BofA SECURITIES

Biotechnology

4Q23 SMid-cap Biotech earnings: ARVN, DNLI, FATE, FDMT, FULC, PEPG and PRTA

Price Objective Change

We highlight key takeaways from 4Q23 earnings and updates from our SMID-cap biotech names including Arvinas (ARVN), Denali Therapeutics (DNLI), Fate Therapeutics (FATE), 4D Molecular Therapeutics (FDMT), Fulcrum (FULC), PepGen (PEPG) and Prothena (PRTA).

ARVN: Evaluating vep' combo options in 1L mBC

Arvinas (ARVN, Buy, $55 PO) reported 4Q23 R&D and G&A of $95.2mn and $27mn, respectively. On vepdegestrant (vep') in metastatic breast cancer (mBC), ARVN guides to continuing to enroll patients for the safety lead-in portion of the phase 3 VERITAC-3 palbociclib (palbo) combo trial in 1L mBC. However, as discussed during our recent ARVN management dinner, the company is exploring options other than a palbo combo with a recent focus on partner Pfizer's new CDK4i, PF-07220060 (see our dinner takeaways note). We note Pfizer is especially motivated given palbo's upcoming loss of exclusivity in 2027. The partners initiated a dose escalation combo study with the goal being to generate as much data before deciding on which approach to bring forward in a pivotal phase 3 1L mBC study. While we normally would view such a late change to a program's development plan as a negative, we view this decision positively given our KOLs (key opinion leaders) have highlighted ribociclib (ribo) has quickly become the CDK4/6i of choice given its added overall survival benefit. Our KOLs expressed mixed enthusiasm for a palbo combo option despite the impressive early results for vep' presented at SABCS 2023 (breast cancer conference), noting higher interest in ribo or other novel combo approaches (see our SABCS takes note). As such, we look for additional color on the clinical profile of vep' + PF-07220060 combo as we await a final development plan (expected around year-end). We reiterate our Buy rating.

Other takeaways from the 4Q update include: 1) initial progression free survival (PFS) data for ARV-766 in metastatic castration-resistant prostate cancer (mCRPC) is expected mid-24. ARVN also guides to initiating regulatory discussions in 2Q for phase 3 trial design alignment, 2) phase 2 VERITAC-2 vep' monotherapy trial is expected to complete enrollment in 2H24, 3) recently initiated a phase 1 healthy volunteer study for ARV-102 (LRRK PROTAC; neuroscience) with enrollment ongoing, 4) planned initiation of a phase 1 healthy volunteer study for ARV-393 (BCL6 PROTAC; B-cell malignancies) in 1H24, 5) expectation to file 2 INDs for a KRAS PROTAC and an undisclosed PROTAC around year-end, and 5) Chief Financial Officer (CFO), Sean Cassidy, resigned with Randy Teel (current senior vice president of corporate and business development) appointed as interim CFO.

In our DCF-based model, we roll the quarter, update for 4Q23 results, cash and share count, and tweak operating expenses in-line with recent trend. We add $400mn in pipeline value for recent/upcoming phase 1 initiations for ARV-102 and ARV-393. We continue to view the company's protein degrader platform as differentiated in the space with potential for broad therapeutic applicability. We now model a total pipeline plug of $2.4bn (prev. $2bn). These changes result in our new $55 PO (prev. $50).

See inside for DNLI, FATE, FDMT, FULC, PEPG and PRTA

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Biotechnology

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Exhibit 1: PO changes
Summary of PO changes in this report

Ticker	Previous	Current
ARVN	$50	$55
DNLI	$29	$24
FULC	$4.5	$5
PEPG	$21	$19
PRTA	$38	$34

Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

Refer to important disclosures on page 9 to 12. Analyst Certification on page 8. Price Objective Basis/Risk on page 5.
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Timestamp: 11 March 2024 05:00AM EDT

