

### The Biotech Growth Trust

February 2025

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### Portfolio Managers: Geoffrey Hsu & Josh Golomb

#### **Geoffrey Hsu, CFA**

**General Partner** 



Geoffrey C. Hsu, CFA, is a General Partner at OrbiMed and has been portfolio manager of The Biotech Growth Trust since May 2005.

Mr. Hsu joined OrbiMed in 2002 as a biotechnology analyst. Prior to joining OrbiMed, he worked as a financial analyst in the healthcare investment banking group at Lehman Brothers. Mr. Hsu received his A.B. degree summa cum laude from Harvard University and holds an M.B.A. from Harvard Business School. Prior to business school, he spent two years studying medicine at Harvard Medical School.

### Josh Golomb

Partner



Josh Golomb is a Partner at OrbiMed focused on biotechnology. He joined the firm in 2021 and became a portfolio manager of The Biotech Growth Trust in 2023.

Mr. Golomb has covered the biotechnology and pharmaceutical sectors at investment firms since 2004. He was most recently employed at HealthCor, a healthcare-dedicated hedge fund, from 2016 to 2021 as a senior biotechnology and pharmaceutical analyst. Previously, he covered biotech at Millennium, Citadel, Diamondback and ProMed Partners. Mr. Golomb received a B.S. in Operations Research with a concentration in Engineering Management Systems from the Fu Foundation School of Engineering and Applied Science at Columbia University.

### **OrbiMed Corporate Update**

#### **Global Healthcare-Dedicated Investment Firm with Over 25 Years of Experience**



Source: OrbiMed; Data estimated as of 31 January 2025

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# Performance

### **BIOG Performance since Inception**

18 May 2005 through 31 January 2025



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

Source: Frostrow, Bloomberg

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### Market Cap Performance Divergence in Biotech

Market Cap Breakdown

Performance Gap Since 2021 Has Yet to Close



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 31 January 2025, performance calculated in USD.

# Size Divergence in the Broad Market (31 March 2021 – 31 January 2025)



Note: The Russell 2000 Index is comprised of the smallest 2000 companies in the Russell 3000 Index. The Russell 1000 Index is comprised of the largest 1000 companies in the Russell 3000 Index.

### Biotech/Healthcare Underperformance vs S&P 500

#### (31 March 2021 – 31 January 2025)



Note: Nasdaq Biotech Index reflects change to total return version of index as of 30 September 2024.

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### **Biotech Valuations At Unprecedented Lows**



2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

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 January 2025.

### **Biotech Valuations At Unprecedented Lows**

Valuations have begun recovering from historical lows



#### <u>Number</u> 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 monthly GICS biotechnology universe refreshes. Updated through 31 January 2025

### 10-Year U.S. Government Yield Remains Elevated

#### (USGG10YR Index) Data as of 31 January 2025





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## **Investment Themes**

### Key Breakthroughs in Biotech in the last 24 Months

Company	Indication	Product (MOA)	Highlights		
ᠵ agios	Non-transfusion and Transfusion Dependent Adult Thalassemia	Mitapivat (PK activator)	Reported positive Phase 3 data in two trials; first oral treatment for thalassemia		
Alnylam	ATTR Amyloidosis with Cardiomyopathy (ATTR-CM)	Vutrisiran (siRNA)	Reported first positive ATTR-CM outcomes study with a silencer of ATTR		
insmed	Bronchiectasis	Brensocatib (DPP1 inhibitor)	Positive Phase 3 data with 20% reduction in exacerbations over 52 weeks. First ever successful bronchiectasis study.		
	Myotonic Dystrophy Type 1 (DM1)	DYNE-101 (antisense oligonucleotide conjugated to a fragment antibody)	Showed best in class knockdown of DMPK resulting in splicing correction and improved function relative to placebo in a Phase 1/2 trial		
	Facioscapulohumeral Muscular Dystrophy (FSHD)	Del-brax (siRNA bound to a monoclonal antibody)	First drug to ever demonstrate DUX4 knockdown and muscle function improvement in a Phase 1/2 trial		
kyverna.	Autoimmune Diseases	Auto CAR-T (CD19 targeting)	Demonstrated disease modifying activity of a one-time cellular therapy in refractory autoimmune disease		
	Sickle Cell Disease and Beta Thalassemia	Casgevy (CRISPR Cas9 gene-editing therapy)	First ever CRISPR therapy approved in the world		
Crinetics	Acromegaly	Paltusotine (somatostatin receptor type 2 agonist)Positive Phase 3 trials for first once- medication for the treatment of acre			

