BofA SECURITIES

US Biopharmaceuticals

Catalyst guidance changes set up for an eventful 2024

Industry Overview

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Equity
United States
Biopharmaceuticals

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2024 outlooks refine key 2024 catalysts

After broad corporate updates last week (see our conference reports for Day 1, Day 2, and Day 3 takeaways), we highlight key changes to anticipated catalysts timing, including earlier readouts from Agios' ENERGIZE-T and ACTIVATE-kidsT programs. We also note that previously undefined milestones, including completed enrollment for BridgeBio's achondroplasia program and Keros' KER-012 data update, add clarity to the anticipated progress for companies in our coverage. We outline the top 15 catalysts we are focused on in 2024 (see our Year Ahead report). We maintain all ratings and price objectives.

Exhibit 1: Catalyst Calendar Changes
Agios is prepared to announce multiple pivotal datasets earlier than previously announced, including the ENERGIZE-T and ACTIVATEkids-T programs.

Company	Asset	Indication	Event	New guidance	Previous guidance	Importance
Agios	Mitapivat	TDT	Phase 3 ENERGIZE-T data	mid-2024	2H24	High
Agios	Mitapivat	Pediatric PKD	Data from ACTIVATEkids-T	YE24	2025	High
Agios	PAH stabilizer	PKU	Initiate dosing	1H24	YE23	Low
Beam	BEAM-101	SCD	Expansion cohort initiation	1H24	undefined	Moderate
Beam	BEAM-201	T-ALL/T-LL	Initial data	2H24	2024	High
BridgeBio	Acoramidis	ATTR-CM	Anticipated FDA approval and launch	2H24	undefined	High
BridgeBio	low-dose infi	Achon.	Complete enrollment	1H24	undefined	Moderate
BridgeBio	low-dose infi	Achon.	Study completion	2025	undefined	High
BridgeBio	low-dose infi	hypochondroplasia	Clinical program initiation	2024	undefined	High
BridgeBio	BBP-418	LGMD2i	Complete enrollment	2024	undefined	Moderate
BridgeBio	Encaleret	ADH1	Phase 3 readout	early 2025	1H24	Moderate
BridgeBio	Gene therapy	CAH	Phase 2 data readout	3Q24	early 2024	High
BridgeBio	BBP-418	LGMD2i	FORTIFY topline data	1H25	late 24/ 2025	High
Editas	reni-cel	SCD/thal	Clinical update	YE24	undefined	High
Intellia	NTLA-2001	ATTR-CM	Dose patient in phase 3 trial	1Q24	new	Moderate
Intellia	NTLA-2001	ATTR	Present updated phase 1 data	2024	new	High
Intellia	NTLA-2002	HAE	Initiate a global pivotal phase 3 trial	2H24	3Q24	Moderate
Intellia	NTLA-2002	HAE	Present phase 1/2 data	2024	new	High
Intellia	NTLA-3001	AATD lung disease	Dose patient in phase 1 trial	2024	new	Low
Keros	KER-012	Chronic heart failure	Initial data from phase 2 trial	2H24	new	High
Keros	KER-012	PAH	Update on enrollment of TROPOS	1H24	new	Moderate
Keros	KER-050	MDS	Data from Ph2 part 2 MDS trial	2Q + 4Q24	mid-24	High
Keros	KER-050	MF	Additional data from Ph2 MF trial	2Q + 4Q24	mid-24	High
Keros	KER-065	Obesity/NM	Phase 1 proof of concept data	1Q25	new	High
Rocket	RP-L301	PKD	Pivotal phase 2 trial initiation	undefined	4Q23	Low
Travere	Sparsentan	IgAN	CHMP opinion	1Q24	YE23	High
Travere	Sparsentan	IgAN	Potential EMA decision	2Q24	YE23	High
United	Tyvaso	IPF	TETON 1/2 enrollment completion	YE24	undefined	Moderate

Source: BofA Global Research, company reports

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Exhibit 2: Full Catalyst Calendar

Our top catalysts for 2024 are outlined in our year ahead report, including the approval of BridgeBio's acoramidis, the anticipated launch of Liquidia's Yutrepia, and the phase 3 data from Agios' ENERGIZE-T trial.

