

Corporate presentation

January 2025



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Unlocking the potential of novel targets for rare diseases

Our mission is to improve the lives of people living with rare diseases



Strategic principles guide our journey

- Acquire and develop programs in rare diseases with high prevalence – partner of choice for in-licensing
- Focus on our core competencies and experience in rare diseases
- Develop pipeline of rare disease programs which have already received significant investment and retain global or regional rights where possible (initially in Europe)
- Partner our programs where it makes strategic sense and target monetization of royalty streams for non-core programs



A late-stage rare disease company with a capital efficient model

Achievements and fundamentals

Two rare disease programs in-licensed and progressed to pivotal stage:

- **Setrusumab** for Osteogenesis Imperfecta (OI) in Phase 3 under a partnership with rare disease leader Ultragenyx
- **Alvelestat** for Alpha-1 Antitrypsin Deficiency-associated Lung Disease (AATD-LD) successfully completed Phase 2, with Phase 3 endpoints agreed in principle with FDA and EMA

Financial discipline delivers cash runway into 2027 through key inflection points

- \$80.5 million of cash and cash equivalents as of September 30, 2024
- Balance FTE headcount with outsourcing through key data milestones
- Leverage investigator-led studies to expand data sets

Management team with a proven track record in corporate development

Track record of value-creating partnerships

Potential to provide future milestone payments and royalties






- Both late-stage rare disease programs from large pharma following significant investment with success-based returns
 - Setrusumab acquired from Novartis
 - Alvelestat in-licensed from AstraZeneca
- Setrusumab partnered with Ultragenyx whilst retaining European rights
- Non-core programs – potential to provide milestones and royalties
 - Navicixizumab global rights licensed to Feng Biosciences
 - Leflurozole licensed to ReproNovo



Addressing patient populations with high unmet needs & significant market opportunities of >\$1Bn¹



	Osteogenesis Imperfecta	Alpha-1 Antitrypsin Deficiency
Disease Background	Rare genetic bone condition leading to problems including frequent fractures and skeletal deformities	Rare genetic progressive lung disease characterized by unregulated NE-driven lung destruction
Epidemiology	~60,000 patients across the US & Europe ²	Severe deficiency patient estimates: ~50,000 in North America and ~60,000 in Europe ³
Unmet Need	No FDA/EMA approved therapy. SoC (bisphosphonates) has not been shown to consistently reduce fractures	Augmentation therapy lacks clarity on efficacy and isn't reimbursed across all markets
Mereo's Unique Approach	Setrusumab A sclerostin-targeting antibody	Alvelestat An oral neutrophil elastase inhibitor

Late-stage clinical pipeline with two rare disease programs

Product candidate	Phase 1	Phase 2	Phase 3	2025 Milestones
Setrusumab Osteogenesis Imperfecta		Orbit (5 - 25 yrs old) Cosmic (2 - 6 yrs old)		Phase 3 data
Alvelestat* AATD-Lung Disease			   	Potential partnership Potential Phase 3 initiation

*Investigator-Sponsored Study in bronchiolitis obliterans syndrome also being performed under non-Mereo IND

We have achieved key designations available for rare diseases

	Setrusumab for Osteogenesis Imperfecta	Alvelestat for AATD-associated Lung Disease
 <ul style="list-style-type: none"> Orphan Drug Designation Breakthrough Designation Fast-track Designation PRV designation 	✓	✓
	✓ <i>Ultragenyx achieved in 2024</i>	-
	-	✓
	✓	<i>Not relevant</i>
 <ul style="list-style-type: none"> Orphan Designation Prime Designation EUnetHTA advice 	✓	✓*
	✓	-
	✓ <i>Official participant in pilot scheme (2019)</i>	-

Mereo is in a strong position to execute through 2025

Financial discipline delivers cash runway into 2027. Merco is in a strong position to execute through 2025, including critical pre-commercialization activities for setrusumab.

	Setrusumab	Alvelestat
CORPORATE AND CLINICAL	<ul style="list-style-type: none">Interim Analysis 2 ($p < 0.01$) mid-yearFinal Analysis, 18 months ($p < 0.039$) Q4	<ul style="list-style-type: none">Partnering process progressingPhase 3 initiation
REGULATORY AND ACCESS	<ul style="list-style-type: none">PRIME designation, EUnetHTA and MOCASATURN, real word evidenceIMPACT, burden of disease research	<ul style="list-style-type: none">EU Commission Orphan Designation Q1



"It's always a pleasure to come and speak with people who are actually making a difference on the ground and making a difference for people like myself and for others in the community. Because it is what you do that helps us to live the lives that we want and that we deserve."

Thines Ganeshamoorthy, Trustee at the Brittle Bone Society, speaking at an event to mark Rare Disease Day 2023 at Mereo BioPharma.






Setrusumab (UGX143)

Osteogenesis Imperfecta: a rare genetic bone condition with no FDA or EMA approved therapy

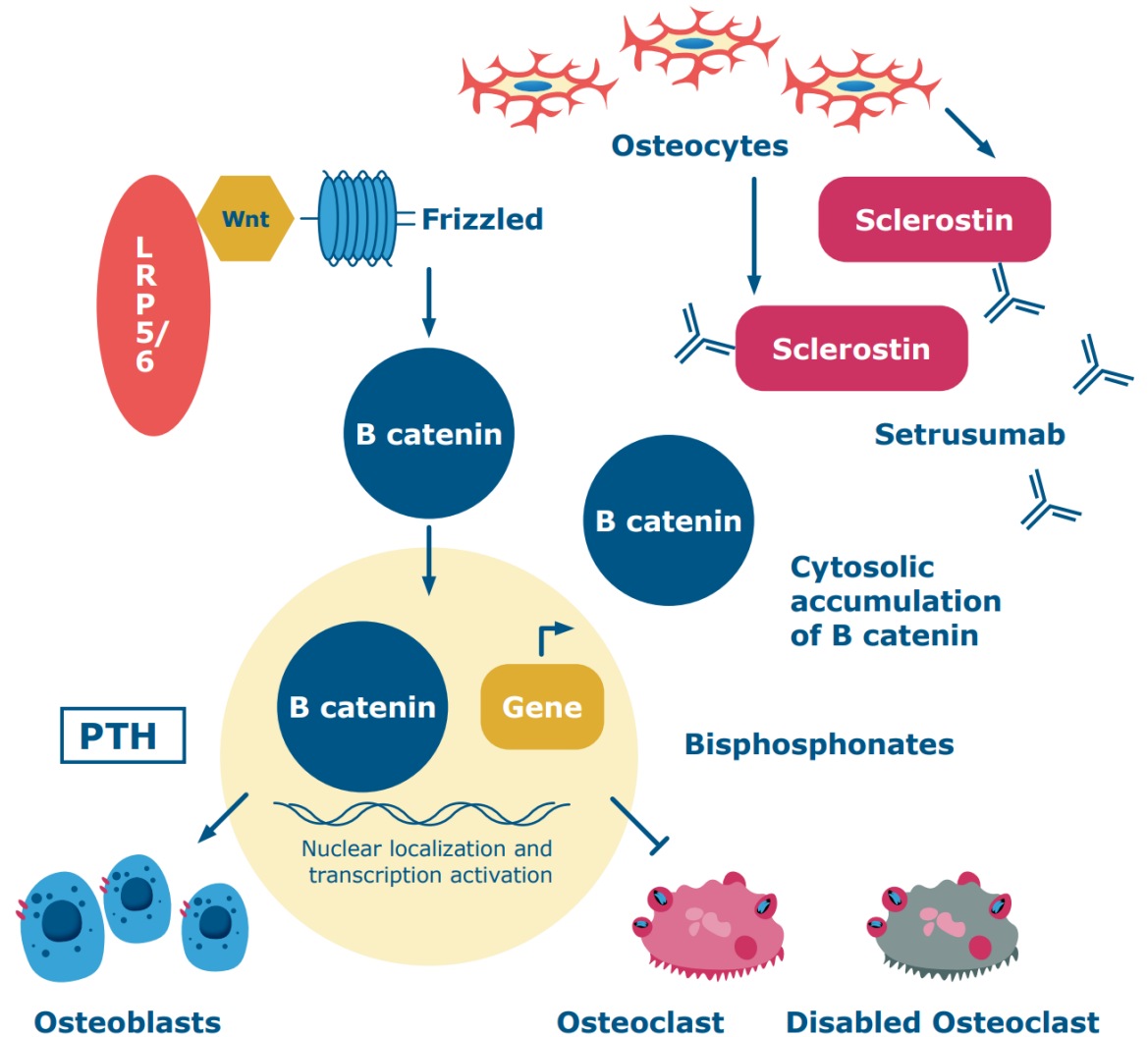
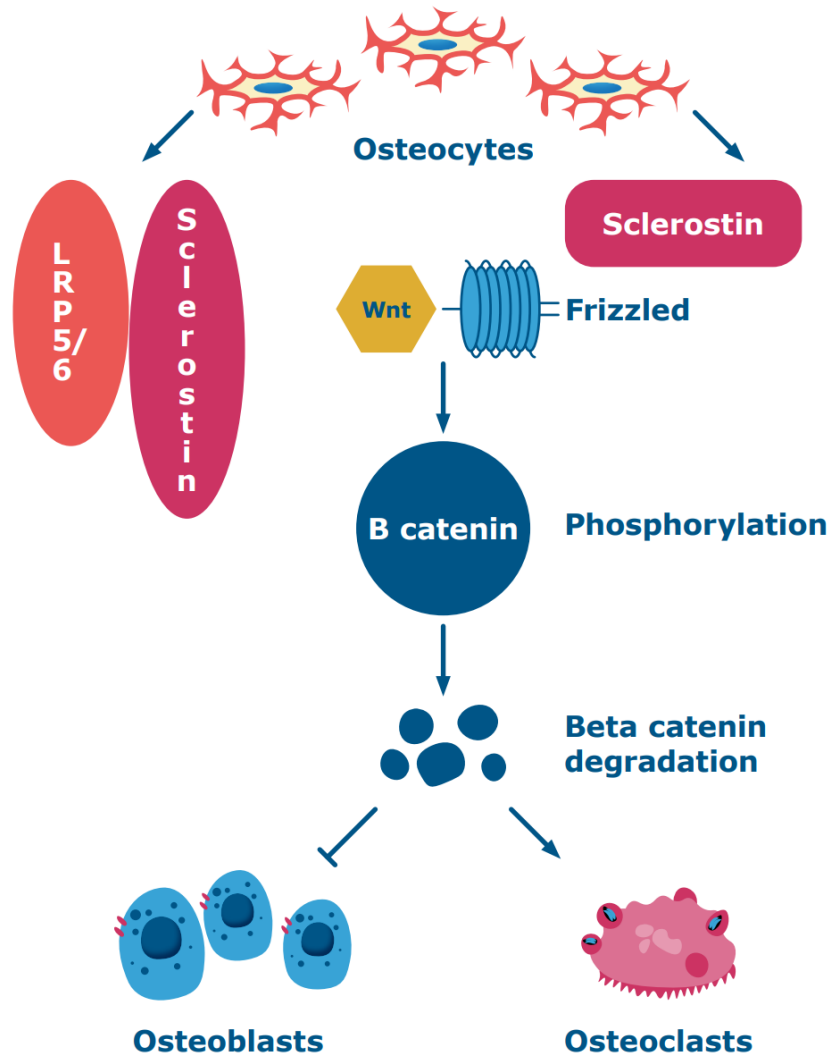