Note: Public companies shown here are not necessarily representative of portfolio holdings

### Significant FDA Biotech Approvals in 2024

Company	Indication	Product (MOA)	Highlights		
<b>INVANCE</b> BIOTHERAPEUTICS	Metastatic Melanoma	Amtagvi <b>First</b> cellular therapy approv the treatment of a solid tur			
Verona Pharma®	Chronic Obstructive Pulmonary Disease (COPD)	Ohtuvayre <b>First</b> novel mechanism app treat COPD in over a de			
💧 geron <sup>.</sup>	Low to Intermediate Risk Myelodysplastic Syndromes	Rytelo	<b>First</b> and only oligonucleotide telomerase inhibitor		
AMGEN	Small Cell Lung Cancer	Imdelltra	<b>First</b> bispecific T-cell engager approved to treat a solid tumor		
Day One BIOPHARMACEUTICALS	Pediatric Low-Grade Glioma	Ojemda	<b>First</b> therapy in its class approved for a type of pediatric brain tumor		
AstraZeneca Rare Disease	Paroxysmal Nocturnal Hemoglobinuria (PNH)	Voydeya	First oral add on therapy for the treatment of PNH		
	Pulmonary Arterial Hypertension (PAH)	Winrevair	<b>First</b> new mechanism for the treatment of PAH in over a decade		
Madrigal	Non-Alcoholic Steatohepatitis (NASH)	Rezdiffra	<b>First</b> drug approved for the treatment of fatty liver disease		
Chard Cyowa KIRIN	Metachromatic Leukodystrophy (MLD)	Lenmeldy First gene therapy for the treat of MLD			

Note: companies are not necessarily representative of portfolio holdings.

### Oncology

Cancer remains #1 therapeutic area for biotech drug development given unmet need



Note: companies are not necessarily representative of portfolio holdings.

Multiple innovative approaches generating clinical benefit across tumor types, giving physicians more treatment options to extend the lives of cancer patients.

### Central Nervous System (CNS) Disease Treatments

Both neurology and psychiatric disorders offer large chronic market opportunities



Note: companies are not necessarily representative of portfolio holdings.

Large Pharmaceutical Companies have shown interest in the CNS space, with recent multi billion dollar acquisitions of biotech players – Intra-Cellular Therapies, Karuna Therapeutics, Cerevel Therapeutics and Longboard Pharmaceuticals

### **Innovation Well Reflected in BIOG**

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



Source: OrbiMed, % of BIOG NAV as of 31 January 2025. Some positions are double-counted because they use more than one technology.

### FDA New Molecular Entity Approvals



FDA approvals remain consistently high

Nearly 450 new drugs approved over the past 8 years

Dip in approvals in 2022 likely due to COVID; approval volume remains high

### **Financing Environment Improving**



- Biotech financing volume picked up in 2024, though the number of IPOs has remained muted
- Investor demand for follow-on financings in good companies has been strong; weaker companies still face challenges getting financed
- BIOG has been participating selectively in IPOs and confidentially marketed follow-on offerings

Source: BofA "Biotech ECM Activity" report as of 31 December 2024

### M&A Activity in Biotechnology

#### **Announced Public Biotech M&A Transactions**



Public biotech M&A

Q1'18 Q2'18 Q3'18 Q4'18 Q1'19 Q2'19 Q3'19 Q4'19 Q1'20 Q2'20 Q3'20 Q4'20 Q1'21 Q2'21 Q3'21 Q4'21 Q1'22 Q2'22 Q3'22 Q4'22 Q1'23 Q2'23 Q3'23 Q4'23 Q1'24 Q2'24 Q3'24 Q4'24



Source: Bloomberg Transcripts, quotes from Goldman Sachs Healthcare Conference May 2024 and 2Q24 Earnings Calls

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### Big Pharma Patent Cliff Drives Biotech M&A

#### Over \$270 billion in branded sales are at risk (2024-2030)



(sales at risk represents consensus projected sales for year prior to year of expected loss of exclusivity)

Source: S&P Global report, Company Reports

### **Political Environment Overall Positive**

What can we expect from President Trump's second term?

