

US Biopharmaceuticals

Thoughts on remaining 4Q23 SMid
Biotech updates

Price Objective Change

Revisiting SMid Biotech names in our coverage

Over the last few months, the broader SMid cap biotech space has been dynamic as investors look to reassess investment risks amidst potential interest rate cuts in 2024 and increased deal activity (see [our note on Biopharma BD capacity](#)). We highlight changes to Caribou (CRBU) below following 4Q financial results, where we reiterate our Buy rating and lower our PO to \$17 from \$20. We also preview thoughts on our remaining SMid companies that have yet to report, Turnstone (TSBX) and Acumen (ABOS). On Turnstone, we are lowering our PO to \$13 from \$15 ahead of 4Q results; see below for more details on the change. On Acumen, we anticipate quiet 4Q results, which the company will report by April. Overall, while we don't expect any major updates from Acumen, we would note that the Alzheimer's space has been challenged as of late following Lilly's donanemab CRL (see [our note on the CRL](#)) and persistent pushback against Biogen's Leqembi pricing, benefit/risk profile, and barriers to patient diagnosis/treatment.

Caribou: Maintain Buy, lower PO to \$17 (from \$20)

CRBU has been pressured (YTD: -6%; NBI +0%) since reporting 2023 financial and operating results earlier this week, which included updates on pipeline reprioritization and a potential delay to the CB-010 pivotal trial initiation (previously, YE24 was expected). That said, our view is that the >30% decline in CRBU shares observed following 4Q results was unexpected and may have been an overcorrection to the recent Biotech rally. The company continues to make good progress on its lead clinical programs, disclosing that the 30th patient has been dosed in the CB-010 ANTLE phase 1 dose expansion trial. Furthermore, Caribou has refined timelines, guiding to initial dose expansion data and recommended phase 2 dose (RP2D) in 2Q24. Separately, the company remains on track to report initial interim phase 1 CB-011 (CaMMouflage study) and phase 1 CB-012 (AMpLify study) data in 2024. We'd note that the CB-020 (allogeneic anti-ROR1 CAR-NK cell therapy) program has been discontinued due to unfavorable preclinical data, but neither -020 nor the CAR-NK program were a major component of our Buy thesis. Discontinuation of CB-020 extends Caribou's remaining cash runway of >\$372M to 1Q26 (compared to prior 4Q25). While we reiterate Buy on CRBU, we are removing CB-020 forecasts (\$3/sh), lowering our PO to \$17 (from \$20).

Turnstone: Maintain Buy, lower PO to \$13 (from \$15)

Despite expectations for renewed interest in TIL therapy following approval of Iovance's Amtagvi (see [our read-through note on the approval](#)), TSBX shares have been range-bound and continue to trade just slightly above cash (\$3/sh). We think skepticism over the pricing of Amtagvi and remaining manufacturing challenges has led to mixed responses about commercial prospects of TIL therapy in melanoma. Looking ahead, though we don't expect many surprises from 4Q23 financial results, we suspect that the company will soon need to revisit its OpEx spend and pipeline investments ahead of mid-year data for TIDAL-01 to extend its cash runway. While we continue to like Turnstone's differentiated TIL platform and reiterate our Buy rating, we are lowering our PO to \$13 from \$15 as a result of decreasing our sales estimates in melanoma and assigning less value for the pipeline. We expect Turnstone will report financial results within the next few weeks.

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Exhibit 1: BofA PO changes

Changes to our PO in this report

Ticker	New PO	Old PO
TSBX	\$13	\$15
CRBU	\$17	\$20

Source: BofA Global Research

BofA GLOBAL RESEARCH

See abbreviations beginning page 2.

Exhibit 2: BofA EPS Estimate Changes

We summarize our updated EPS numbers with this report

Company	Ticker	Rating	Updated earnings		Previous earnings		Changes to our model
			2024e	2025e	2024e	2025e	
Caribou	CRBU	Buy	-\$1.60	-\$1.70	-1.75	-1.85	Updated OpEx following CB-020 discontinuation
Turnstone	TSBX	Buy	-\$3.05	-\$2.65	-\$3.30	-\$3.44	Updated TIDAL-01 melanoma sales and share count

Source: BofA Global Research

BofA GLOBAL RESEARCH

Abbreviations:

FDA: Food and Drug Administration
 CAR-T: chimeric antigen receptor T-cell
 CAR-NK: chimeric antigen receptor natural killer cell
 IND: investigational new drug
 ALL: Adult acute lymphoblastic leukemia
 CLL: Chronic lymphocytic leukemia
 AML: acute myeloid leukemia
 1L: first-line
 ROR1: receptor tyrosine kinase-like orphan receptor 1
 r/r: relapsed and refractory
 TIL: tumor infiltrating lymphocyte
 CRL: complete response letter
 TIL: tumor infiltrating lymphocytes
 BD: business development

Exhibit 2: Stock Mentioned

Stock prices and ratings mentioned in this report

BofA Ticker	Bloomberg ticker	Company name	Price	Rating
ABOS	ABOS US	Acumen	US\$ 4.18	C-1-9
CRBU	CRBU US	Caribou	US\$ 5.37	C-1-9
TSBX	TSBX US	Turnstone	US\$ 3.32	C-1-9

Source: BofA Global Research

BofA GLOBAL RESEARCH

Price objective basis & risk

Acumen Pharma (ABOS)

We use a sum-of-the-parts NPV model to value Acumen shares based on our risk-adjusted revenue forecasts and estimated margin assumptions. Our \$14 price objective gives credit to the company's lead clinical candidate ACU193 through 2040 using a 18% WACC and a 25% probability of success.