Company	Asset	Indication	Event	Timing	Importance
Agios	Mitapivat	SCD	Phase 3 data	2025	High
Agios	AG-946	LR-MDS	Initiate phase 2b	mid-2024	Low
Agios	Mitapivat	TDT	Phase 3 ENERGIZE-T data	mid-2024	High
Agios	Mitapivat	Pediatric PKD	Data from ACTIVATEkids-T	YE24	High
Agios	Mitapivat	Pediatric PKD	Data from ACTIVATEkids	2025	High
Agios	PAH stabilizer	PKU	Initiate dosing	1H24	Low
Agios	Mitapivat	Thalassemia	File for regulatory approval	YE24	High
Alector	AL001	FTD	INFRONT-3 data	2025	High
Alector	AL002	Alzheimer's disease	AbbVie opt-in decision	early 2025	High
Alector	AL002	Alzheimer's disease	Topline phase 2 data	4Q24	High
Beam	BEAM-101	SCD	BEACON trial readout	2H24	High
Beam	BEAM-101	SCD	Expansion cohort initiation	1H24	Moderate
Beam	BEAM-201	T-ALL/T-LL	Initial data	2H24	High
Beam	BEAM-301	GSD1a	Regulatory filing	1H24	Low
Beam	BEAM-302	AATD	Trial initiation	1H24	Moderate
BridgeBio	Acoramidis	ATTR-CM	Global marketing authorization applications	2024	Moderate
BridgeBio	Acoramidis	ATTR-CM	Anticipated FDA approval and launch	2H24	High
BridgeBio	low-dose infigratinib	Achon.	LPI	1H24	Moderate
BridgeBio	low-dose infigratinib	Achon.	Study completion	2025	High
BridgeBio	low-dose infigratinib	hypochondroplasia	Clinical program initiation	2024	High
BridgeBio	BBP-418	LGMD2i	Complete enrollment	2024	Moderate
BridgeBio	Encaleret	ADH1	Phase 3 readout	early 2025	Moderate
BridgeBio	Gene therapy	CAH	Phase 2 data readout	3Q24	High
BridgeBio	BBP-418	LGMD2i	FORTIFY topline data	1H25	High
BridgeBio	BBO-8520	Oncology	IND filing	2024	Low
Editas	reni-cel	SCD/thal	Clinical update	mid-24	High
Editas	reni-cel	SCD/thal	Clinical update	YE24	High
IgM Bio	IGM-8444	CRC	Initial data of '8444 + FOLFIRI + bev	YE24	High
IgM Bio	IGM-8444	CRC	Enroll 110 patients	1Q24	Low
IgM Bio	IGM-2644	autoimmune indications	IND filing	2024	Low
Intellia	NTLA-2001	ATTR-CM	Dose patient in phase 3 trial	1Q24	Moderate
Intellia	NTLA-2001	ATTR	Present updated phase 1 data	2024	High
Intellia	NTLA-2002	HAE	Initiate a global pivotal phase 3 trial	2H24	Moderate
Intellia	NTLA-2002	HAE	Present phase 1/2 data	2024	High
Intellia	NTLA-3001	AATD lung disease	Dose patient in phase 1 trial	2024	Low
Keros	KER-050	MDS	Complete phase 2 TD enrollment	1H24	Low
Keros	KER-012	Chronic heart failure	Initial data from phase 2 trial	2H24	High
Keros	KER-012	PAH	Update on enrollment of TROPOS	1H24	Moderate
Keros	KER-050	MDS	Additional data from Ph2 part 2 MDS trial	2Q and 4Q24	High
Keros	KER-050	MF	Additional data from Ph2 MF trial	2Q and 4Q24	High
Keros	KER-065	Obesity/ neuromuscular	Phase 1 proof of concept data	1Q25	High
Liquidia	Yutrepia	PAH	Anticipated launch	2024	High
Liquidia	Yutrepia	PH-ILD	PDUFA	24-Jan-24	High
Liquidia	L606	PH-ILD	Initiate PH-ILD trial	1H24	Low
Mineralys	MLS-101	HTN	Topline data from phase 2 pivotal trial	2H24	High
Mineralys	MLS-101	CKD	Topline data from CKD profiling trial	4Q24/1Q25	High
Mineralys	MLS-101	HTN	Topline data from phase 3 pivotal trial	2H25	High
Rocket	RP-L201	LAD-1	PDUFA	31-Mar-24	High
Rocket	RP-L301	PKD	Pivotal phase 2 trial initiation	4Q23	Low
Rocket	RP-A501	Danon disease	Pivotal trial interim update	2024	High
Rocket	RP-L102	Fanconi anemia	BLA-MAA filing	1H24	High
Rocket	BAG3-association DCM	BAG3-DCM	IND filing	2024	Low
Travere	Sparsentan	IgAN	CHMP opinion	1Q24	High
Travere	Sparsentan	IgAN	Potential EMA decision	2Q24	High
Travere	Sparsentan	IgAN	sNDA filing	1Q24	High
Travere	Sparsentan	IgAN	Filspari + SGLT2i combo data and first line Filspari data	2024	Moderate
Travere	pegtibatinase	HCU	HARMONY topline data	2026	High
Tyra	TYRA-300	Achondroplasia	IND submission for phase 2 study	2H24	Low
United	Ralinepag	PAH	ADVANCE OUTCOMES study data	2025	High
United	Tyvaso	IPF	TETON 1 and 2 enrollment completion	YE24	Moderate
United	Tyvaso	IPF	TETON data	2025	High