#### POSITIVES

A&M

#### INFLATION REDUCTION ACT

Drug price reform could be amended or repealed and pricing exclusivity for small molecule drugs could be extended

#### **POLITICAL PRIORITIES**

Trump administration appears focused on immigration, taxes, and curbing inflation. Drug pricing was not a focus of his campaign. Removal of Lina Khan as FTC Commissioner should pave the way for more biotech M&A

#### TAX CUTS

The industry clearly benefited from Trump's previous corporate tax policy initiatives

#### INNOVATION

Trump's administration should be proinnovation, consistent with his broader domestic pro-business agenda

#### **OVERHANG REMOVED**

With Democratic power now severely minimized, passage of extremely negative drug pricing reform unlikely

#### UNCERTAINTIES

#### RFK Jr.

Noted vaccine skeptic nominated for head of HHS, though he has toned down his rhetoric significantly recently; FDA Commissioner nominee Martin Makary seems science-based and reasonable

#### **BUDGET CUTS**

Trump needs to cut government spending in order to pay for his tax cuts; Medicaid payments could be reduced; FDA staffing could be cut, though FDA drug reviewers paid by PDUFA fees less likely to be impacted

#### **INTEREST RATES**

Trump policies on tariffs and tax cuts could exacerbate inflation, causing the Fed to leave interest rates higher for longer; Trump likely to pressure the Fed to reduce rates; he wants 10year yields to go down

Positives outweigh the uncertainties for Trump's second term

### 2025 Strategy and Outlook



### Strategy to emphasize emerging biotech over large cap biotech will continue in order to fully capture eventual sector rebound

- 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 we have ever seen
- Percent of biotech companies with market caps below the net cash on their balance sheets well above historical norms
- Valuation levels are lower than the Great Financial Crisis and the bursting of the Dot Com bubble
- Interest rate pressure should abate with eventual Fed rate cuts; biotech has historically outperformed during recessions



### Valuation contraction is disconnected from the fundamental innovation in the sector, which remains robust



M&A activity expected to accelerate given lower valuations of biotech targets and urgent need for new products by Big Pharma