*OIFE Topical
Meeting
June 2023*

Rare genetic bone condition represents a >\$1Bn market opportunity

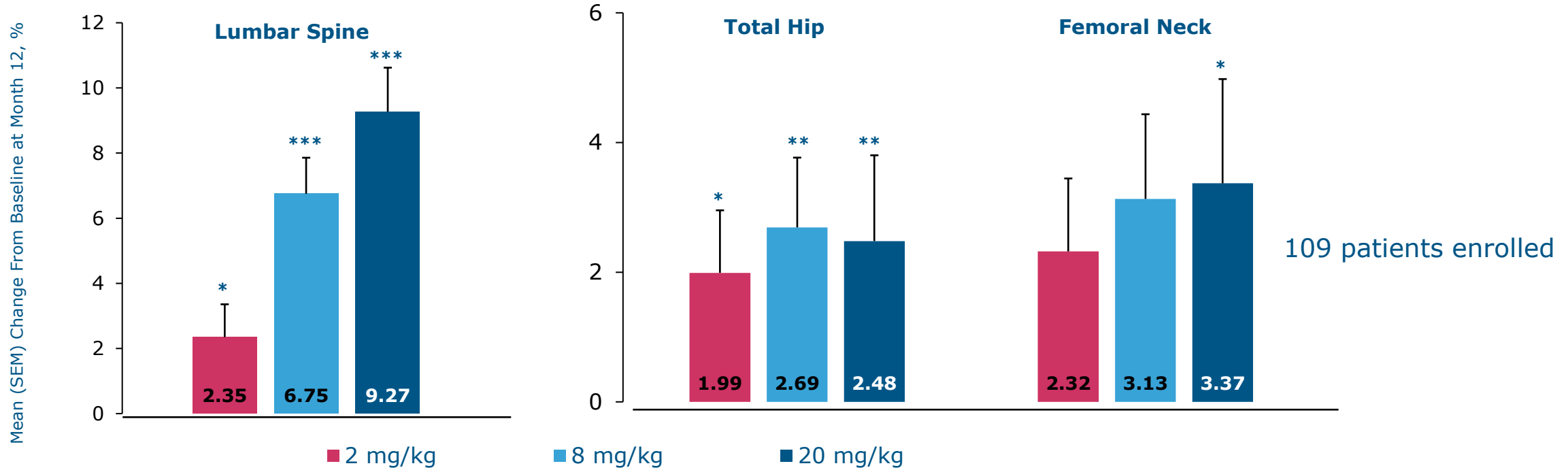
 A serious, but not mysterious condition	 Established community	 Clear need for treatment options
<ul style="list-style-type: none">• 80-90% linked to a mutation in Type I collagen^{2,3} (Type I, III and IV)• Frequent bone fractures, skeletal deformities, pain, respiratory and gastric problems• Affects approximately 60,000 individuals³ (pediatrics and adults) in the US and Europe	<ul style="list-style-type: none">• Well-established Community groups (OIFE + national members and OIF)* are a key source of support and valued resource• OI is a progressive condition, without clear care pathways, especially for adult patients	<ul style="list-style-type: none">• No FDA / EMA approved therapy• Current standard of care (bisphosphonates) has not been shown to reduce fractures

Setrusumab – a well-defined Mechanism of Action



Phase 2b ASTEROID study in adults with OI Types I, III and IV

Statistically significant dose-dependent increases in areal BMD by DXA following 12 months of setrusumab therapy

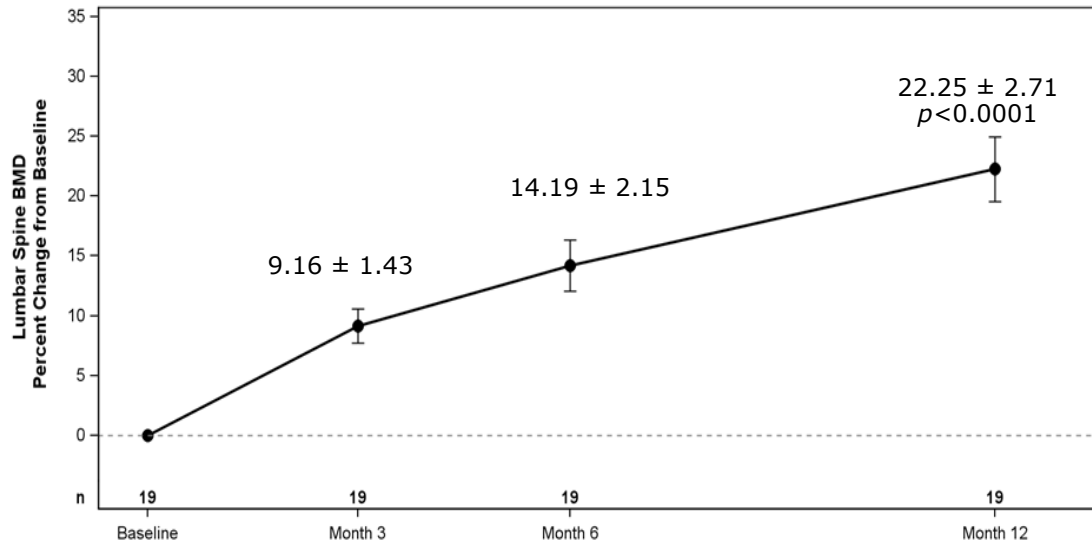


* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ vs baseline based on an ANCOVA model with baseline values, treatment group and OI type as covariates. ANCOVA, analysis of covariance; BMD, bone mineral density; DXA, dual-energy X-ray absorptiometry; OI, osteogenesis imperfecta; SEM, standard error of the mean. At the 20 mg/kg dose - increase in failure load ($p = 0.037$) and stiffness at the radius ($p = 0.022$) as measured by finite element analysis (FEA). Increase in trabecular bone score (TBS) - 3D bone architecture, helps predict fracture ($p < 0.001$ at 8mg/kg and 20mg/kg).

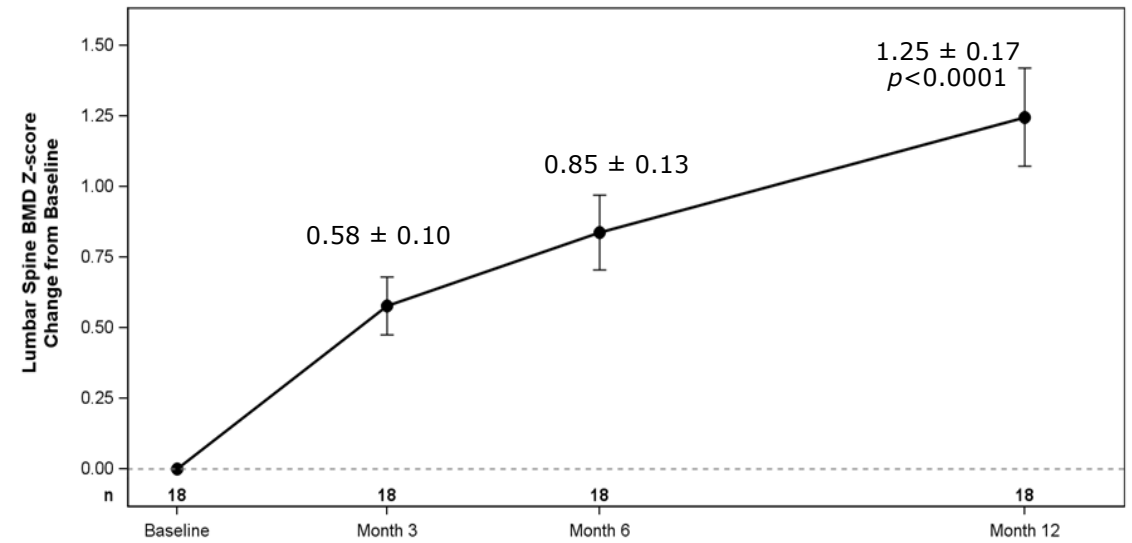
Orbit Phase 2 – BMD and Z-score mean increase through month 12¹