Source: BofA Global Research, company reports

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Exhibit 3: Stocks mentioned
Prices and ratings for stocks mentioned in this report

BofA Ticker	Bloomberg ticker	Company name	Price	Rating
AGIO	AGIO US	Agios	US$ 21.94	C-1-9
ALEC	ALEC US	Alector	US$ 7.64	C-2-9
BEAM	BEAM US	Beam Therapeutics	US$ 25.10	C-2-9
BTAI	BTAI US	BioXcel	US$ 2.52	C-1-9
BBIO	BBIO US	BridgeBio Pharma	US$ 37.58	C-1-9
EDIT	EDIT US	Editas	US$ 8.83	C-2-9
IGMS	IGMS US	IGM Biosciences	US$ 9.53	C-2-9
NTLA	NTLA US	Intellia	US$ 26.76	C-1-9
KROS	KROS US	Keros	US$ 53.17	C-1-9
LQDA	LQDA US	Liquidia Corporation	US$ 12.38	C-1-9
MLYS	MLYS US	Mineralys	US$ 8.68	C-1-9
RCKT	RCKT US	Rocket Pharma	US$ 28.52	C-1-9
TVTX	TVTX US	Travere Therapeutics	US$ 8.90	C-1-9
TYRA	TYRA US	Tyra Biosciences	US$ 12.67	C-2-9
UTHR	UTHR US	United Therapeutics	US$ 218.72	B-3-9

Source: BofA Global Research

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Price objective basis & risk

Agios Pharmaceuticals (AGIO)

Our $49/share price objective is based on a probability-adjusted (40-100%) net present value (NPV) analysis of 1 commercial program and 2 programs under development. We use a weighted-average cost of capital (WACC) of 13%, similar to other commercial companies in our coverage universe and a -25% terminal growth rate. Given these assumptions, we estimate a value of $6/share for PKD, $18/share for thalassemia, $4/share for SCD, $7/share for Pyrukynd ex-US royalties, and $14/share for net cash.

