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Santhera Pharmaceuticals Corporate Snapshot

SIX Swiss Exchange listed company (SANN)

Global headquarters near Basel (Switzerland) with internationally experienced leadership team Own commercialization of lead asset in Western European countries

Strong rare disease development capabilities

AGAMREE® (vamorolone) in Duchenne muscular dystrophy

Differentiated safety profile addresses needs across broad DMD patient segments Potential as alternative to corticosteroids in range of other therapeutic indications

Approvals by five authorities (US, EU, UK, CN, HK)

FDA (10/2023), EMA/EC (12/2023), MHRA (01/2024) and NMPA/NPC in China/Hong Kong (12/2024)

Launched in Germany by Santhera and in U.S. by partner Catalyst

Positive market reception in first launch markets

Finance

New financing in August 2024

Cash runway to cash-flow break-even including commercial EU infrastructure & launch

Major shareholders: Catalyst (11%), Idorsia (10%) and Highbridge Capital (8%)



Value driver in DMD with broad potential

AGAMREE® (vamorolone) foundational therapy in DMD

- U.S. FDA full approval on October 26, 2023; US launch on March 13, 2024
- EC full approval on December 18, 2023; German launch on Jan 15, 2024
- MHRA full approval on Jan 2024 and by NMPA/NPC in China/Hong Kong in Dec 2024
- Potential as alternative to corticosteroids in broad range of therapeutic areas
- Own commercialization in selected Central & Western EU countries
- Commercialization by partner Genesis in remaining EU and Eastern European countries
- Peak potential > EUR 150 million in DMD (Santhera estimate for own markets)
- Commercialization in the U.S. by partner Catalyst, in China & SE Asia by Sperogenix

Worldwide rights for all indications (Licensing partners in North America and China/ SE Asia)







Lead asset AGAMREE® in DMD approved by FDA, EMA, MHRA and NMPA

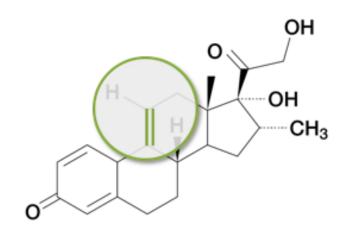
Launch in Germany on January 15, 2024, by Santhera and on March 13, 2024, in the U.S. by Catalyst

Molecule	Study / Indication	Proof of Concept Pivotal Filing Market Phase 4	Remarks
Vamorolone	DMD development VISION-DMD	Approved in US, EU, UK and CN/HK	North America & China/ South-East Asia partnerships with Catalyst and Sperogenix, respectively
dissociative steroidoral suspension	DMD long-term extension GUARDIAN	Ongoing	Establish long-term benefit in DMD for patients on drug for 6+ years
	Mechanistic study LIONHEART	Completed	Established mineralocorticoid receptor antagonism in human
Life cycle management	Becker muscular dystrophy	End early 2025	Trial under FDA grant to partner ReveraGen
	Steroid alternative in rare pediatric indications	Start in late 2025	Plans to be disclosed



AGAMREE® (vamorolone) in

Duchenne muscular dystrophy and
potentially in other disorders
where current steroid use has limitations



DMD offers attractive opportunity in well-defined orphan disease market

The DMD indication with few current treatment options is a fast-growing multi-billion market

- Approx. 30,000 35,000 patients in U.S. and Europe combined
- Well defined standard of care with corticosteroids as lead chronic treatment in established guidelines
- Patients diagnosed at early age and accessible
- Limited number of specialized centers
- Well knowledgeable patient advocacy groups

Focused expert centers treating patients in EU and U.S.





DMD	Centers	HCPs
U.S.	~90	~450
EU4+UK	~180	~750

Current and new therapies likely to be used in combination with corticosteroids

- Exon skippers and read through therapies serve niche segments based on genetic mutation¹
- Gene therapies deliver microdystrophin partially restoring function with re-dosing challenges¹



AGAMREE® can fill the need for a better foundational therapy in DMD

Corticosteroids delay disease progression by 2-3 years, but associated toxicities limit their use

ESTABLISHED EFFICACY OF STEROIDS

Classical corticosteroids demonstrate efficacy with delay in disease progression.

They are used on top of exon skipping and read-through drugs or gene therapies under development.

ESTABLISHED FOUNDATIONAL THERAPY

SAFETY ISSUES WITH STEROIDS

Classical corticosteroids are associated with significant side effect burden.

This leads to hesitance starting therapy in young boys, to underdosing and to early discontinuation.