### OrbiMed believes this is an excellent time to invest in biotech innovation at unprecedented low valuations.

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## Appendix

### BIOG Holdings As of 31 January 2025

	Market Price	Pct.		Market Price	Pct.		Market Price	Pct.
UNITED STATES	\$ Millions	Value	UNITED STATES	\$ Millions	Value		\$ Millions	Value
Emerging Biotechnology			Emerging Biotechnology (cont.)	20.7	5.0	Europe		
Agios Pharmaceuticals Inc	0.9	0.3	Neurocrine Biosciences Inc	20.7	5.8	Emerging Biotechnology		
Akero Therapeutics Inc	1.0	0.3	Nkarta Inc	1.9	0.5	ADC Therapeutics SA	3.6	1.0
Alnylam Pharmaceuticals Inc	22.3	6.2	PepGen Inc	0.5	0.1	Argenx SE	20.4	5.7
Alto Neuroscience Inc	1.1	0.3	Prelude Therapeutics Inc	0.4	0.1	Immatics NV	3.9	1.1
Amicus Therapeutics Inc	11.0	3.1	Repare Therapeutics Inc	0.1	0.0		27.9	7.8
Amylyx Pharmaceuticals Inc	1.3	0.4	Rhythm Pharmaceuticals Inc	7.6	2.1			
Avidity Biosciences Inc	13.4	3.7	Sarepta Therapeutics Inc	21.0	5.8	Europe Subtotal	27.9	7.8
Bicara Therapeutics Inc	0.8	0.2	Scholar Rock Holding Corp	6.1	1.7			
C4 Therapeutics Inc	6.1	1.7	Structure Therapeutics Inc	5.2	1.4	Far East		
CG oncology Inc	12.0	3.3	Tyra Biosciences Inc	8.4	2.3	Emerging Biotechnology		
Compass Therapeutics Inc	11.5	3.2	Vera Therapeutics Inc	10.4	2.9	Akeso Inc	9.0	2.5
Corbus Pharmaceuticals Holdin	n 3.9	1.1	Vir Biotechnology Inc	5.7	1.6	Gracell Biotechnologies Inc	0.5	0.1
Cullinan Therapeutics Inc	4.4	1.2	Xenon Pharmaceuticals Inc	12.8	3.6	InventisBio Co Ltd	0.5	0.2
Cytokinetics Inc	12.1	3.4		273.8	76.2	Keymed Biosciences Inc	1.5	0.4
Dyne Therapeutics Inc	6.1	1.7	UNITED STATES			LakeShore Biopharma Co Ltd	0.4	0.1
Edgewise Therapeutics Inc	7.4	2.1	Major Biotechnology			Mabwell Shanghai Bioscience	( 1.5	0.4
Engene Holdings Inc	2.6	0.7	Amgen Inc	5.5	1.5	New Horizon Health Ltd	1.1	0.3
Enliven Therapeutics Inc	0.9	0.3	Gilead Sciences Inc	43.8	12.2	OrbiMed Asia Partners	1.2	0.3
Exact Sciences Corp	4.1	1.1	Regeneron Pharmaceuticals Inc	4.1	1.1	Stemirna*	0.0	0.0
Fate Therapeutics Inc	0.9	0.2	Vertex Pharmaceuticals Inc	7.5	2.1	Suzhou Basecare Medical Corp	0.8	0.2
Forte Biosciences Inc	8.6	2.4		60.9	16.9	XtalPi Holdings Ltd	9.9	2.7
Geron Corp	6.2	1.7					26.3	7.3
Immunovant Inc	0.0	0.0	United States Total	334.7	93.1			
Insmed Inc	2.2	0.6				Far East Subtotal	26.3	7.3
Instil Bio Inc	2.6	0.7						
Ionis Pharmaceuticals Inc	17.8	4.9				International Total	54.2	15.1
Kezar Life Sciences Inc	1.2	0.3						
Korro Bio Inc	1.1	0.3				Cash	-29.4	-8.2
Krystal Biotech Inc	3.8	1.0						
Milestone Pharmaceuticals Inc	1.6	0.4				Total Portfolio	359.5	100.0

Note: securities with asterisks (\*) are unquoted

Mineralys Therapeutics Inc

4.2

1.2

### **Commercial vs Development Stage Biotech**

Pre-revenue companies have significantly underperformed their commercial peers

#### (31 March 2024 – 31 January 2025)



### Unprofitable Tech Has Declined Meaningfully



#### **Goldman Sachs Unprofitable 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 31 January 2025

### China Healthcare Near All-Time Lows

Innovation remains strong; recovery has yet to occur



Source: Bloomberg, OrbiMed Advisors Note: Chart updated from 30 June 2021 through 31 January 2025.

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## **Risk Management**

- Diversification across multiple parameters
  - Size and stage of company (large cap, mid cap, small cap); revenue versus pre-revenue
  - Geographical diversification (U.S., Europe, China)
  - Therapeutic area
  - Drug development technologies
- Prudent position sizing
  - Sizing depends on conviction level, liquidity of the stock, and risk/reward of the idea
  - We aim not to lose more than 100 basis points of performance on a single catalyst
  - Typical position sizes: 5-10% for large cap biotech, 1-3% for emerging biotech
  - Position sizes are actively managed to navigate the catalyst paths of emerging biotech stocks, so turnover is relatively high (~90%)
  - The fund regularly trades around positions (trimming high, adding low) to ensure position sizes appropriately reflect risk/reward, especially in advance of binary events
  - Volatility of biotech increases markedly as one descends in market cap
    - Average annual volatility of stock constituents of NASDAQ Biotech Index:

As of 31 January 2025	1 Std. Deviation
Large Cap (>\$10bn)	42.2
Mid Cap (\$2bn-10bn)	59.5
Small Cap (<\$2bn)	83.2

• Fund's emphasis on emerging biotech with stock-moving catalysts means turnover will likely remain high to manage risk appropriately

### Endnotes

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### Endnotes

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Where stated as "Net" or "TR" (or total return), the index return numbers include reinvestment of dividends net of withholding taxes, as calculated by the index provider.