Downside risks: 1) soft market uptake, 2) dangerous safety signals, 3) superior competitor data.

Alector, Inc (ALEC)

Our sum-of-the-parts NPV PO of $9 for Alector includes $1/sh for AL001 in FTD, $2/sh for AL002 in AD. The remaining value in our PO comes from cash. We use a 15% WACC and assume a -5% terminal growth rate.

Upside risks are 1) positive data from clinical-stage programs in FTD and AD, 2) potential accelerated path to approval from the FDA, and 3) positive data from early stage assets.

Downside risks are 1) failure to show benefits in target indications in clinical studies, 2) slower-than-expected enrollment for its pivotal studies, and 3) visibility need on pricing assumptions.

Beam Therapeutics (BEAM)

Our $35/share price objective is based on a probability adjusted (30%) NPV analysis of its primary program under development. We use a WACC of 15%, similar to other early-stage companies in our coverage universe and a -2% terminal growth rate.

Downside risks: 1) failure of early clinical trials, 2) dangerous safety signals, 3) superior competitor data, 4) soft market uptake.

BioXcel Therapeutics (BTAI)
Our $9 PO is based on a sum-of-the-parts valuation. We assume a 13% discount rate for each of the programs and a likelihood of success (PoS) of 100% for BXCL501 for both of the schizophrenia (approved) and bipolar disorder (approved) indications, and 25% for dementia (phase 3). Given this, we ascribe $6/share for BXCL501 and net cash of $3/share.

Downside risks: 1) failure of clinical trials, 2) limited commercial uptake, 3) limited formulary access due to pricing.

BridgeBio Pharma (BBIO)
Our net present value (NPV) sum-of-the-parts valuation gives a price objective of $50/share for BridgeBio, which includes $34/share for acoramidis, $3/share for ribitol in LGMD2i, $11/share for infigratinib in achondroplasia, $5/share for encaleret, $5/share for CAH gene therapy, and -$8/share in net cash. We assume a weighted-average cost of capital (WACC) of 15% and terminal growth rates ranging from -50% to 0%.

Downside risks to our price objective are 1) clinical trial failures, 2) inability to raise capital to fund development programs, and 3) superior data from competitors.

Upside risks to our price objective are 1) stronger-than-expected uptake in infigratinib, 2) unexpected de-risking data for early programs, and 3) clinical trial failures from competing companies.

Editas Medicine (EDIT)
Our $15 share price objective is based on a probability adjusted (50%) net present value (NPV) analysis of, EDIT-301 in SCD/TDT ($6/share), $1/sh on royalties, $2/share in platform value, and net cash ($6/share). We use a weighted-average cost of capital (WACC) of 15%, similar to other early-stage companies in our coverage universe and a -2% terminal growth rate.

Upside risks: higher-than-anticipated uptake of approved products, better-than-expected clinical trial results.

Downside risks: unexplained safety signals, clinical trial failures, and strong data from competitors.

IGM Biosciences (IGMS)
Our price objective of $9.50 is based on a probability adjusted (10-20%) NPV analysis of IGM-2323 in SLE/RA ($3/sh), IGM-8444 in mCRC ($4/sh), and discounted net cash ($2/sh). We use a WACC of 15% similar to other early-stage companies in our coverage universe and a -2% terminal growth rate.

Upside risks are better than expected data in clinical programs including better efficacy or safety in IGM-2323 compared to other companies, which could lead to higher than expected usage if approved. Also positive clinical trial results in clinical and preclinical programs.

Downside risks are unexpected safety signals, clinical trial failures, and competitors releasing stronger data.

Intellia Therapeutics (NTLA)
Our $80 share price objective is based on a probability adjusted (60-75%) net present value (NPV) analysis of NTLA-2001 in ATTR ($50/share), NTLA-2002 in HAE ($12/share),

platform value ($8/share) and net cash ($10/share). We use a weighted average cost of capital (WACC) of 15% similar to other clinical-stage companies in our coverage universe and a -2% terminal growth rate.