Improvements consistent across all OI Types studied

Lumbar Spine BMD¹ % Change from Baseline

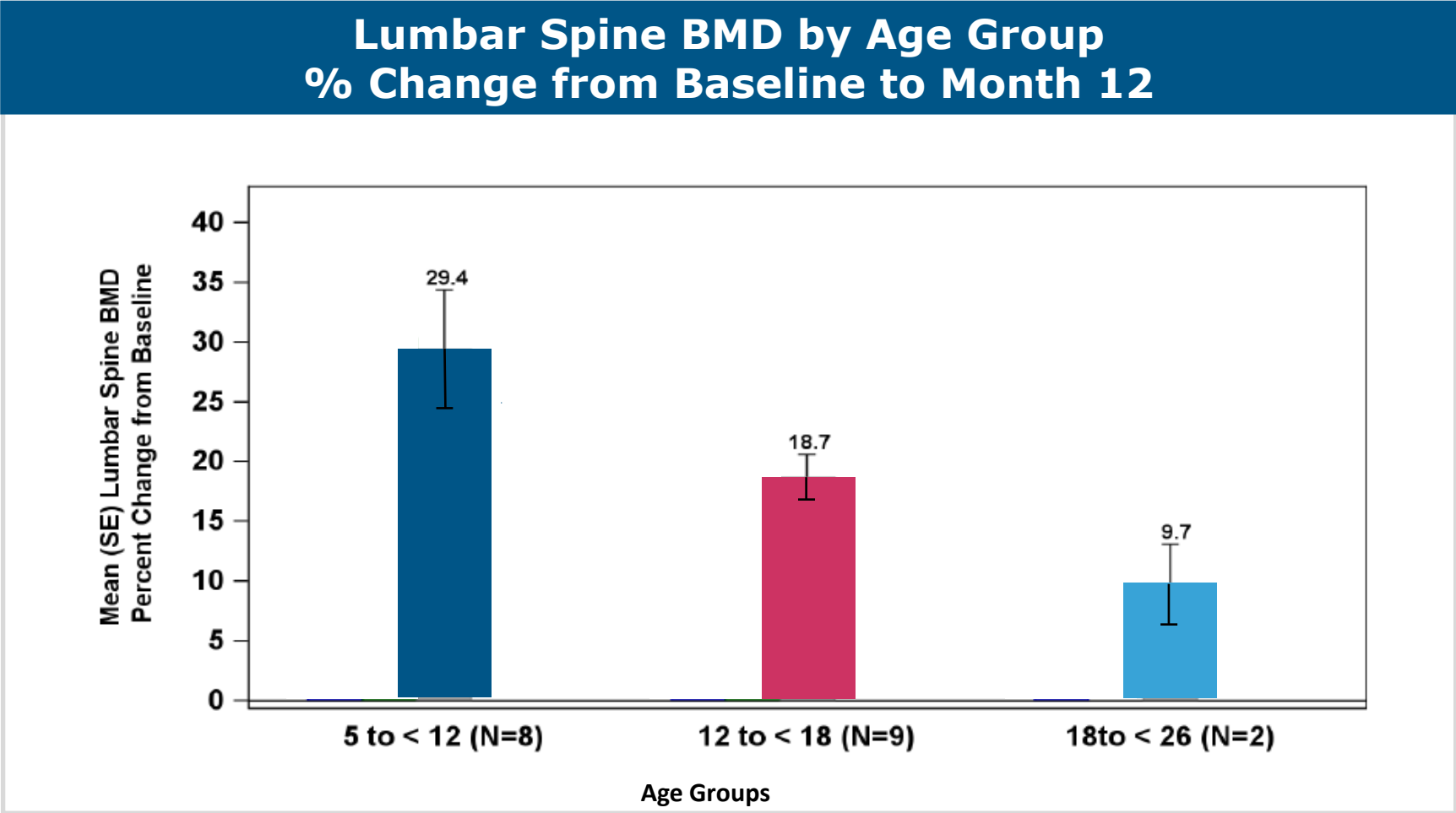


Lumbar Spine BMD¹ Z-Score Change from Baseline



Change in lumbar spine BMD from baseline at 12 months = 22% ($p < 0.0001$, $n = 19$) (14% at 6 months)
Change in baseline lumbar spine BMD Z-score at 12 months = +1.25 ($p < 0.0001$, $n = 18$) (+0.85 at 6 months)

Orbit Phase 2 – increase in BMD observed in all age groups,^{1,2} Greatest increase in patients 5-12 years of age



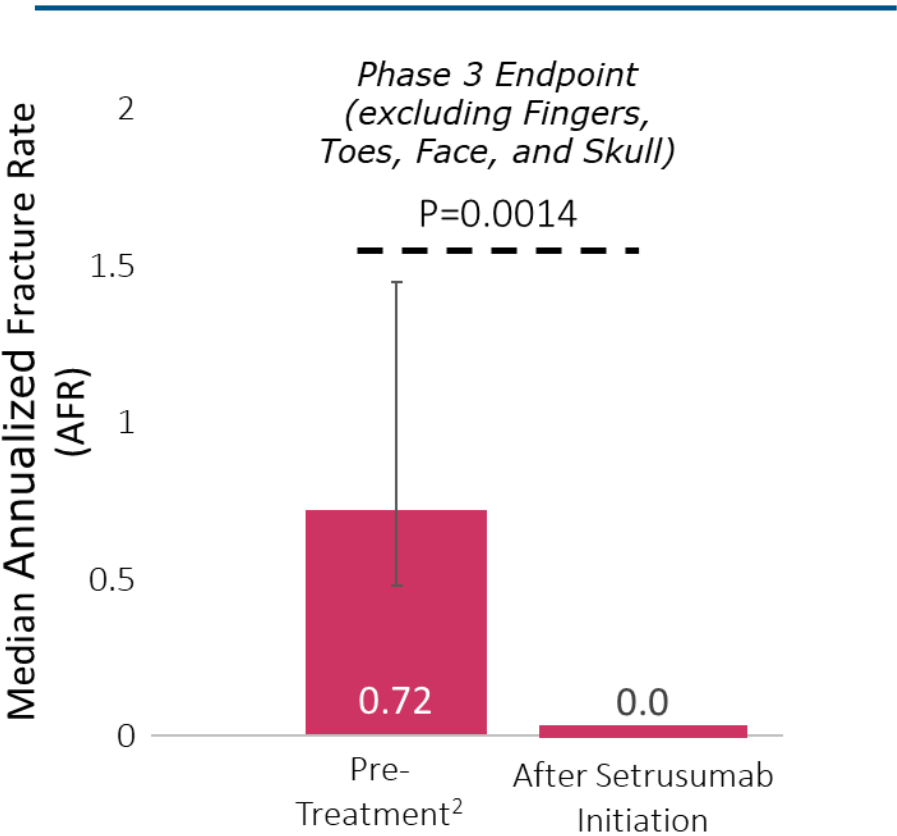
Data consistent with ASTEROID Phase 2 data in adults²



1. Data as of June 2024; 2. Lewiecki EM *et al.* Evaluating Setrusumab for the Treatment of Osteogenesis Imperfecta: Phase 2 Data from the Phase 2/3 Orbit Study. Presented at the American Society for Bone and Mineral Research; October 13–16, 2023; Vancouver, BC, Canada. Abstract/Poster LB SAT-650 17
2. Setrusumab for the Treatment of Osteogenesis Imperfecta: 12-Month Results from the Phase 2b Asteroid Study, Journal of Bone and Mineral research, July 2024

Treatment with setrusumab (mean duration of 16 months) resulted in a 67% reduction in annualized fracture rate (AFR) compared to pre-treatment AFR

Radiographically Confirmed Fractures¹



1: Data as of June 2024; updated clinical fractures includes a mean follow-up of 16 months
2: Pre-Treatment period includes fractures in the two years before screening based on medical record review and patient report, and fractures between screening and first dose



6 y/o male patient with Type IV OI, increased mobility after 17 months on study

Safety evaluation at 14 months shows setrusumab is well tolerated

No
treatment-related
SAEs

No unexpected
adverse events or
safety concerns

No subject
discontinued treatment
for any adverse event

No drug-related
hypersensitivity
reactions

Most common adverse events (AEs) reported at 6 months*¹

Adverse Event at 6 months	Phase 2 Patients (N=24)
Infusion-related events (low grade)	7 (29%)
Headache	3 (13%)
Abdominal discomfort	1 (4%)
Infusion site pain	1 (4%)
Bone pain	1 (4%)
Upper respiratory tract infection	1 (4%)

*All related adverse events were mild to moderate in severity

Orbit* & Cosmic** – Phase 3 studies are fully enrolled



	Objective	Setrusumab vs. placebo 2:1 randomization Double blind	Setrusumab vs. bisphosphonates 1:1 randomization Open label
	Enrollment	158 subjects ages 5 to 25 years with OI Types I, III, or IV	69 subjects ages 2 to 6 years with OI Types I, III, or IV
	Inclusion Criteria	≥1 fracture in prior 12 months or ≥2 or ≥1 long bone in prior 24 months	≥1 fracture in prior 12 months or ≥2 or ≥1 long bone in prior 24 months
	Primary Endpoint	Annualized clinical fracture rate (excluding fingers, toes, face and skull)	Annualized clinical fracture rate (including morphometric fractures)

**Interim Analysis 2: mid-2025 (p<0.01). Final analysis at 18 months: Q4 2025 (p<0.039)
Potential successful readout scenarios driven by
baseline fracture variability, accumulated fracture events and p-value stringency**

Laying the foundation for a successful setrusumab launch in Europe

Maximizing readiness for patients & caregivers

- Long-established OI patient community
- High-level of readiness for new treatments and to advocate
- Mereo engagement since Day 1 (2017)

Partnering with physician community to be delivery-ready

- Connected physician community – small number of expert OI centers
- High enthusiasm for new, effective therapies (BP's limitations)
- High diagnosis rate

Capturing & articulating value to healthcare systems

- Early engagement with HTAs and payors (2018)
- AFR “hard” primary endpoint – highly valued
- Quantified high level of unmet medical need
- HTA and economic value tools and post-approval data generation program ready

Targeted resourcing with rare disease expertise

- Defined number of expert centers – peak 65-70 field force
- Initial flexible footprint established 2022
- High-value, first-launch countries priority
- Maximize first-mover advantage

Evidence Generation: building and delivering our case in Europe



Setting the baseline: Impact / Burden of Disease in OI in Adult and Pediatric patients across Mereo European territory markets

Largest ever burden of disease survey on the impact of OI on patients, physicians and caregivers. Successful collaboration between OIFE, OIF and Mereo. Made possible by the generous contribution of the OI community.