DNLI: COMPASS and HEALEY enrollment to finish in 2024

Denali (DNLI, Buy, $24 PO) reported FY23 R&D and G&A expenses of $107.8mn and $24.7mn, respectively, and provided and overview of the pipeline for 2024. On DNL310 (tividenofusp alfa) for Hunter Syndrome (HS), the company highlighted additional interim data from the open-label phase 1/2 trial presented at the 2024 WORLDSymposium including follow up of up to 104 weeks. The data continued to show encouraging responses based on biomarker data including cerebrospinal fluid (CSF) heparan sulfate and neurofilament light (NfL) which correlate with improvements or stabilization on several key measures including cognition, adaptive behavior, and hearing. Enrollment in the phase 2/3 COMPASS trial is expected to complete in 2024. We highlight the company recently participated in a workshop organized by the Regan-Udall Foundation for the FDA aiming to present the case for the use of CSF heparan sulfate as a relevant biomarker to support accelerated approval in neuronopathic mucopolysaccharidoses including HS. We note management has commented their base case is that they will need the full COMPASS dataset to apply for approval, but we will look for any new color on their interactions with FDA and any potential path forward for accelerated approval.

The company also noted the phase 2 HIMALYA trial evaluating SAR443820/DNL788 in amyotrophic lateral sclerosis (ALS) being conducted by partner Sanofi did not meet the primary endpoint. The data is expected at a future scientific forum. Sanofi continues development of DNL788 in multiple sclerosis and DNL758 in ulcerative colitis. On DNL343, an eIF2B (eukaryotic translation initiation factor 2B) activator, enrollment in the phase 2/3 HEALEY trial in ALS is expected to complete in 2024. On BIIB122/DNL151, the company noted Biogen continues to advance the phase 2b LUMA study and announced a collaboration and development funding agreement with a third part for a global phase 2a trial involving funding of $75mn. Additionally, the company noted the phase 1/2 trial evaluating DNL126 in Sanfilippo Syndrome type A has initiated with initial biomarker and safety data expected by YE. We remain encouraged by DNLI's differentiate platform with potential in several neurologic indications and await further updates to provide clinical validation. We reiterate our Buy with new $24 PO (prev. $29).

In our DCF-based model, we update for FY23 results, cash and share count, and include the recent private investment in public equity (PIPE) financing of $500mn. We also assume a more conservative stance on DNL343 in ALS as we look for additional clinical validation for the program and lower our peak penetration estimates to 20% (prev. 40%). We also adjust our op ex assumptions based on company guidance. These changes result in our new $24 PO.

FATE: No timelines but pipeline updates expected in 2024

Fate Therapeutics (FATE, Underperform, $2 PO) reported 4Q23 R&D and G&A of $49.8mn and $31.8mn, respectively. Management highlights they are expanding their iPSC (induced pluripotent stem cell) platform beyond oncology, exploring opportunities in the autoimmunity space. Specifically, the company expects to initiate a phase 1 safety and pharmacokinetics study for FT819 (CD19 iPSC-derived T cell) in systemic lupus erythematosus later this year. We note there has been a lot of excitement about the potential for CD19 CAR-T cell therapies in autoimmune diseases following a recently published case series report. The study reported that in 8/8 severe systemic lupus erythematosus (SLE) patients treated with a single infusion of CD19 CAR T-cells had complete resolution of disease symptoms 2-years after treatment. As such, FATE and multiple other CAR T focused companies have refocused their pipeline to include a CD19 CAR T program in SLE or other autoimmune diseases. While we think the CD19 CAR T approach in autoimmunity is somewhat validated by the case series, we highlight the space has quickly become crowded with multiple competitors further ahead or at similar development timelines. Additionally, we maintain the view that FATE's platform has yet to be clinically validated especially on the manufacturing front. Therefore, we think it is unclear to accurately determine the value add of the program. We look for additional clarity on the program in future updates and will also survey KOL (key opinion leaders) to

understand how FATE compares to other programs in the space. On the rest of the pipeline, management notes all programs are ongoing and expects to provide several updates in 2024 but timing is unclear. In our DCF-based model, we roll the quarter, update for 4Q results, cash and share count and tweak operating expenses in-line with trend. We reiterate our Underperform with $2 PO as we continue to look for clarity on pipeline program timelines.