Downside risks: unexpected safety signals, clinical trial failures, and strong data from competitors.

Keros (KROS)
Our $66/share price objective is based on a probability adjusted (20%-50%) net present value (NPV) analysis of its program under development. We use a weighted-average cost of capital (WACC) of 15%, similar to other early-stage companies in our coverage universe, and a terminal growth rate of -5%. Given these assumptions we estimate a value of $38/sh for KER-050 in MDS, $3/sh for KER-050 in MF, $6/sh in KER-050 royalties, $10/sh in KER-012, and $9/sh in net cash.

Upside risks are better than expect data in clinical trials including MDS/MF patients treated with KER-050 which could lead to higher than anticipated usage if approved.

Downside risks are unexpected safety signals, clinical trial failures, and competitors releasing stronger data.

Liquidia Corporation (LQDA)
Our $15/share price objective is based on an net present value (NPV) analysis of Yutrepia ($12/share), collaboration revenues ($2/share), and net cash ($1/share). We use a weighted average cost of capital (WACC) of 13%, in line with similar companies in our coverage universe and a -50% terminal growth rate.

Downside risks: 1) additional competition in the market, 2) delayed full approval of Yutrepia.

Upside risk: 1) higher-than-expected uptake of Yutrepia once approved

Mineralys Therapeutics (MLYS)
Our $36/share price objective is based on a probability adjusted (50%) net present value (NPV) analysis of its programs under development. We use a weighted-average cost of capital (WACC) of 15%, similar to other early-stage companies in our coverage universe, and a terminal growth rate of -50%. Given these assumptions we estimate a value of $30/share for lorundrostat in HTN and $6/share in net cash.

Upside risks are better than expected data in clinical programs which could lead to higher than anticipated usage if approved.

Downside risks are unexpected safety signals, clinical trial failures, and competitors releasing stronger data.

Rocket Pharmaceuticals, Inc. (RCKT)
Our $37/share price objective is based on a probability-adjusted (35%-90%) net present value (NPV) analysis of its four programs under development. We use a weighted-average cost of capital (WACC) of 15%, similar to other early-stage companies in our coverage universe, and terminal growth rate of -2%. Given these assumptions, we estimate a value of $9/share for RP-L102 (Fanconi anemia), $21/share for RP-A501 (Danon disease), $2/share for RP-L201 (LAD-1), $1/share for RP-L301 (PKD), and $4/share in net cash.

Risks: 1) failure of early clinical trials, 2) emergence of unacceptable safety signals, 3) shorter efficacy duration than expected, and 4) commercialization failures.

Travere Therapeutics Inc (TVTX)
Our $23 PO is based on a sum-of-the-parts NPV analysis. Using a 13% WACC, we model $2/share in bile acid portfolio milestones, $3/share for Thiola, $13/share for sparsentan, $1/share for pegtibatinase, and $3/share net cash.
Risks are 1) regulatory risk, 2) competitive entrants, 3) lower-than-expected sparsentan uptake, 4) insurance or pricing concerns

Tyra Biosciences (TYRA)
Our $15/share price objective is based on a probability-adjusted adjusted SOTP NPV of TYRA-300 ($1/sh), TYRA-200 ($2/sh), RET inhibitor program ($4/sh), and potential for contribution from additional pipeline programs including achondroplasia and FGFR4 ($5/sh), with net cash contributing $5/sh, which rounds to $15/sh. We apply a WACC of 15% for each program, and terminal growth rate of -40%, reflecting the programs' early stages in development and potential for genericization after patent expiration.

Downside risks: 1) initial clinical data for pipeline programs fail to demonstrate a meaningful benefit in patients, 2) pipeline therapies fail to differentiate from similar competing products, 3) regulatory/reimbursement environment weighs on commercial economics, 4) unexpected safety concerns.