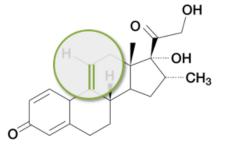
TOO LATE
TOO LITTLE
TOO SOON

VAMOROLONE OFFERING

Subtle difference in steroid chemical structure leads to dissociative properties.

Maintained antiinflammatory efficacy with improved safety profile has been established.

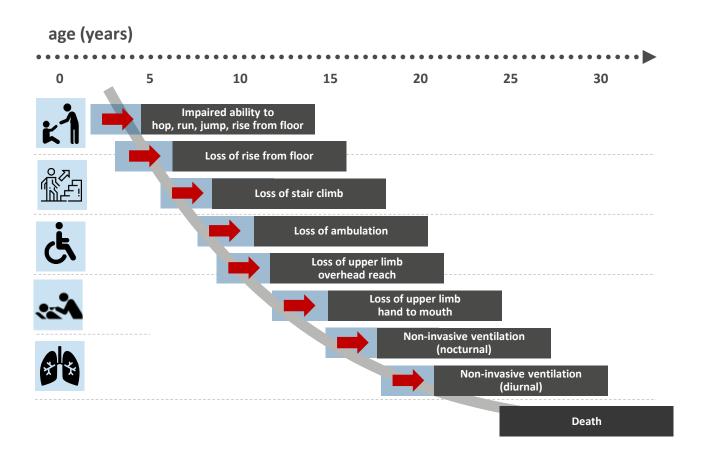
NEW
DISSOCIATIVE
STEROID





Corticosteroids delay disease progression in DMD by 2 – 3 years^{4,6}

Established endpoints and consistent evidence base through several clinical studies



Corticosteroids are the standard of care

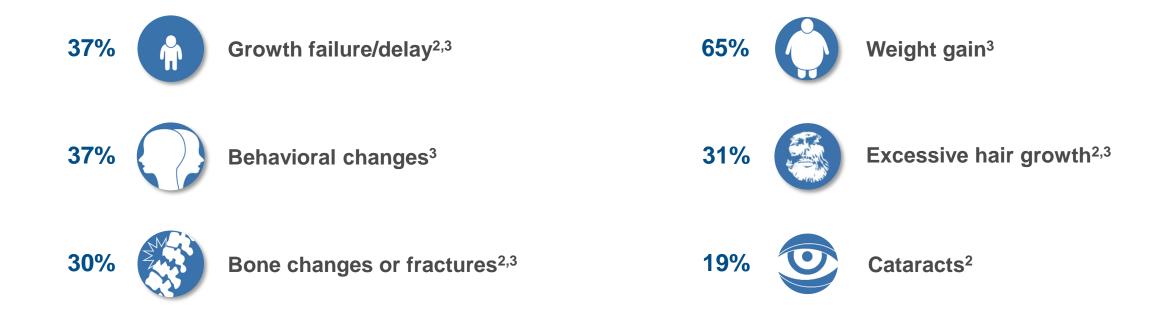
- DMD progression is sequential, non-linear and irreversible¹⁻⁴
- Early initiation of corticosteroids preserves
 muscle function and strength, delaying time to
 loss of functional milestones by 2 3 years^{4,6}
- Steroid treatment associated with a reduction in all-cause mortality, new onset and progressive cardiomyopathy⁵



Corticosteroid treatment is associated with well-defined toxicities

...up to 65% of DMD patients discontinue treatment early due to adverse events¹⁻³

Cushingoid appearance³

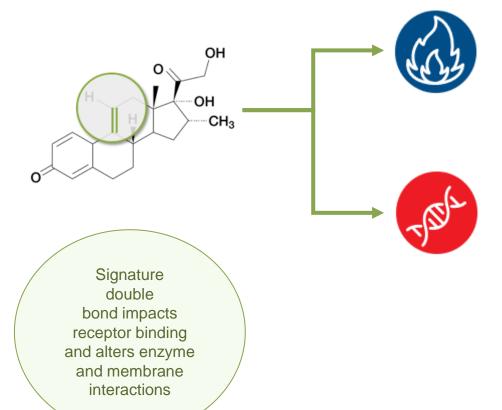




55%

AGAMREE® (vamorolone) dissociative properties

Subtle but impactful difference in chemical structure separates vamorolone from classical steroids¹⁻⁵



Like corticosteroids, efficacy maintained by potent anti-inflammatory action

Retained inhibition of NF-kB pro-inflammatory transcription factor

Unlike corticosteroids, potential for reduction of steroid-associated side effects