FDMT: Updates across 3 lead franchises in 2024

4D Molecular Therapeutics (FDMT, Buy, $82 PO) reported FY23 R&D and G&A expenses of $97mn and $36mn, respectively. The company highlighted recent positive data from the phase 2 PRISM study evaluating 4D-150 in wet age-related macular degeneration (wAMD) showing up to 89% injection rate reduction at week 24 and an encouraging safety profile (see our Feb 7 note). The company expects to present data from the population expansion cohort (N=32, milder patients) in 3Q and anticipates initiating a phase 3 trial in wAMD in 1Q25 with an update on the registrational program plan expected in 3Q. Additionally, an interim update at week 24 from the phase 2 SPECTRA trial evaluating '150 in diabetic macular edema (DME) is expected in 2H. Management has commented they are confident in a positive outcome in DME given historical readthrough from wAMD to DME and noted the trial is evaluating the same 2 dose levels studied in wAMD. Additional near-term catalysts for the ophthalmology franchise include initiation of a phase 1 trial for 4D-175 in geographic atrophy in 2H and an update from the choroideremia and X-linked retinitis pigmentosa programs in 2024. On the pulmonology franchise, the company plans to provide an update on feedback from FDA on their development plan for 4D-710 in cystic fibrosis as monotherapy and in combination with modulators in 1Q and present an interim update from the phase 1/2 AEROW trial in mid-24. An update on 4D-725 in alpha-1 antitrypsin (A1AT) deficiency lung disease is also expected in 2024. On the cardiology franchise, the company reiterated they expected to submit the non-human primate safety data evaluating the conditioning regimen with rituximab/sirolimus for 4D-310 in Fabry disease in 2Q. Management also highlighted the recent collaborations with Astellas for rare monogenic retinal disease and Arbor Biotechnologies for gene editing in the central nervous system, which will help expand the pipeline. We remain encouraged by the positive early data in wAMD supporting a differentiated profile and potential for a large commercial opportunity. In our DCF-based model, we update for FY23 results, cash and share count and adjust our op ex assumptions based on recent trend. We reiterate our Buy with $82 PO.

FULC: Focus on phase 3 FSHD data in 4Q24

Fulcrum Therapeutics (FULC, Underperform, $5) reported 4Q23 R&D and G&A of $19mn and $9.9mn, respectively. Management continues to guide to phase 3 REACH topline data for losmapimod in facioscapulohumeral muscular dystrophy (FSHD) in 4Q24. FSHD is the second most common adult muscular dystrophy affecting roughly 30K individuals in the US with no currently approved therapies. FULC notes the trial overenrolled 260 FSHD patients and is 96% powered to show a 10% placebo difference in the primary endpoint, reachable workspace (RWS). We plan to survey KOLs ahead of the readout to better understand the RWS endpoint as well as potential commercial opportunity. If the readout is positive, management expects to file an NDA (New Drug Application) in 2025 with the expectation to launch in the US by themselves and look for an appropriate partner for an ex-US launch. We note losmapimod has a first-to-market path with the nearest competitor Roche several years behind. On pociredir in sickle cell disease, management announced several clinical trials have been activated for the phase 1b trial following FDA clinical hold resolution in August 2023. However, FULC has not elected to provide timeline guidance on when to next expect a program update. Recall, the trial eligibility/exclusion criteria were amended to focus on a more severe sickle cell disease (SCD) population (~7.5-10K US population). We continue to look for color on the more narrowed SCD patient population given our maintained view that additional patient identification efforts will likely be needed. In our DCF-based model, we roll the quarter,

update for 4Q results, and tweak operating expenses in line with recent trend. We reiterate our Underperform with new $5 PO (prev. $4.50) as we look for additional clarity on pipeline opportunity.

