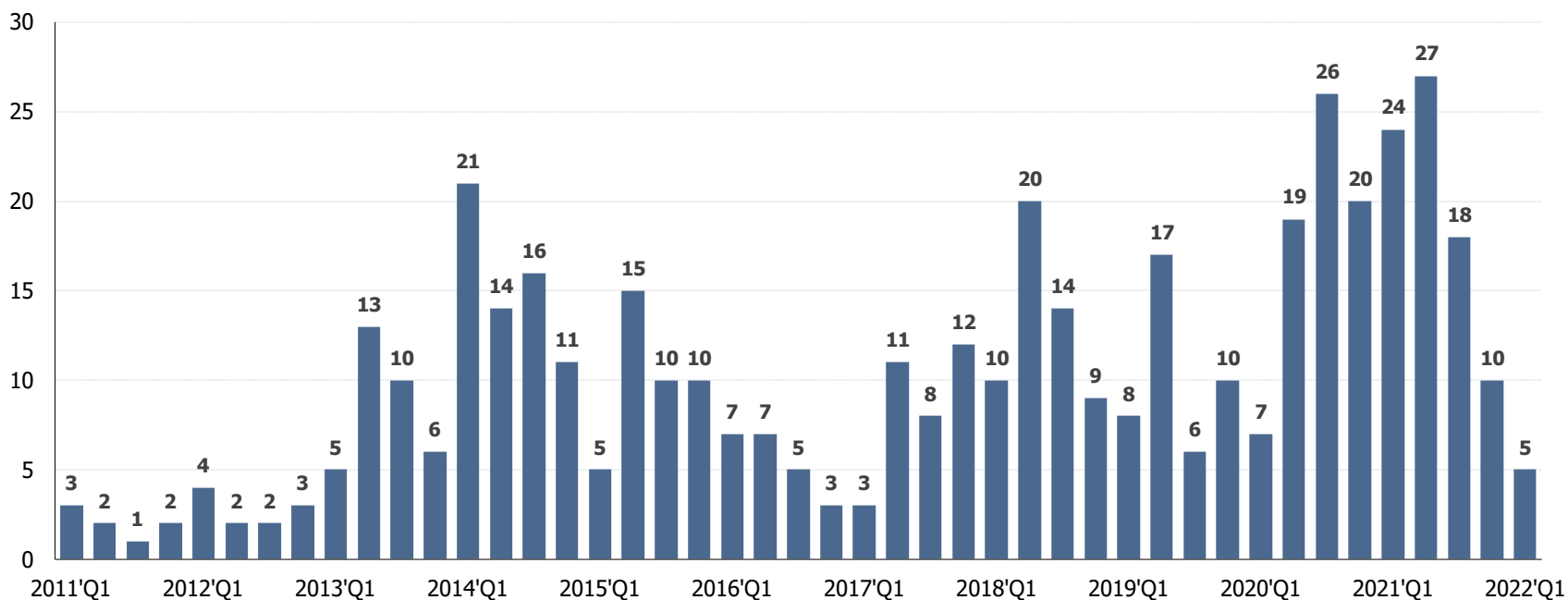
## Recent Deals



# Biotech IPO Market Has Cooled After Surge in 2020-2021

**Number of IPOs and funds raised have declined over past 12 months**

**Biotech IPOs – Count by Quarter**



Source: BAML, April 2022

- Since the beginning of 2018, over 250 new biotech companies have gone public. We estimate that the investable universe in biotech worldwide is over 1,500 companies.
- More challenging financing environment allows The Biotech Growth Trust to capitalize on investment opportunities at attractive prices.