United Therapeutics Corporation (UTHR)
Our 12-month price objective for United of $178/share is based on our net present value (NPV) analysis. We forecast sales for each of the approved products, Remodulin, Tyvaso, Orenitram, Adcirca, and Unituxin. We assume a WACC of 13%, in line with peer commercial companies of similar size and risk and varying terminal values for each asset based on its characteristics and patent life. Given these assumptions, we estimate a value of $18/share for Remodulin, $57/share for Tyvaso, $12/share for Orenitram, $6/share Unituxin, $1/share for the pipeline, and $83/share for net cash.

Upside risks: 1) better-than-expected PAH sales despite generic and branded competition, 2) successful launch of next-generation Remodulin and Tyvaso delivery devices near-term that meaningfully improves growth, 3) robust uptake of Orenitram following the updated FREEDOM-EV label, 4) stabilizing or improving gross to net adjustments, and 5) success of a number of pipeline programs, resulting in accelerated approval, development, and commercialization.

Downside risks: 1) faster-than-expected erosion of sales across the commercial portfolio due to generics or branded competition, with similarly increasing gross-to-net adjustments, 2) efforts to launch a next-generation drug delivery device may experience further setbacks, delaying their launches, and 3) other development programs, including those evaluating the portfolio in other categories of PH, may experience limited success.

Analyst Certification

I, Greg Harrison, CFA, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

US - Biopharmaceuticals Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	89bio, Inc	ETNB	ETNB US	Geoff Meacham
	Acumen Pharma	ABOS	ABOS US	Geoff Meacham
	Agios Pharmaceuticals	AGIO	AGIO US	Greg Harrison, CFA
	Amylyx Pharmaceuticals	AMLX	AMLX US	Geoff Meacham
	BioMarin	BMRN	BMRN US	Geoff Meacham
	BioXcel Therapeutics	BTAI	BTAI US	Greg Harrison, CFA
	BridgeBio Pharma	BBIO	BBIO US	Greg Harrison, CFA
	Caribou	CRBU	CRBU US	Geoff Meacham
	CRISPR Therapeutics	CRSP	CRSP US	Geoff Meacham
	Eli Lilly and Company	LLY	LLY US	Geoff Meacham
	Gilead Sciences Inc.	GILD	GILD US	Geoff Meacham
	HUTCHMED	HCM	HCM US	Alec W. Stranahan
	Immatics	IMTX	IMTX US	Alec W. Stranahan
	Insmed Incorporated	INSM	INSM US	Jason Zemansky
	Intellia Therapeutics	NTLA	NTLA US	Greg Harrison, CFA
	Janux Therapeutics	JANX	JANX US	Geoff Meacham
	Keros	KROS	KROS US	Greg Harrison, CFA
	Kiniksa Pharmaceuticals, Ltd.	KNSA	KNSA US	Geoff Meacham
	Krystal Biotech	KRYS	KRYS US	Alec W. Stranahan
	Kura Oncology	KURA	KURA US	Jason Zemansky
	Liquidia Corporation	LQDA	LQDA US	Greg Harrison, CFA
	Lyell Immunopharma	LYEL	LYEL US	Geoff Meacham
	MeiraGTx	MGTX	MGTX US	Alec W. Stranahan
	Merck & Co.	MRK	MRK US	Geoff Meacham
	Mineralys Therapeutics	MLYS	MLYS US	Greg Harrison, CFA
	Neumora Therapeutics	NMRA	NMRA US	Geoff Meacham
	Rani Therapeutics	RANI	RANI US	Geoff Meacham
	Regenxbio, Inc.	RGNX	RGNX US	Alec W. Stranahan
	Revolution Medicines	RVMD	RVMD US	Alec W. Stranahan
	Rocket Pharmaceuticals, Inc.	RCKT	RCKT US	Greg Harrison, CFA
	Royalty Pharma	RPRX	RPRX US	Geoff Meacham
	Sana Biotechnology	SANA	SANA US	Geoff Meacham
	SpringWorks	SWTX	SWTX US	Alec W. Stranahan
	Syndax Pharmaceuticals	SNDX	SNDX US	Jason Zemansky
	Travere Therapeutics Inc	TVTX	TVTX US	Greg Harrison, CFA
	Turnstone Biologics	TSBX	TSBX US	Geoff Meacham
	Vertex Pharmaceuticals Inc.	VRTX	VRTX US	Geoff Meacham
	Werewolf Therapeutics	HOWL	HOWL US	Jason Zemansky
	Xencor	XNCR	XNCR US	Alec W. Stranahan
NEUTRAL				
	AbbVie	ABBV	ABBV US	Geoff Meacham
	Alector, Inc	ALEC	ALEC US	Greg Harrison, CFA
	Amgen Inc.	AMGN	AMGN US	Geoff Meacham
	Arcus Biosciences	RCUS	RCUS US	Jason Zemansky
	Beam Therapeutics	BEAM	BEAM US	Greg Harrison, CFA
	Biogen Inc.	BIIB	BIIB US	Geoff Meacham
	Bristol-Myers Squibb	BMY	BMY US	Geoff Meacham
	Cytokinetics, Incorporated	CYTK	CYTK US	Jason Zemansky
	Editas Medicine	EDIT	EDIT US	Greg Harrison, CFA
	Erasca	ERAS	ERAS US	Alec W. Stranahan
	Esperion	ESPR	ESPR US	Jason Zemansky
	Exscientia	EXAI	EXAI US	Alec W. Stranahan
	IGM Biosciences	IGMS	IGMS US	Greg Harrison, CFA
	Johnson & Johnson	JNJ	JNJ US	Geoff Meacham
	Kymera Therapeutics	KYMR	KYMR US	Geoff Meacham
	Moderna	MRNA	MRNA US	Geoff Meacham
	Pfizer	PFE	PFE US	Geoff Meacham
	Recursion Pharmaceuticals, Inc.	RXRX	RXRX US	Alec W. Stranahan
	Tyra Biosciences	TYRA	TYRA US	Greg Harrison, CFA
	Vir	VIR	VIR US	Geoff Meacham
	Y-mAbs Therapeutics, Inc	YMAB	YMAB US	Alec W. Stranahan
UNDERPERFORM				
	AlloVir, Inc.	ALVR	ALVR US	Jason Zemansky