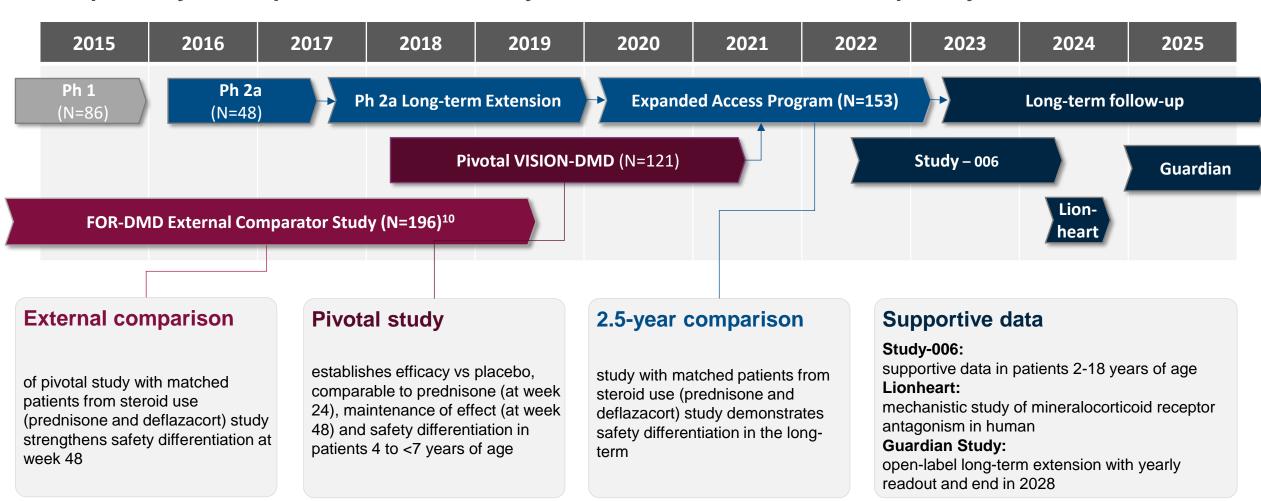
- Less activation of genes related to side effects
- Not a substrate of hydroxysteroid dehydrogenase
- Potent mineralocorticoid antagonist (eplerenone-like)
- Membrane stabilizer

524 WMS 2021, 4. Heier CR, et al. EMBO Mol Med. 2013;5:1569-1585, 5. Liu X, Proc Natl Acad Sci U S A. 2020



Comprehensive AGAMREE® (vamorolone) development 2-9

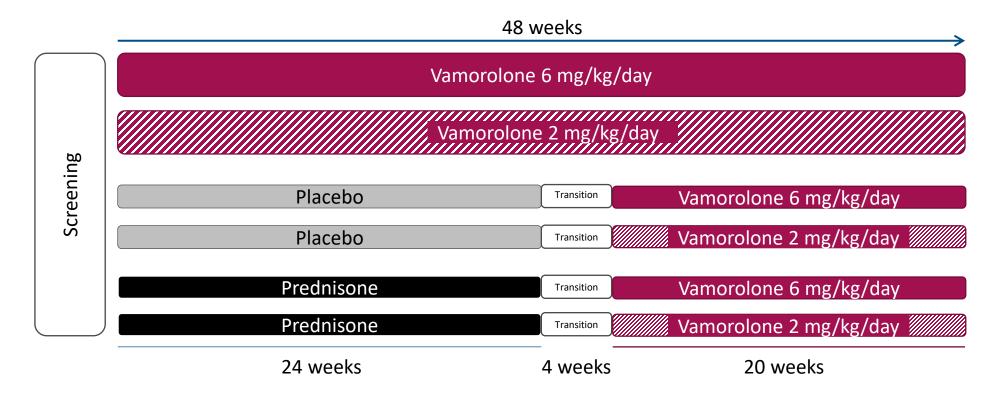
200 patient-years exposure in 160 DMD boys treated with vamorolone for up to 7 years¹





Pivotal VISION-DMD: Study design

Randomized, double-blind, placebo and active control trial in 121 steroid-naive patients, aged 4 – <7 years



Outcome measures

Primary efficacy outcome measure: TTSTAND velocity vs placebo at 24 weeks

Key secondary outcome measures: 6MWT, TTRW, TTCLIMB, NSAA, safety and tolerability