NICE National Institute for Health and Care Excellence

Regulatory scientific advice & HTA & Payor advice

Scientific advice from GBA & NICE in 2024 – sets our **base framework**

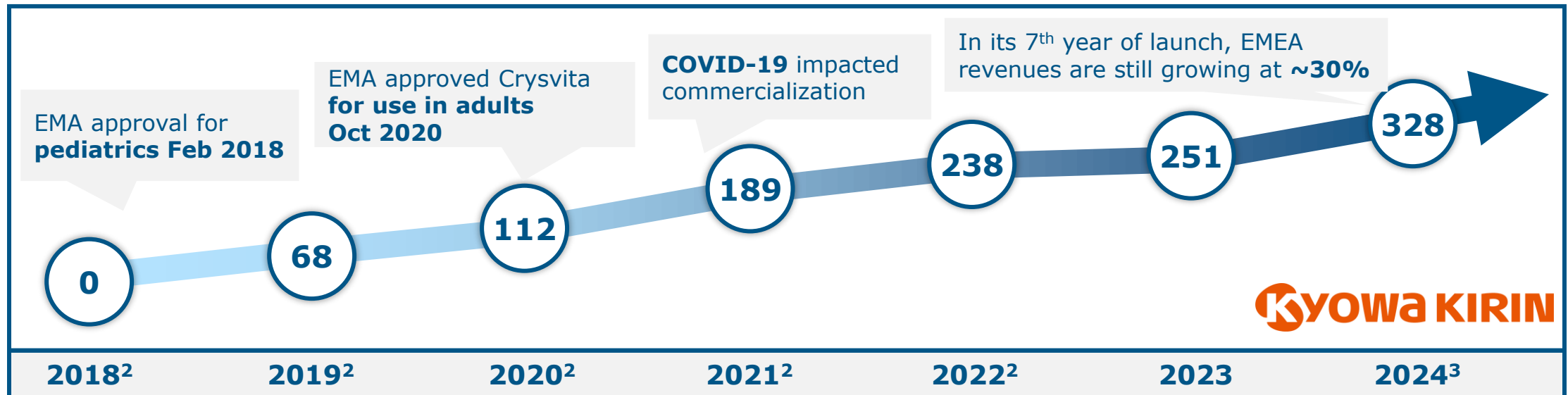


Validated “library” of data sources to answer authorities’ questions: at time of MAA submission and to support ongoing reimbursement

Using existing data sets to provide coordinated data across multiple European treatment centers for OI

Learning from the launch of Crysvida in Europe

Kyowa Kirin reported EMEA revenues for Crysvida¹, \$M, 2018-2024



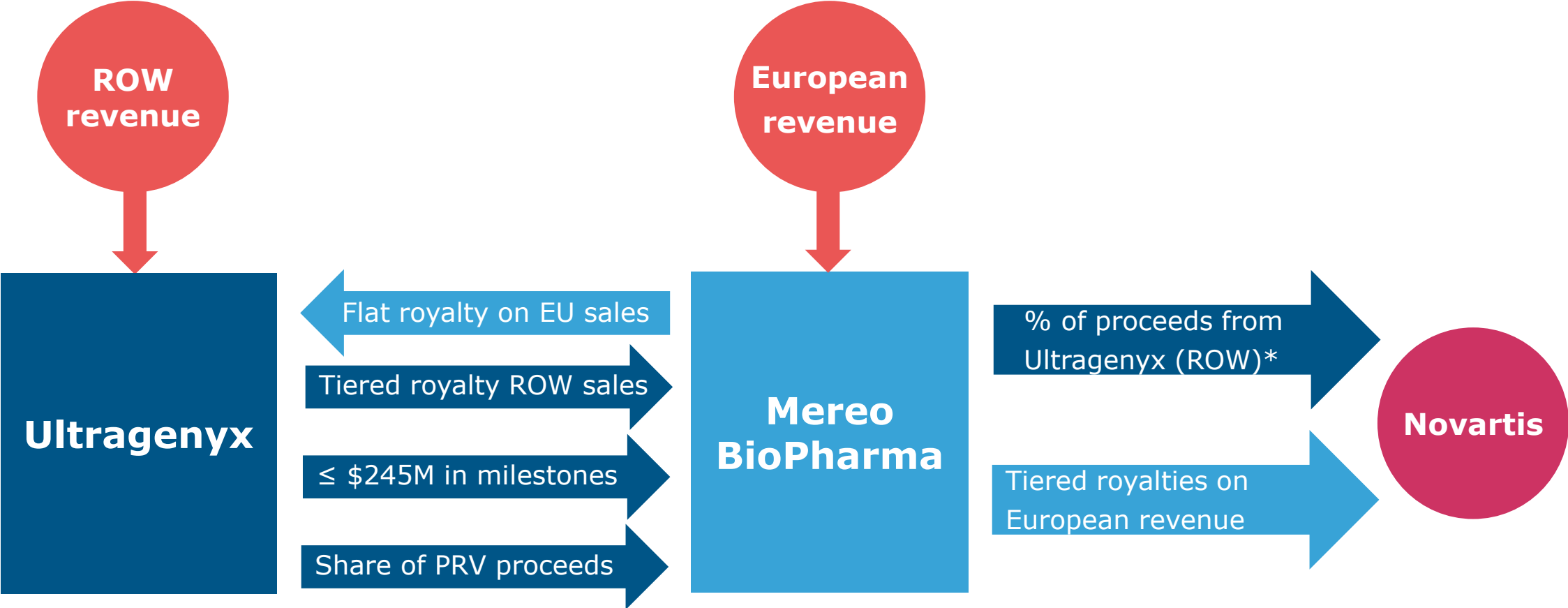
- **Build** on the learnings of “rare bone product launch”
- **Leverage** HTA/payor/physician and OI community experience
- **Target** simultaneous adult and pediatrics launch

The Ultragenyx partnership, a highly effective collaboration

- Ultragenyx leads and funds the global development plan, including CMC (Dec 2020)
- Mereo retains European rights (including UK) and Ultragenyx has the USA and Rest of the World rights
- Mereo received \$50M upfront and a \$9m milestone with potential additional \$245M in regulatory and commercial milestones and shared potential PRV proceeds
- Ultragenyx pays Mereo tiered double digit % royalties on net sales in Ultragenyx territories
- Mereo pays Ultragenyx fixed double digit % royalty on net sales in Mereo territories

Combining the potential European revenue with focused Opex costs, and the cash inflows from milestones and royalties from Ultragenyx = **a compelling business opportunity**

The Ultragenyx partnership - potential attractive cash flows



* Subject to certain deductions



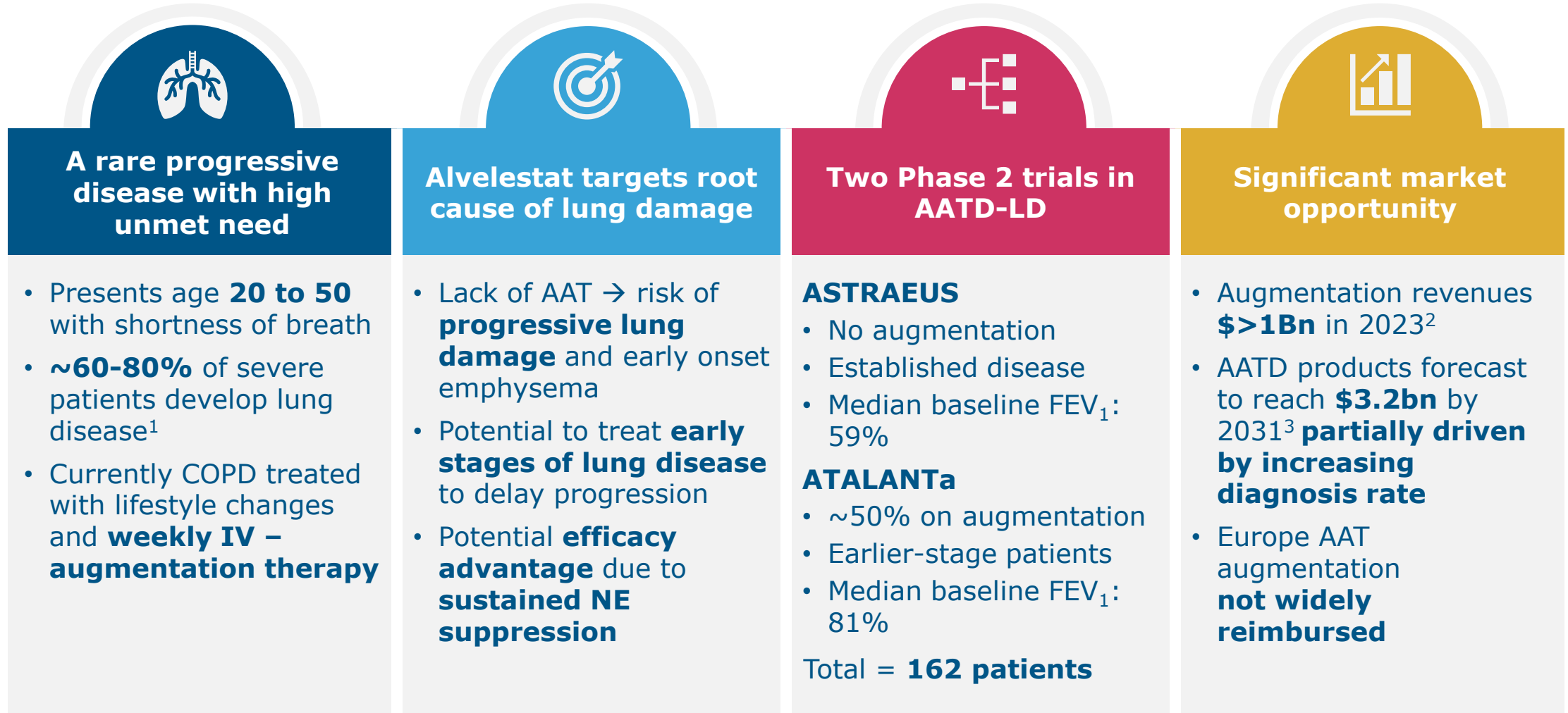
Alvelestat (MPH966)