# Drug Pricing Legislation Back on the Table

Democrats rushing to pass legislation before elections, could be clearing event



## Drug pricing legislation may materialize as part of stripped-down version of President Biden's Build Back Better plan

- More ambitious spending plan failed to garner unanimous Democratic support in 2021
- Democrats are rushing to pass drug pricing legislation before mid-term elections in the fall; no guarantee they will succeed given razor thin majorities in the House and Senate

## Current Democrat proposal, even if passed, would have manageable impact for the biotech industry

- Proposed bill calls for Medicare price negotiation starting in 2026 for limited number of drugs that have no biosimilar or generic competition by 13 years post-approval (for biologics) and by 9 years post-approval (for small molecules)
- Other provisions include caps on out-of-pocket spending and inflation caps on price increases, which are manageable for the industry
- Final bill could be watered down further

## Democrats likely to lose Congressional control after mid-term elections, leaving a limited window for potential drug pricing legislation

- House very likely to flip Republican, and possibly also the Senate
- Republican control of one or both chambers would eliminate risk of any extreme drug pricing legislation

Passage of drug pricing legislation could clear overhang

# BIOG Holdings

## As of 30 June 2022

<b>UNITED STATES</b>	<b>Market Price \$ Millions</b>	<b>Pct. Value</b>	<b>UNITED STATES</b>	<b>Market Price \$ Millions</b>	<b>Pct. Value</b>	<b>INTERNATIONAL</b>	<b>Market Price \$ Millions</b>	<b>Pct. Value</b>
<b>Emerging Biotechnology</b>			<b>Emerging Biotechnology (cont.)</b>			<b>Europe</b>		
Aclaris Therapeutics Inc	17.1	3.9	Traverse Therapeutics Inc	6.7	1.5	<b>Emerging Biotechnology</b>		
Aerovate Therapeutics Inc	5.5	1.3	Vaxcyte Inc	14.6	3.3	Argenx SE	20.5	4.7
ALX Oncology Holdings Inc	4.7	1.1	VistaGen Therapeutics Inc	2.4	0.5	Awakn*	0.9	0.2
BioMarin Pharmaceutical Inc	18.6	4.3	Xenon Pharmaceuticals Inc	19.2	4.4	Galecto Inc	0.5	0.1
Chinook Therapeutics Inc	8.4	1.9	Xtalpi Pfd*	15.9	3.7	GH Research PLC	13.8	3.2
Compass Therapeutics Inc	9.5	2.2		294.2	67.4	Small Pharma Inc	0.6	0.1
CytomX Therapeutics Inc	1.2	0.3				VectivBio Holding AG	1.6	0.4
Edgewise Therapeutics Inc	2.1	0.5				Verona Pharma PLC	2.8	0.6
EyePoint Pharmaceuticals Inc	1.7	0.4	<b>UNITED STATES</b>				40.8	9.3
Fusion Pharmaceuticals Inc	0.3	0.1	<b>Major Biotechnology</b>					
Global Blood Therapeutics Inc	7.7	1.8	Amgen Inc	13.9	3.2	<b>Europe Subtotal</b>	<b>40.8</b>	<b>9.3</b>
Graphite Bio Inc	2.3	0.5	Biogen Inc	13.7	3.2			
Harpoon Therapeutics Inc	0.4	0.1	Gilead Sciences Inc	17.8	4.1	<b>Far East</b>		
IMARA Inc	0.2	0.1	Horizon Therapeutics Plc	17.8	4.1	<b>Emerging Biotechnology</b>		
Ionis Pharmaceuticals Inc	8.0	1.8	Regeneron Pharmaceuticals Inc	13.1	3.0	OrbiMed Asia Partners	2.3	0.5
IVERIC bio Inc	7.4	1.7		76.4	17.5	Alphamab Oncology	4.2	1.0
Janux Therapeutics Inc	4.2	1.0				Burning Rock Biotech Ltd	0.6	0.1
Jounce Therapeutics Inc	5.1	1.2	<b>United States Total</b>	<b>370.6</b>	<b>84.9</b>	Clover Biopharmaceuticals Ltd	4.0	0.9
KalVista Pharmaceuticals Inc	1.8	0.4				Gracell Biotechnologies Inc	4.5	1.0
Keros Therapeutics Inc	11.3	2.6				Remegen Co Ltd	3.2	0.7
LogicBio Therapeutics Inc	0.2	0.0				Stemirna*	7.9	1.8
Longboard Pharmaceuticals Inc	0.4	0.1				Suzhou Basecare Medical Corp L	1.6	0.4
Magenta Therapeutics Inc	2.0	0.5				Yisheng*	21.5	4.9
MeiraGTx Holdings plc	4.8	1.1					49.7	11.4
Mersana Therapeutics Inc	13.3	3.0				<b>Far East Subtotal</b>	<b>49.7</b>	<b>11.4</b>
Milestone Pharmaceuticals Inc	11.2	2.6						
Natera Inc	2.4	0.6				<b>International Total</b>	<b>90.5</b>	<b>20.7</b>
Neurocrine Biosciences Inc	10.6	2.4						
Prelude Therapeutics Inc	1.8	0.4				<b>Cash</b>	<b>-24.8</b>	<b>-5.7</b>
RAPT Therapeutics Inc	6.0	1.4				<b>Total Portfolio</b>	<b>436.2</b>	<b>100.0</b>
Repare Therapeutics Inc	0.7	0.2						
Scholar Rock Holding Corp	4.3	1.0						
Seagen Inc	25.1	5.8						
Syndax Pharmaceuticals Inc	22.2	5.1						
Talaris Therapeutics Inc	0.4	0.1						
Theravance Biopharma Inc	12.4	2.8						