Primary endpoint met with high statistical significance at 24 weeks

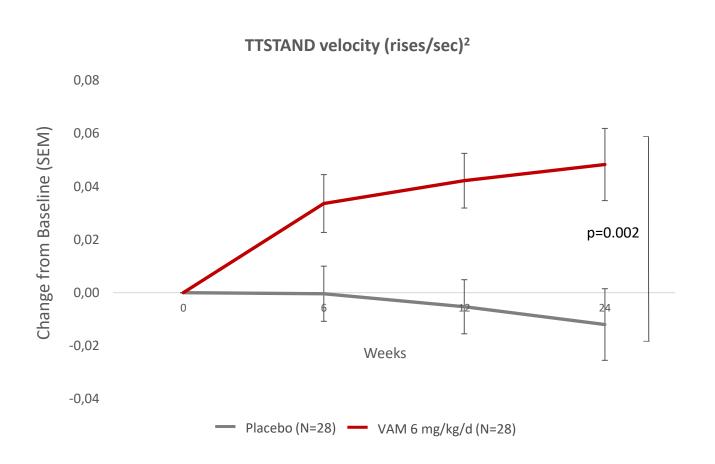
Consistent and robust efficacy shown by primary endpoint and majority of secondary endpoints for both vamorolone doses

Rank	Endpoint	Comparison vs placebo	Difference	MCID	P-value
Primary	TTSTAND velocity	vam 6mg/kg	0.06 rises/s	>0.023 rises/s1	0.002
	TTSTAND velocity	vam 2mg/kg	0.04 rises/s	>0.023 rises/s1	0.017
Pre-Specified,	6MWT	vam 6mg/kg	42 m	>26-32 m ^{2,3}	0.003
Hierarchical	6MWT	vam 2mg/kg	37 m	>26-32 m ^{2,3}	0.009
Secondary	TTRW velocity	vam 6mg/kg	0.24 m/s	>0.2 ^{1,2} m/s	0.002
	TTRW velocity	vam 2mg/kg	0.13 m/s	>0.2 ^{1,2} m/s	0.103
	TTCLIMB velocity	vam 6mg/kg	0.07 task/s		<0.001
Cunlouateur	TTCLIMB velocity	vam 2mg/kg	0.06 task/s		0.006
Exploratory	NSAA	vam 6mg/kg	3.4 points	>2-3 points ^{4,5}	<0.001
	NSAA	vam 2mg/kg	3.2 points	>2-3 points ^{4,5}	<0.001



Primary endpoint met with clinically relevant treatment difference

Observed difference of 0.06 rises/sec is expected to delay the time to loss of ambulation by 2-3 years¹







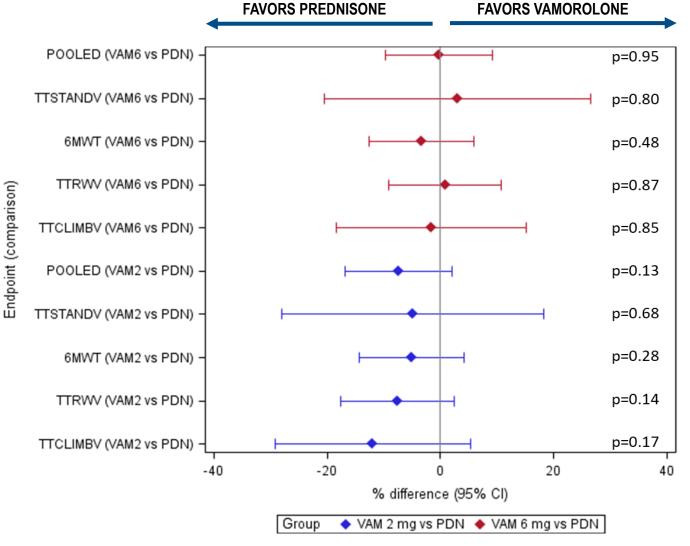
23% improvement in time to rise after 6 months of treatment with VAM 6mg/kg/d³

Rise time (sec) ²	BL	w 24	% Change
VAM 6 mg/kg/d	6.0	4.6	- 23%
Placebo	5.4	5.5	+ 2%



Comparable efficacy of vamorolone 6 mg/kg/d vs prednisone 0.75 mg/kg/d

Difference between groups in percentual change from baseline at week 24 (post hoc analysis)