PEPG: Preliminary phase 2 DMD data expected mid-2024

Pepgen (PEPG, Buy, $19 PO) reported 4Q23 R&D and G&A of $16.3mn and $4.5mn, respectively. Management announced the PGN-EDO51 5mg/kg dose cohort in the CONNECT1-EDO51 phase 2 program in Duchenne muscular dystrophy (DMD) has completed enrollment with data expected in mid-2024. PEPG guides to 10 patients worth of safety and early efficacy data following 4 monthly doses of PGN-EDO51. We note high focus on dystrophin expression data given PEPG's continued guidance to likely having best in-class efficacy with the expectation to see >1% dystrophin expression for the 5mg/kg cohort. Based on in-house modeling, management expects to see >7% expression for the 10mg/kg dose but notes >9% expression is achievable. We highlight this is slightly different than previous guidance to >10% dystrophin expression for the 10mg/kg dose. We caught up with management who noted they are now using more conservative model estimates based on the recent Sarepta Therapeutics (ticker: SRPT) SRP-5051 phase 2 MOMENTUM Part B data (see our January 29th note). Notably, the company has not provided guidance on when to expect 10mg/kg data. Additionally, the company announced initiation of the phase 2 CONNECT2-EDO51 trial in the United Kingdom with patient dosing expected to begin likely in 3Q. We note management maintains guidance that the trial could be used as the basis for accelerated approval even in the case of a broad DMD gene therapy approval. We reiterate our Buy with $19 PO (prev. $21) ahead of the upcoming DMD readout.

On PGN-EDODM1 for myotonic dystrophy 1 (DM1), the company guides to preliminary single ascending dose phase 1 data for the 5mg/kg dose cohort in 2H24. Recall, the program was recently granted Fast Track Designation, which will allow PEPG to have earlier and more frequent interactions with the FDA for a more streamlined development process (see our February 20th note). While the DM1 unmet need is high given there are no disease modifying therapies approved, we note several clinical competitors exist that are ahead of PEPG in development including Dyne Therapeutics (ticker: DYN) and Avidity Biosciences (ticker: RNA). However, we highlight PEPG's differentiated mechanism of action aiming to liberate MBNL1 (Musclebind Like Splicing Regulator 1) could offer safety and efficacy advantages over MBNL1 knockdown approaches like DYN and RNA's program. We await initial clinical data to determine if this is a warranted approach and currently include PGN-EDODM1 as part of our $500mn pipeline value. PEPG expects to initiate a multiple ascending dose trial (FREEDOM2-DM1) in 2H24. Lastly, management announced plans to advance preclinical asset, PGN-EDO53, into IND/CTA enabling studies later this year (amenable to ~8% of the DMD population). In our DCF-based model, we roll the quarter, update for 4Q results, and tweak operating expenses to be in-line with recent trend. We also update cash and share account to include the recent $80.1mn underwritten offering of common stock announced in February.

PRTA: Update for '012 in AD expected in 2024

Prothena (PRTA, Neutral, $34 PO) provided an overview of the pipeline and discussed expectations for 2024. On PRX012, subcutaneous anti-amyloid beta antibody for Alzheimer's disease, the company reiterated initial data supports once-monthly subcutaneous injection and they continue to focus on identifying the appropriate dose. Management highlighted the trial design for ASCENT-1 (single ascending dose) evaluating 70mg to 400mg doses versus placebo and ASCENT-2 (multiple ascending dose) evaluating once-monthly 45mg, 70mg, 200mg, and 400mg doses over 6 months versus placebo. They noted ASCENT-2 is enrolling two cohorts based on APOE4 status. Management commented they plan to provide an update on the program this year but noted the update could be related to timing of data. We continue to look for details on the safety and efficacy profile of PRX012 to inform its potential clinical profile and

commercial opportunity and maintain a conservative stance on the program as we see a lack of meaningful updates near-term.