Note: securities with asterisks (\*) are unquoted

# 2022 Strategy and Outlook

- **Strategy to emphasize emerging biotech over large cap biotech will continue in order to fully capture a rebound when it occurs**
  - Will capitalize on compelling investment opportunities in companies that need to finance at low share prices
  - Gearing level will generally stay between 5-10%
- **Unprecedented low valuations in emerging biotech suggest significant upside from current levels**
  - Performance drawdown of small/mid cap biotech versus the S&P 500 has been the longest and most severe in over 15 years
  - Over 25% of all biotech companies have market caps below the net cash on their balance sheets
  - Valuation levels are lower than the Great Financial Crisis and the bursting of the Dot Com bubble
- **Valuation contraction is disconnected from the fundamental innovation in the sector, which remains robust**
- **Regulatory environment expected to remain constructive for new drug approvals**
  - New FDA Commissioner offers stable leadership; COVID-related delays have largely resolved
- **M&A could trigger a potential recovery**
  - Activity expected to accelerate given lower valuations of biotech targets
- **Passage of drug pricing legislation could remove overhang and lead to relief rally**
  - Either the Democrats pass a manageable drug pricing bill now or Republicans take Congressional control in the midterm elections and block any extreme drug pricing proposal



# Endnotes

# Endnotes

## General Notes

1. The information presented herein relates to The Biotech Growth Trust PLC (the "Fund"). OrbiMed Capital LLC ("OrbiMed") is an investment adviser registered with the U.S. Securities and Exchange Commission (the "SEC") that invests in healthcare and life sciences companies, including the biotechnology and pharmaceutical sectors, across a number of products and strategies. This presentation includes information specifically relating to the Fund, and potential OrbiMed clients or fund investors should be aware that such information may not be applicable to other OrbiMed funds, products or strategies. The information contained in this presentation is not intended to supplement or replace the disclosures made in Part 2 of OrbiMed's Form ADV filed with the SEC or in the prospectus or other offering document for any investment fund sponsored and/or managed by OrbiMed or its affiliates. SEC registration does not imply a certain level of skill or training.
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# Endnotes (continued)

## Indices

Information about indices is provided to allow for comparison of the performance of the Shares to the Fund's benchmark and certain other recognized indices. Investors cannot invest directly in an index, which also does not take into account trading commissions and costs. The indices shown are unmanaged, do not charge fees or expenses and do not employ special techniques such as leveraging or short selling. The volatility of indices may be materially different from the performance of the Fund. In addition, the Fund's portfolio holdings may differ significantly from the securities that comprise such indices.

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. The Hang Seng Healthcare Index ("HSHCI") aims to reflect the overall performance of stocks listed in Hong Kong that are related to healthcare businesses. The HSHCI is freefloat-adjusted market-capitalisation weighted with a 10% cap on individual stocks.