Alpha-1 Antitrypsin Deficiency-associated Lung Disease: a rare progressive lung disease with high unmet need



Alpha 1 Support
Group UK
Information Day
September 2023

Alvelestat, a potential >\$1bn market opportunity in AATD-LD









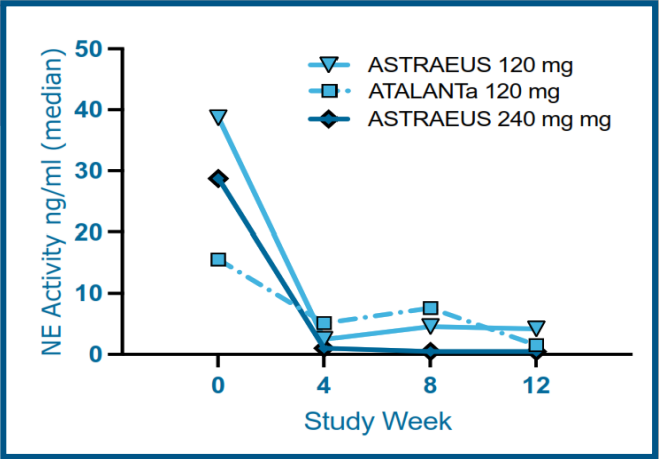
Alvelestat's potential role in lung disease is supported by promising efficacy and safety data in >1000 subjects

Relevant Phase 2 studies		
AATD-LD ASTRAEUS study	N=99	Reduction in biomarkers of NE-driven connective tissue breakdown (desmosine and A α -val ³⁶⁰) in PI*ZZ patients not on augmentation therapy
AATD-LD ATALANTa study	N=63	Sig. change on St. George's Respiratory Questionnaire (SGRQ) Activity Score in non-augmentation subgroup (Δ 10.2, P=0.01 vs. pbo, wk 12) and 4.7 difference on SGRQ Total score vs. placebo (MCID= 4, P=0.1)
COPD (2 studies)	N= \sim 1,500	In one study (n=615) a >100ml improvement in FEV ₁ observed in bronchitic subset (n \sim 200, p<0.01) ¹
Bronchiectasis	N=38	100ml improvement in FEV ₁ (p=0.006); numerical improvement SGRQ of -5.64 (LSM over placebo) ²
Cystic Fibrosis	N=55	Reduction of biomarker of lung damage (desmosine) (p<0.05) ³
Hospitalised COVID-19	N=15	Faster 5-day clinical improvement in WHO severity scale ⁴
Bronchiolitis Obliterans Syndrome	N=13	Reduction of biomarker of lung damage (desmosine), with signal of FEV ₁ stabilization ⁵

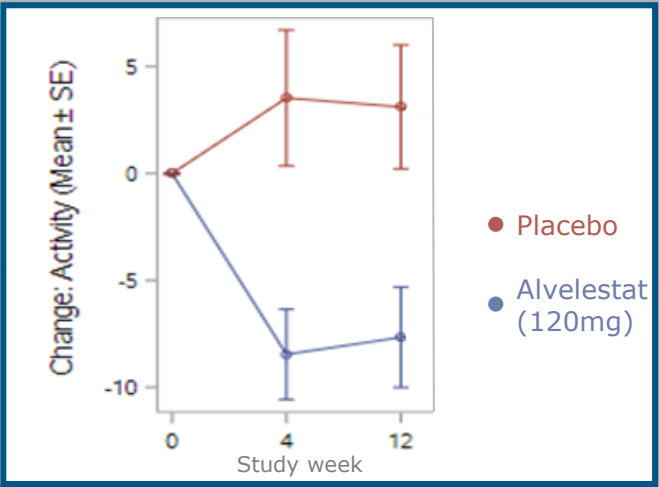
Alvelestat results in short-term symptomatic changes that we expect will evolve to long-term disease modification

Short-term effect of alvelestat

 Timeframe	1-3 months
 Impact	Systemic NE inhibition
 Dose required for effect	120mg or 240mg
 Key biomarker	Serum NE
 Key PRO & clinical endpoints	SGRQ-Activity Score, CAT Score
 Overall effect	Symptomatic relief



Alvelestat shows >90% inhibition of serum NE from wk 4¹



Alvelestat shows -10pt SGRQ activity improvement at wk 12² (p=0.01, MCID is est. at ~7.1³)

1. ATALANTa and ASTRAEUS studies; 2. ATALANTa Study, Non-augmentation sub-group – N=34; 3. Jenkins AR et al, Pulmonology 2024 30(1):24-33, MCID estimated to be 7.1 but not yet validated; Abbreviation: MCID: Minimum clinically important difference, CAT: COPD Assessment Test

Data from two AATD Phase 2 studies, demonstrated good overall safety vs. placebo and builds on extensive safety database

	Alvelestat 240 mg N=40 (%)	Alvelestat 120 mg N=54 (%)	Placebo N=67 (%)
SAE	3 (7.5)	1 (1.9)	0 (0)
Adverse Events of Special Interest	11 (27.5)	10 (18.5)	18 (26.9)
Infections requiring antimicrobial therapy	10 (25.0)	10 (18.5)	18 (26.9)

Adverse Events of Special Interest

- Across both Phase 2 studies, no discrepancy was observed in number of infections vs placebo
- Single case (240 mg) of prolonged QTc in subject with history of prolonged QTc on concomitant therapy with known QTc effects
- Single case (240 mg) of elevated ALT>5xULN without raised bilirubin; asymptomatic and resolved. No Hy's Law cases.

Adverse events

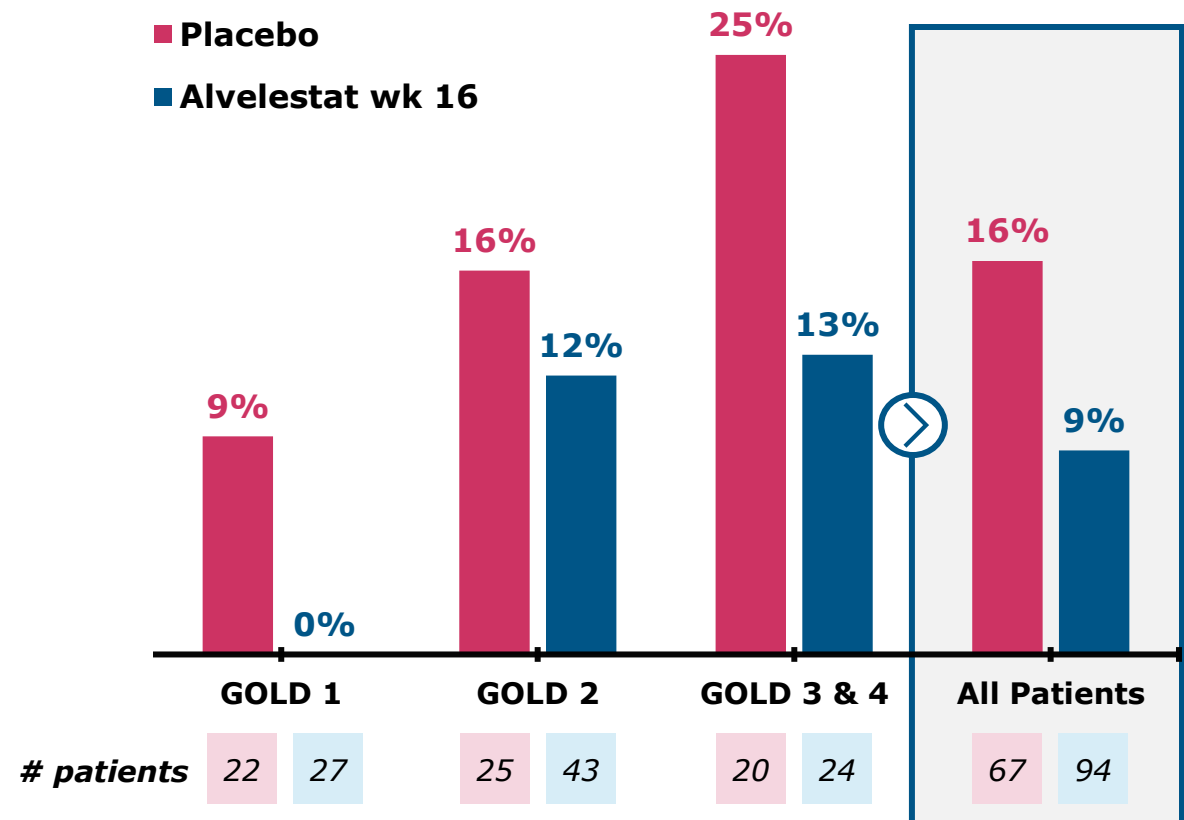
- Headache was most frequent adverse event, generally mild or moderate and resolving on continued dosing. 3 cases reported as SAEs (240 mg)

Including legacy studies, safety database of 1,269 subjects exposed to alvelestat

Preliminary data support a protective effect of alvelestat on acute exacerbations

- Reduction in acute exacerbations observed in Phase 2 program
 - Effect observed across all levels of GOLD severity¹
 - Effect remains consistent when adjusted for exposure
- Augmentation therapy has not shown benefit on exacerbations:
 - Meta analysis of EXACTLE and RAPID trials showed significant 0.29 per year increase in rate compared to placebo, $p=0.02^2$