On birtamimab in Mayo Stage IV AL (light chain) amyloidosis, the company reiterated topline data for the phase 3 AFFIRM-AL trial is expected between 4Q24 and 2Q25 based on event rate. They highlighted they estimate ~20K Mayo Stage IV patients in major markets including ~4K in the US with 75% being treated at centers of excellence around the world. They are focusing on developing their commercial strategy. The company also highlighted their partnered programs including prasinezumab for Parkinson's disease partnered with Roche with topline data for the phase 2b PADOVA trial expected in 2024, NNC6019 for transthyretin amyloidosis cardiomyopathy partnered with Novo Nordisk with topline phase 2 data in 1H25 and BMS-986446 (prev. PRX005) for Alzheimer's disease with a phase 2 trial initiating in 2024. The company guided to $208-225mn in net cash used in 2024. In our DCF-based model, we update for 4Q results, cash and share count and adjust our operating expense estimates based on company guidance and recent trend. We also lower our pipeline value to $700mn (prev. $900mn) as we look for further clinical validation for the pipeline. This results in our new $34 PO (prev. $38). We continue to look for on the potential commercial opportunity for '012 in Alzheimer's disease. We reiterate our Neutral with a new $34 PO.

Exhibit 2: Companies mentioned in this report
Summary of companies mentioned in this report

Ticker	Company name	Rating	Price	Price Obj.
ARVN	Arvinas Inc	C-1-9	$47.04	$55
DNLI	Denali Therapeutics Inc	C-1-9	$20.93	$24
FATE	Fate Therapeutics Inc	C-3-9	$8.12	$2
FDMT	4D Molecular Therapeutics Inc	C-1-9	$29.57	$82
FULC	Fulcrum Therapeutics Inc	C-3-9	$11.08	$5
PEPG	PepGen Inc	C-1-9	$14.24	$19
PRTA	Prothena Corp PLC	C-2-9	$30.22	$34

Source: BofA Global Research, Bloomberg 3/8/24

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Exhibit 3: Estimate changes in this report
Summary of estimate changes in this report

Ticker	ARVN		DNLI		FATE		FDMT	
Rating	C-1-9		C-1-9		C-3-9		C-1-9	
Price	$47.04		$20.93		$8.12		$29.57	
Estimates	Prev.	Current	Prev.	Current	Prev.	Current	Prev.	Current
Price Ob.	$50	$55	$29	$24	$2	$2	$82	$82
2023E EPS	-5.87	-6.62	-2.72	-2.22	-1.96	-1.28	-3.18	-3.25
2024E EPS	-8.42	-7.3	-3.15	-2.36	-1.02	-0.78	-4.44	-4.5
2025E EPS	-8.82	-7.71	NA	-2.53	NA	-0.62	-6.02	-6.16

Ticker	FULC		PEPG		PRTA	
Rating	C-3-9		C-1-9		C-2-9	
Price	$11.08		$14.24		$30.22	
Estimates	Prev.	Current	Prev.	Current	Prev.	Current
Price Ob.	$4.5	$5	$21	$19	$38	$34
2023E EPS	-1.79	-1.59	-3.5	-3.27	-4.51	-4.38
2024E EPS	-1.68	-1.48	-3.31	-3.06	-5.62	-5.89
2025E EPS	NA	-1	NA	-2.73	NA	-5.55

Source: BofA Global Research estimates, Bloomberg 3/8/24

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Price objective basis & risk

4D Molecular Therapeutics, Inc. (FDMT)

Our price objective (PO) of $82 is based on a probability-adjusted NPV analysis. Our valuation includes 4D-310 in Fabry ($2/share), 4D-150 in wet age-related macular degeneration ($59/share) and in diabetic macular edema ($11/share), and 4D-710 in cystic fibrosis ($6/share). The remainder of our valuation comes from pipeline and cash. Our discounted cash flow (DCF)-based model goes out to 2040, with 12-14% WACC for all stand-alone indications, 14% WACC for pipeline expenses, and no terminal value.

Upside risks to our PO are 1) positive clinical results in ongoing studies, 2) accelerated timeline to approval, 3) superior market penetration to our current assumptions, and 4) advances of the early-stage pipeline into the clinic.

Downside risks to our PO are 1) failure to demonstrate safety and efficacy in clinical trials, 2) lower than expected market uptake, 3) delays in manufacturing scale-up, and 4) approval of competing products.