US - Biopharmaceuticals Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	CureVac	CVAC	CVAC US	Geoff Meacham
	Day One Biopharmaceuticals	DAWN	DAWN US	Alec W. Stranahan
	LianBio	LIAN	LIAN US	Geoff Meacham
	Novavax	NVAX	NVAX US	Alec W. Stranahan
	Regeneron Pharmaceuticals Inc.	REGN	REGN US	Geoff Meacham
	Reneo Pharmaceuticals	RPHM	RPHM US	Jason Zemansky
	TG Therapeutics	TGTX	TGTX US	Alec W. Stranahan
	United Therapeutics Corporation	UTHR	UTHR US	Greg Harrison, CFA

Disclosures

Important Disclosures

Equity Investment Rating Distribution: Health Care Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships [R1]	Count	Percent
Buy	234	60.94%	Buy	115	49.15%
Hold	80	20.83%	Hold	36	45.00%
Sell	70	18.23%	Sell	29	41.43%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships [R1]	Count	Percent
Buy	1895	53.62%	Buy	1083	57.15%
Hold	832	23.54%	Hold	454	54.57%
Sell	807	22.84%	Sell	383	47.46%

[R1] Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. VOLATILITY RISK RATINGS, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. INVESTMENT RATINGS reflect the analyst's assessment of both a stock's absolute total return potential as well as its attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). Our investment ratings are: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperform stocks are the least attractive stocks in a coverage cluster. An investment rating of 6 (No Rating) indicates that a stock is no longer trading on the basis of fundamentals. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster[R2]
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

[R2]Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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