% patients with exacerbations by week 16
 ATALANTa + ASTRAEUS combined, all doses N=161



Association of alvelestat treatment with improvement in Respiratory Health Status (SGRQ), an FDA recognized PROM*

- St. George's Respiratory Questionnaire – Patient reported outcome in COPD recognized by FDA
 - Total score = Activity, Symptoms and Impacts domains
 - Activity domain most impacted in patients with AATD
- Potential tool for “feels and functions” endpoints required by the FDA for registrational trials in AATD
- In AATD studies, **SGRQ Total score** has been shown to deteriorate ~ 1 point per annum¹
- Phase 2 studies demonstrated a consistent association between the effects of alvelestat (biomarker reductions) and improvement in SGRQ (Total score and Activity Domain)^{2,3}
- Effect also observed for the COPD Assessment Test (CAT), another validated patient-reported quality of life tool
- ATALANTa study – greater effect in SGRQ (Total score and Activity domain) in non-augmentation subgroup with earlier stage lung disease (FEV₁)

Alvelestat is expected to be a long-term disease-modifying therapy going above & beyond augmentation therapy

Reduction in desmosine for 240 mg alvelestat at 12 weeks superior to augmentation therapy

		Augmentation therapy ¹	Alvelestat (240 mg, ASTRAEUS ²)
Desmosine (absolute reduction from baseline, mean)	Month 3	-0.013 ng/ml ⊖	-0.028 ng/ml ⊖
	Month 48	-0.074 ng/ml	Expect progressive improvement

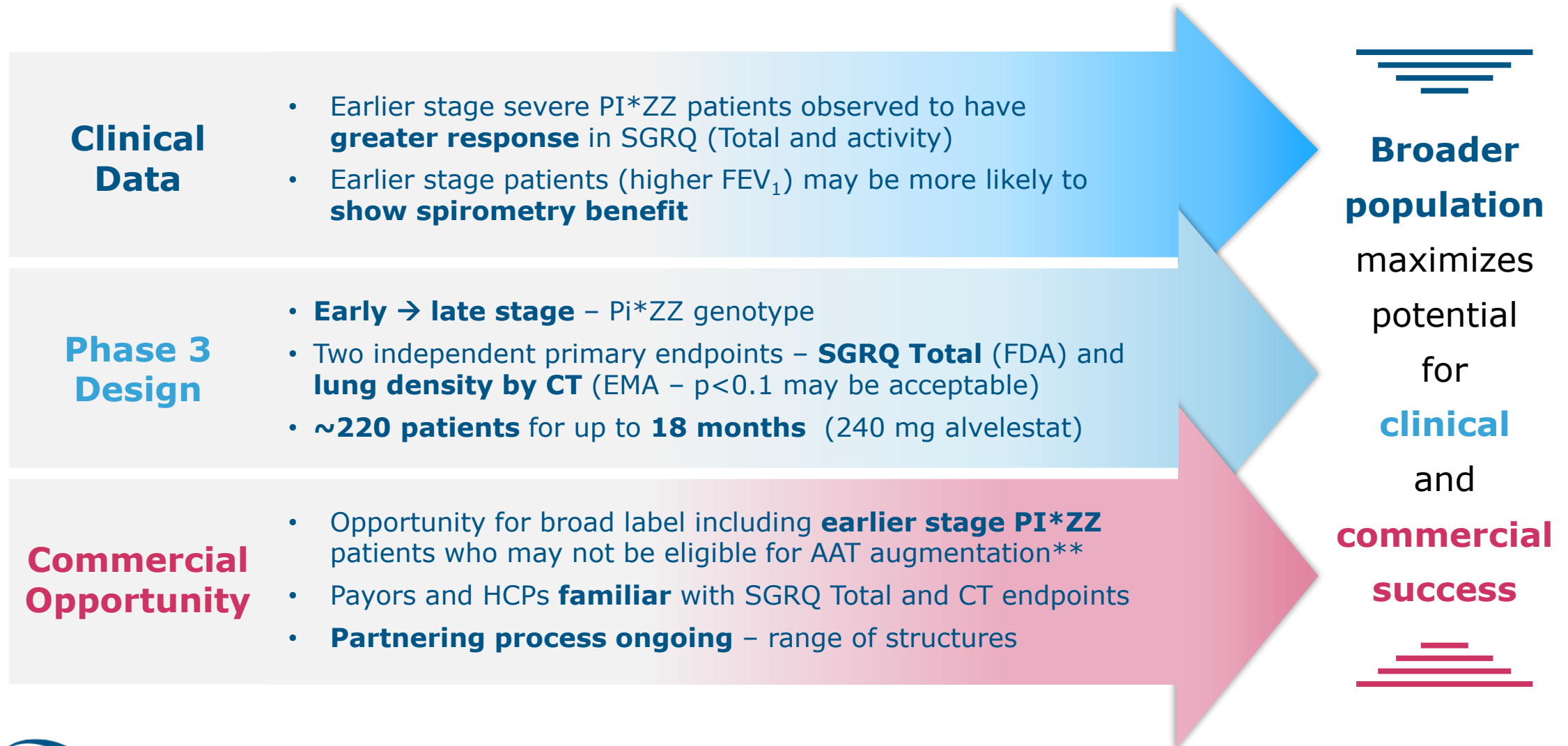
Long-term effect of alvelestat



Desmosine levels have been shown to significantly correlate with **clinically relevant measures** of disease severity in AATD-LD (FEV₁, SGRQ, and CT Density)^{1,2,3}

Disease-modifying

Well-defined plan for Phase 3 registrational trial in AATD-LD





Other programs, milestones and financials



Key milestones for core programs

Product candidate	2023		2024		2025		Next milestone
	H1	H2	H1	H2	H1	H2	
Setrusumab OI							Phase 3 Interim analysis Phase 3 Interim analysis
Alvelestat AATD-LD BOS*							Potential partnering, Phase 3 initiation Medical conferences BOS: Phase 2 data

Other programs

Other current partnerships

Navicixizumab – global rights out-licensed to Feng Biosciences for further development in ovarian cancer

- Payments of up to \$300 million in milestones plus royalties

Leflutrosole – global rights out-licensed to ReproNovo for further development

- ReproNovo is a reproductive medicine company
- Upfront plus up to \$64 million in milestones and royalties

Partnering opportunities

Etigilimab – anti-TIGIT which has completed a Phase 1b basket study in a range of rare tumor types in combination with nivolumab. It is currently in a Phase 1b/2 investigator led study at the MD Anderson in clear cell ovarian cancer in combination with nivolumab, which has been expanded from the initial 10 patients to 20 patients. This study is funded by the Cancer Focus Fund.

Acumapimod – a P38 MAP kinase inhibitor which has successfully completed a Phase 2 study in Acute Exacerbations of chronic obstructive pulmonary disease (AECOPD) in 282 patients

Financial highlights

Cash runway into 2027

\$80.5 million as of
September 30, 2024

Cap Table (September 2024)	ADSs (in thousands)
Shareholders > 2% holding	86,026
Shareholders < 2% holding	68,709
Share capital – Issued and outstanding as of September 30, 2024¹	154,734
Potential Future Dilution:	
Warrants ²	1,401
Convertible loan notes	3,421
Employee share schemes ³	11,028

¹ ADS equivalents of 773,672,299 ordinary shares, with one ADS representing five ordinary shares.

² Assumes a market price of \$4.00 per ADS and cashless exercise. The maximum number of warrants outstanding is 1.8m.

³ Excludes 1.4m ADSs for employee share awards with an exercise price in excess \$8.00; Most employee share awards have an exercise price between ~\$1.00 - \$6.00.

Thank you

With a special thank you to members of our community, who generously agreed to be featured in this presentation.



APPENDIX





Setrusumab (BPS-804)

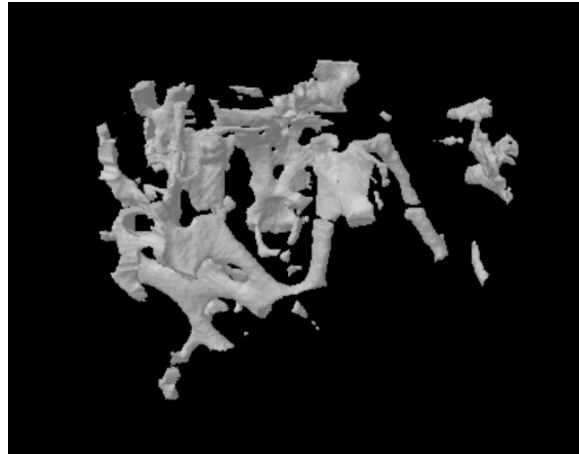
Mouse models and HR-pQCT



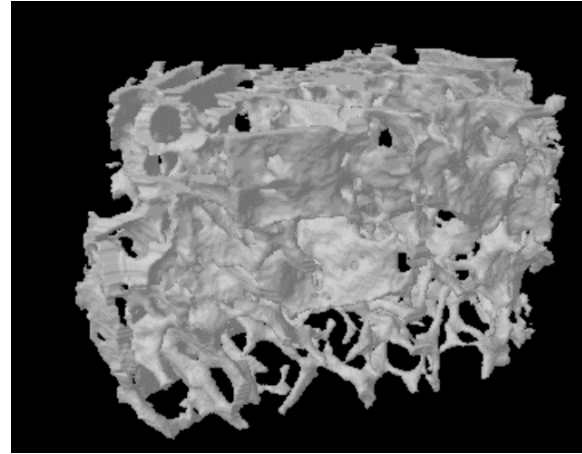
Rare Disease
Day
February 2023

Brittle mouse model (Brtl/+)- treatment with BPS-804 (setrusumab)