Arvinas (ARVN)

Our price objective (PO) of $55 is based on a probability-adjusted net present value (NPV) analysis. Our valuation includes ARV-471 in ER+/HER2- breast cancer as 2L+ ($6/share) and 1L+ ($9/share) therapy, potential milestones for '471 from Pfizer ($6/share), and ARV-766 in 3L+ mCRPC (-$2/share). The remainder of our valuation comes from pipeline and net cash. Our discounted cash flow (DCF)-based model goes out to 2039, with 13% weighted-average cost of capital (WACC) for '471, 13% WACC for '766, and 14% WACC for pipeline expenses. We model no terminal value.

Upside risks to our PO are 1) better-than-expected clinical data in ongoing trials, 2) expansion into earlier lines of therapy, 3) accelerated approval for lead assets, and 4) positive clinical results for early-stage pipeline assets.

Downside risks to our PO are 1) failure to obtain approval for lead assets, 2) failure of '766 and '471 to differentiate from standard of care and competitive therapies, 3) lower-than-expected uptake in target indications, and 4) unexpected safety signals in ongoing trials.

Denali Therapeutics (DNLI)

Our PO of $24 for DNLI consists of $6/sh for DNL343 in amyotrophic lateral sclerosis (ALS), $3/sh for DNL310 in Hunter syndrome, and $1/sh for DNL151 in Parkinson's disease. $14/sh is contributed from our pipeline assumptions and net cash. We apply a WACC of 11-12% for modeled programs and 14% for pipeline.

Upside risks to our PO are 1) better than expected uptake of modeled programs, 2) positive results from DNL343, DNL310 and DNL151 programs, 3) early-stage pipeline advancing into late-stage development, and 4) positive results from partnered programs.

Downside risks to our PO are 1) slower than expected uptake of modeled programs, 2) unexpected adverse safety issues from the company's transport vehicle (TV) platform technology, 3) clinical trial failures of key pipeline programs, and 4) higher than expected expenses

Fate Therapeutics (FATE)

Our price objective (PO) of $2 includes $3/sh for multiple myeloma. The remainder of our valuation comes from cash and pipeline/corporate expenses. We assume 14% WACC for clinical stage assets and 14% for additional pipeline and corporate expenses.

Upside risks to our PO are 1) positive clinical data from clinical programs, 2) accelerated timeline to approval, 3) faster-than-expected uptake of products, once commercial, 4) evidence of superiority over competing NK and T cell approaches, 5) advancement of early stage pipeline assets.

Downside risks to our PO are 1) failure to demonstrate efficacy or safety in clinical studies, 2) delays in clinical development, 3) slower-than-expected uptake of products, once commercial, and 4) lack of positive differentiation from other NK and T cell approaches.

Fulcrum Therapeutics (FULC)

Our DCF-derived PO of $5 for FULC consists of $4.5/sh for losmapimod in FSHD and $0.50/sh for FTX-6058 in SCD. The remaining value in our PO comes from cash and early pipeline. We use a 12% WACC for losmapimod and a 14% WACC for FTX-6058 and the rest of the early pipeline.

Upside risks to our price objective are: 1) positive data from programs in FSHD and hemoglobinopathies, 2) higher orphan pricing in FSHD than our assumptions, 3) advancement of additional candidates from the drug screening phase to clinical trials, 4) positive data and clarity on commercial opportunity for program assessing Losmapimod in COVID, 5) positive data showing clinical benefit of FTX-6058 in SCD patients.

Downside risks are: 1) failure to show benefit in clinical studies, 2) failure to obtain accelerated approval in FSHD, 3) inability to resolve the clinical hold on FTX-6058, and 4) the emergence of additional safety signals in pre-clinical and clinical studies.

PepGen Inc (PEPG)

Our $19 price objective (PO) is based on a probability-adjusted net present value (NPV) analysis. Our valuation includes PGN-EDO51 in DMD amenable to exon 51 skipping ($4/share). The remainder of our valuation comes from pipeline and cash. Our discounted cash flow (DCF)-based model goes out to 2040 and assumes a 14% WACC for EDO51 and pipeline expenses and no terminal value.