Downside risks to our PO are 1) unanticipated safety concerns in initial clinical studies, 2) clinical trial failures / limited efficacy results given preclinical nature of current data, 3) greater-than-expected competitive threats & changes to regulatory environment, 4) delays in pipeline development timelines, and 5) financial risks due to cash availability.

Upside risks to our PO are 1) positive initial data sooner than expected, 2) potential partnerships with more established Biopharma to help de-risk the MOA, 3) more rapid advancement through the clinic and earlier commercial launch timelines, and 4) favorable regulatory updates for competitor assets.

Caribou (CRBU)

Our \$17/share price objective is based on a probability adjusted NPV of CB-010 (\$5/sh), CB-011 (\$4/sh), CB-012 (\$3/sh), pipeline / partnerships, and cash. We apply a WACC of 11-13% and 3% terminal growth rate, which is comparable to our valuation methodology for other biotech companies of similar size and stage of clinical development.

Downside risks: 1) initial clinical data for pipeline programs fails 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) patent litigation invalidates or otherwise undermines the IP portfolio, 5) funding is insufficient to move forward pipeline aspirations or manufacturing buildout.

Turnstone Biologics (TSBX)

Our 12-month PO of \$13 is based on a probability adjusted SOTP NPV of TIDAL-01 in melanoma (\$6/sh), other solid tumors, primarily breast / CRC / uveal melanoma (\$4/sh), and the remaining from pipeline and cash (\$3/sh). We apply a midpoint WACC of 15% (13-17%) and -10% terminal growth rate, which is comparable to our valuation methodology for other biotech companies of similar size and stage of clinical development.

Upside risks to our PO: 1) Lifileucel enjoys a broad label following approval, supporting robust coverage and uptake with positive read-through to the TIL space, 2) TIDAL-01 phase 1 trials enroll faster than expected and data readout comes prior to mid-2024, 3) breakthrough in TIDAL-02 or other pipeline programs, 4) business development contributes non-dilutive funding, 5) improvements in manufacturing bring down costs sooner, and 6) clinical data from the phase 1 TIDAL-01 trials are better than expected.

Downside risks to our PO: 1) Failure of lifileucel to receive accelerated approval in advanced refractory melanoma, 2) delays in TIDAL-01 clinical development, 3) cash balance is insufficient to fund TIDAL-01 clinical development through initial data mid-



2024, 4) manufacturing and/or supply chain issues prevent production of selected TIL products, and 5) phase 1 TIDAL-01 clinical trials do not support continued development.

Analyst Certification

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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
	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	Alec W. Stranahan
	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
	Traverse 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
	Amylyx Pharmaceuticals	AMLX	AMLX 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	BMJ	BMJ 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
	Kymira Therapeutics	KYMR	KYMR US	Geoff Meacham
	Moderna	MRNA	MRNA US	Geoff Meacham
	Pfizer	PFE	PFE US	Geoff Meacham
	Recursion Pharmaceuticals, Inc.	RXR	RXR US	Alec W. Stranahan
	Tyra Biosciences	TYRA	TYRA US	Greg Harrison, CFA
	Vir	VIR	VIR US	Alec W. Stranahan
	Y-mAbs Therapeutics, Inc	YMAB	YMAB US	Alec W. Stranahan
UNDERPERFORM				
	AlloVir, Inc.	ALVR	ALVR US	Jason Zemansky



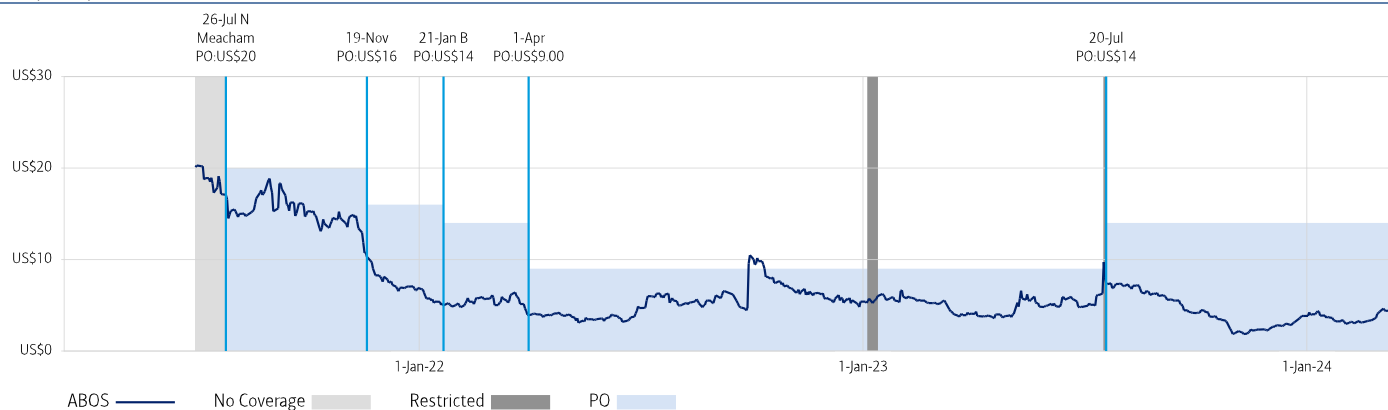
US - Biopharmaceuticals Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	CureVac	CVAC	CVAC US	Geoff Meacham
	Day One Biopharmaceuticals	DAWN	DAWN US	Alec W. Stranahan
	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

Acumen (ABOS) Price Chart



The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of a date no more than one trading day prior to the date of the report.

Caribou (CRBU) Price Chart



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Turnstone (TSBX) Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

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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.

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Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

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