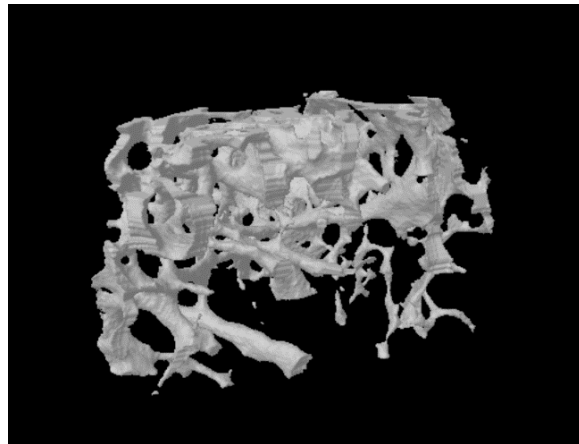
Mature Brtl control



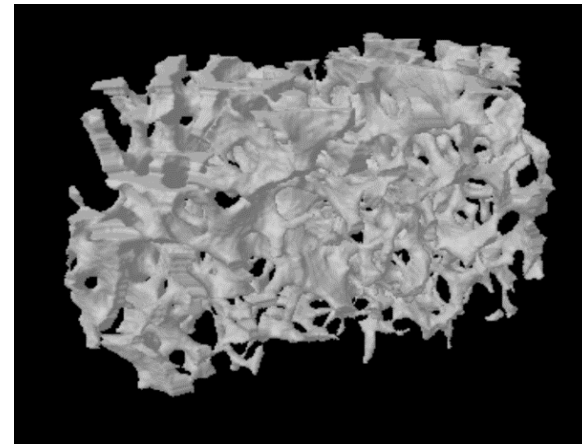
Mature WT Control



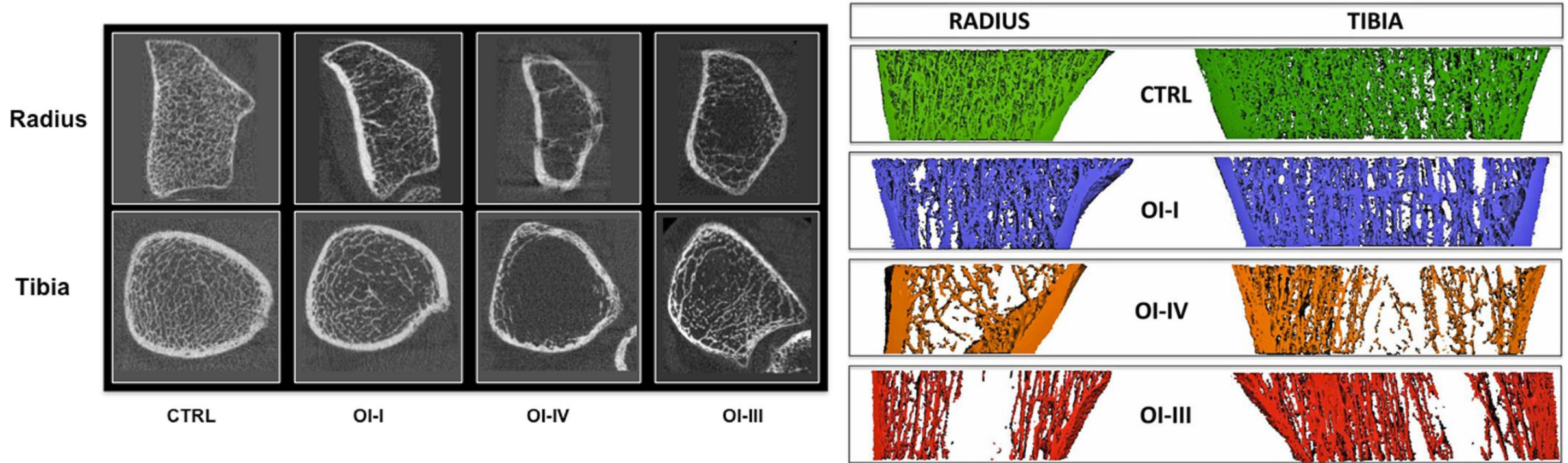
Mature Brtl treated



Mature WT Treated



HR-pQCT scans of patients with OI and controls



The OFLEY STUDY and HR-pQCT

- Prospective study investigating the prediction of fracture (Fx) by bone microarchitecture assessed by HR-pQCT in postmenopausal women
- HR-pQCT used to measure microarchitecture at the distal radius and tibia in 589 women (mean 68 years old)
- During 9 year follow up 135 women sustained a fracture including 81 women with a major osteoporotic fracture
- After adjusting for age, women who had fractures had significantly lower total and trabecular volumetric densities (vBMD) at both sites as determined by HR-pQCT
- OI patients have fewer and thinner trabeculae and increased cortical porosity



Alvelestat (MPH966)

Additional data



Alpha 1 Support
Group UK
Information Day
September 2023

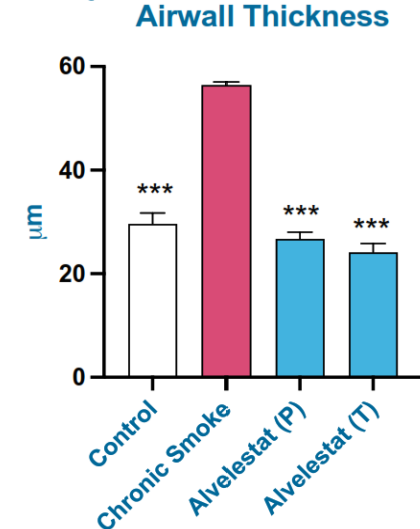
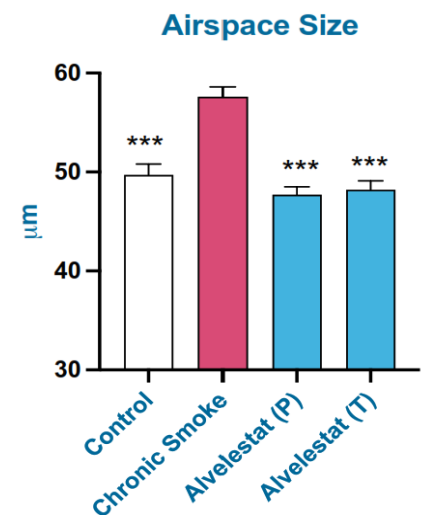
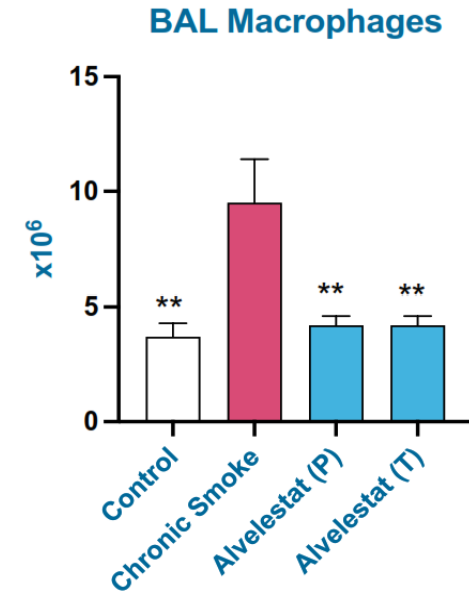
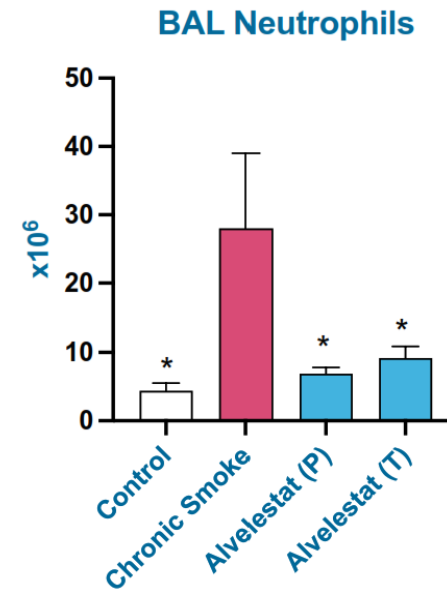
Alvelestat is highly effective in an Animal Model of AATD Lung Disease

Six-month Chronic Smoke (CS)-exposed guinea-pig model of AATD emphysema¹

- CS inactivates AAT
- Progressive inflammation, airspace enlargement and airway remodeling

At clinically relevant doses, alvelestat, prophylactically (P) and therapeutically (T), completely prevented²

- Increases in lavage neutrophils and macrophages
- Airspace enlargement (emphysema) and small airway remodeling