Upside risks to our PO are 1) positive clinical trial data for lead indications, 2) accelerated approval of lead assets, 3) positive data from unmodeled, early-stage assets, 4) better-than-expected market penetration, and 5) partnerships to accelerate clinical development.

Downside risks to our PO are 1) negative results from clinical trials, 2) unexpected safety signals in clinical trials, 3) failure to obtain regulatory approval for lead assets, 4) failure of EDO51 to differentiate from similar assets in the pipeline, 5) lower-than-expected uptake in target indications.

Prothena Corporation (PRTA)

We use a sum of the parts DCF valuation approach to arrive at our NPV based PO of $34/share. We assume a WACC of 11% and model a value of $15/sh for birtamimab in AL amyloidosis, a WACC of 12% and model a value of $9/sh for PRX012 in AD, and a WACC of 12% and model a value of $8/sh for prasinezumab in Parkinson's. The balance of our value for PRTA comes from cash ($12/sh), and pipeline value (-$-10/sh). Our DCF goes out to 2040 and we assume zero terminal value (consistent with the way we model our other companies).

Upside risks to our PO are 1) earlier-than-expected approval and launch of prasinezumab or birtamimab, 2) success of pipeline clinical trials, and 3) faster-than-expected revenue ramp. Downside risks to our PO are 1) failure of one or more of PRTA's products to reach market, 2) higher-than-expected competition, and 3) negative news on competitor (BIIB) AB program in AD.

Analyst Certification

I, Tazeen Ahmad, 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 - Biotechnology Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	4D Molecular Therapeutics, Inc.	FDMT	FDMT US	Tazeen Ahmad
	Alnylam Pharmaceuticals	ALNY	ALNY US	Tazeen Ahmad
	Amicus Therapeutics	FOLD	FOLD US	Tazeen Ahmad
	Annexon Biosciences	ANNX	ANNX US	Tazeen Ahmad
	Apellis Pharmaceuticals	APLS	APLS US	Tazeen Ahmad
	Argenx SE	ARGX	ARGX US	Tazeen Ahmad
	Arvinas	ARVN	ARVN US	Tazeen Ahmad
	Ascendis Pharma	ASND	ASND US	Tazeen Ahmad
	Biocryst Pharmaceuticals Inc	BCRX	BCRX US	Tazeen Ahmad
	BioNTech	BNTX	BNTX US	Tazeen Ahmad
	Denali Therapeutics	DNLI	DNLI US	Tazeen Ahmad
	Inozyme Pharma, Inc.	INZY	INZY US	Tazeen Ahmad
	Merus	MRUS	MRUS US	Tazeen Ahmad
	Neurocrine Biosciences	NBIX	NBIX US	Tazeen Ahmad
	Ocular Therapeutix	OCUL	OCUL US	Tazeen Ahmad
	PepGen Inc	PEPG	PEPG US	Tazeen Ahmad
	Rhythm Pharmaceuticals	RYTM	RYTM US	Tazeen Ahmad
	Sarepta Therapeutics	SRPT	SRPT US	Tazeen Ahmad
	Ultragenyx Pharmaceuticals	RARE	RARE US	Tazeen Ahmad
NEUTRAL				
	Acadia Pharmaceuticals	ACAD	ACAD US	Tazeen Ahmad
	Incyte Corporation	INCY	INCY US	Tazeen Ahmad
	Prothena Corporation	PRTA	PRTA US	Tazeen Ahmad
	SAGE Therapeutics	SAGE	SAGE US	Tazeen Ahmad
UNDERPERFORM				
	Achilles Therapeutics	ACHL	ACHL US	Tazeen Ahmad
	Fate Therapeutics	FATE	FATE US	Tazeen Ahmad
	Fulcrum Therapeutics	FULC	FULC US	Tazeen Ahmad
	Pharvaris	PHVS	PHVS US	Tazeen Ahmad
	PTC Therapeutics	PTCT	PTCT US	Tazeen Ahmad

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.

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

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