* $p < 0.03$, ** $p < 0.002$, *** $p < 0.001$

Earlier stage lung disease patients show greater SGRQ response

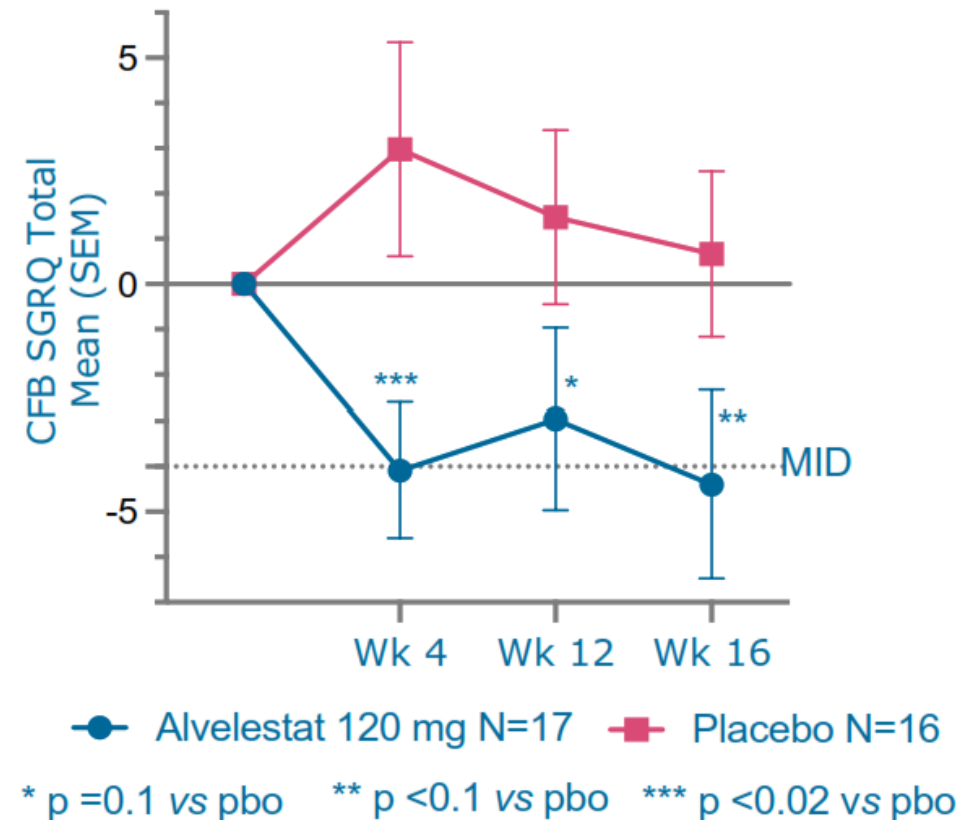
- ATALANTa study – Non-augmentation subgroup (median FEV₁ 89.3%). Between group changes at week 12:
 - **SGRQ Total** = 4.7-point improvement (p=0.10)
 - **SGRQ Activity** = 10.0-point improvement (p=0.01)
- Post hoc analysis of ASTRAEUS and **SGRQ Total** change shows earlier stage patients also had the greatest improvement

Following FDA input, a qualitative validation study has been completed at several US sites to meet the initial requirements for SGRQ as a primary efficacy assessment in Phase 3.

Study concluded:

"The SGRQ is fit for purpose, content valid measure for patients with AATD-LD and is suitable for use as a key COA endpoint"

ATALANTa study (non-augmentation subgroup) – Change in SGRQ Total Score



Biomarkers and PK modelling confirm 240 mg dose for progression

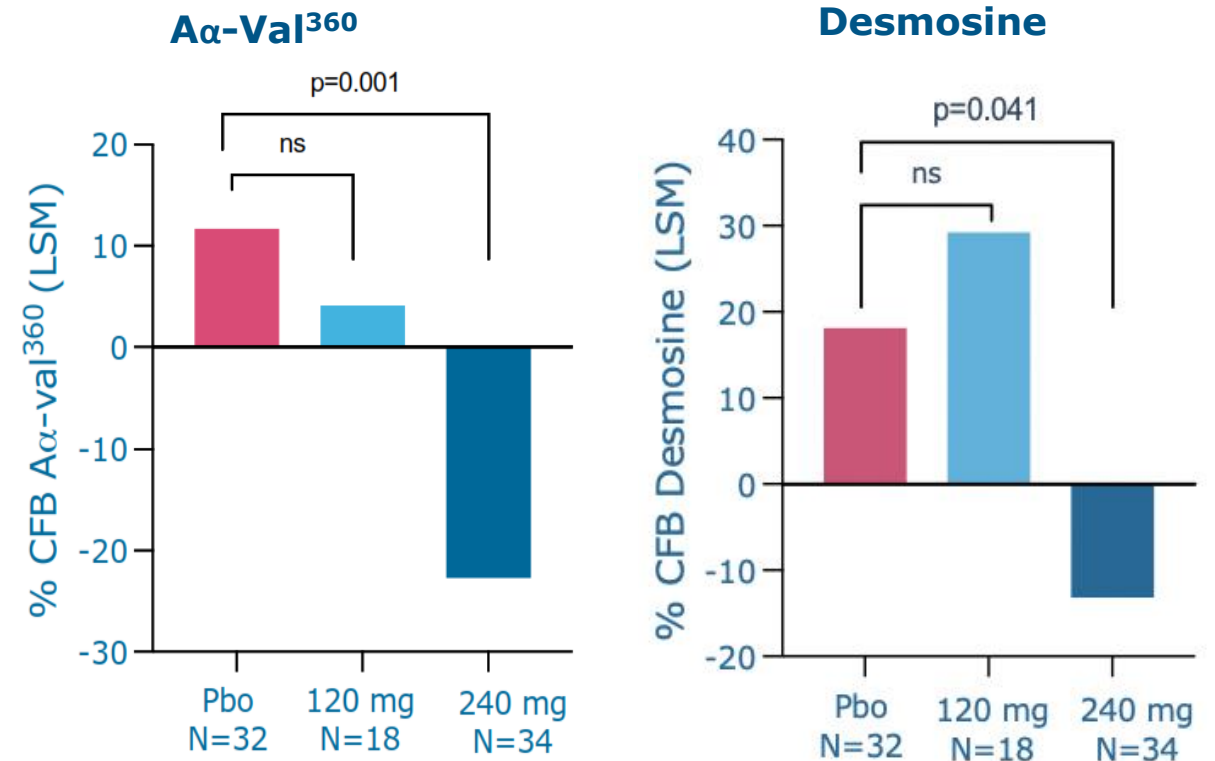
ASTRAEUS

- 240 mg – progressive reduction in biomarkers of NE-driven protein breakdown ($A\alpha$ -val³⁶⁰) and elastin turnover (desmosine)
- 120 mg – no effect on desmosine

ATALANTa

- Consistent with ASTRAEUS – 120 mg had no effect on desmosine
- Significant reduction from baseline in $A\alpha$ -Val³⁶⁰ ($p=0.03$), but not significant compared to placebo

ASTRAEUS (Primary Endpoints)



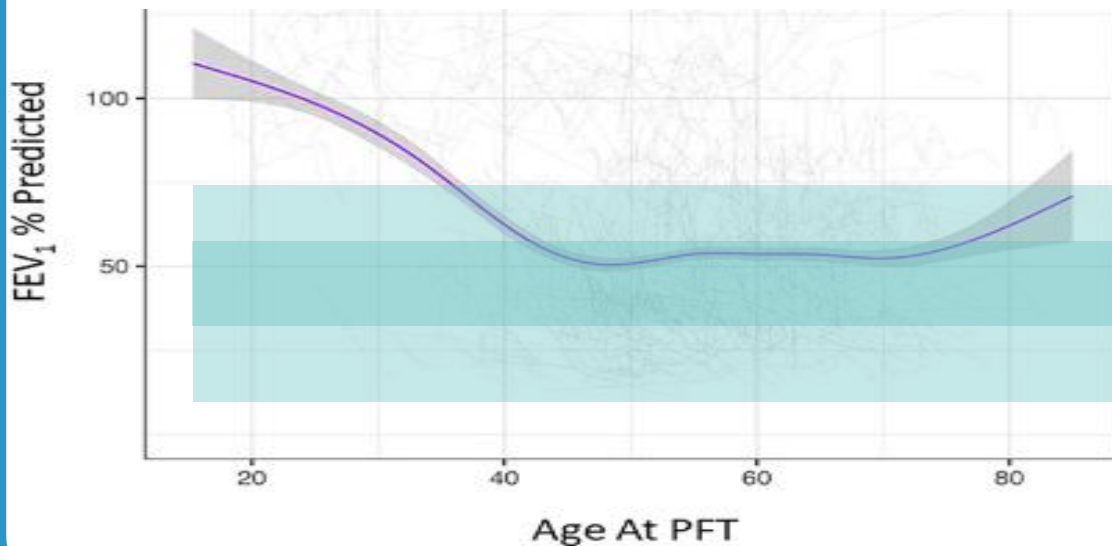
Population PK modelling predicts 240 mg achieves target drug levels in lung tissue

Historical augmentation studies

Limited to FEV₁ <70% or <80%

(Average FEV₁ in RAPID, EXACTLE ~50%)

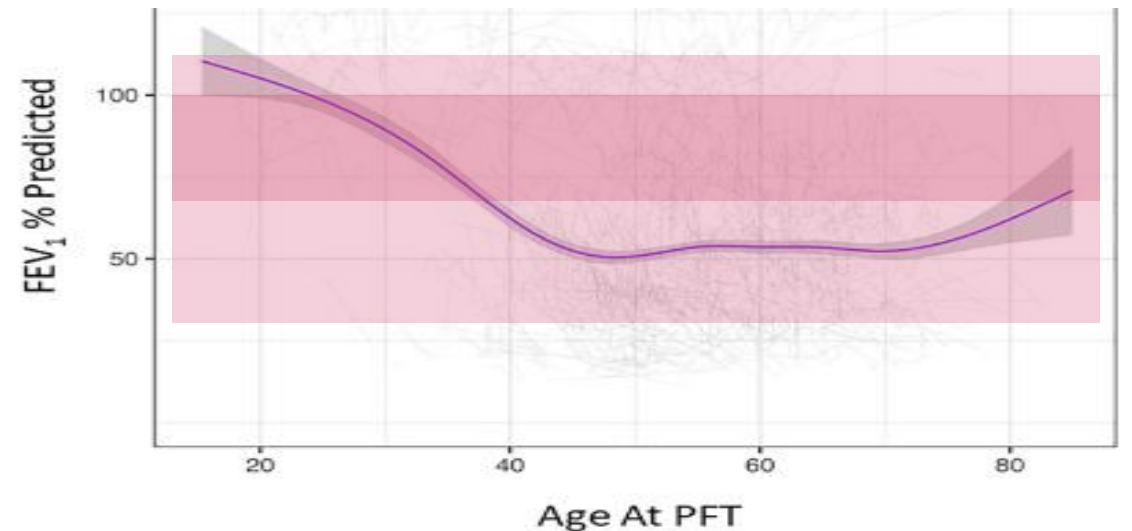
- Patients earlier in their disease not eligible
- Intervening later may limit impact



Mereo's approach to Phase 3

No upper FEV₁ limit

- FEV₁ – weighting towards patients >75%
- More patients eligible, including those not eligible for augmentation therapy
- Intervening earlier may have greater impact



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