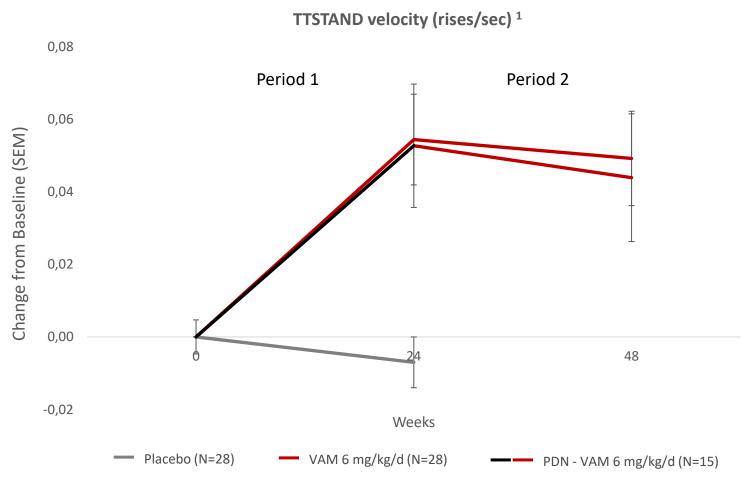




Corporate Presentation Dec 18, 2024

No loss of efficacy when switching from prednisone to vamorolone

Durable treatment effect maintained over 48 weeks with vamorolone 6 mg/kg/d¹



- During treatment period 1, patients on vamorolone 6 mg/kg/d showed same change in TTSTAND velocity as patients on prednisone before switching to vamorolone 6 mg/kg/d
- During treatment period 2, both groups showed same maintenance of effect
- Historical data consistently show that there is no further improvement with prolonged steroid treatment after the initial improvement in TTSTAND²

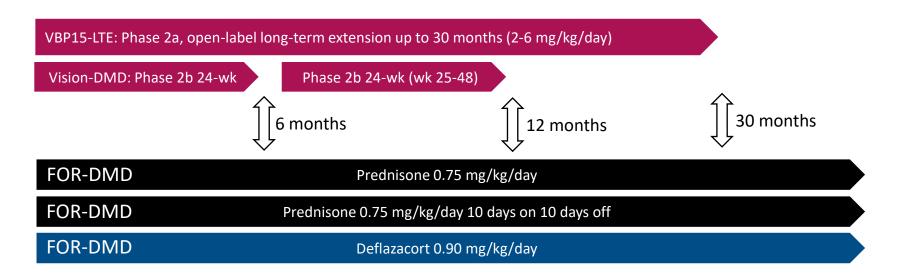


The FOR-DMD study provides external comparator data¹

Pre-specified analyses in double-blind, randomized, academic-run, independent study

DMD boys 4- <7 Steroid-naive N=121 (pivotal Phase 2b, 48-wks) N=46 (LTE, 30-months)

DMD boys 4-8 Steroid-naive N=196, 3-5 year follow-up

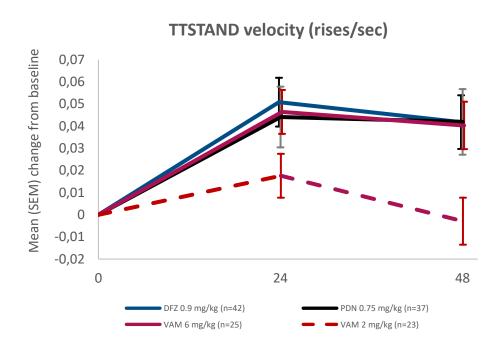


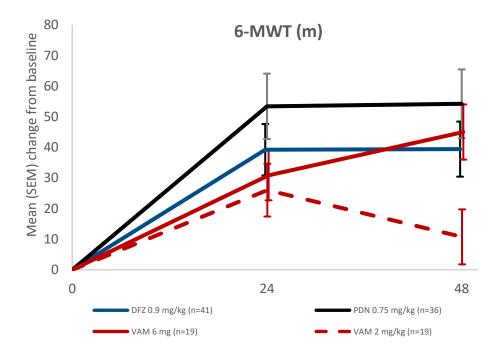
Time point	Efficacy		Safety			
	Comparison	Method	Comparison	Method		
24 weeks / 6 months	PDN (VISION-DMD) vs PDN (FOR-DMD)	Propensity score matching ²	PDN (VISION-DMD) vs PDN (FOR-DMD)	Inclusion criteria matching ³		
48 weeks / 12 months	VAM vs PDN vs DFZ	Propensity score matching ²	VAM vs PDN vs DFZ	Inclusion criteria matching ³		
2.5 years ⁴	Not applicable	Not applicable	VAM vs PDN vs DFZ	Inclusion criteria matching ³		



VISION-DMD pre-specified* analyses vs FOR-DMD external control

Propensity matched cross study comparison shows comparable efficacy for vamorolone 6 mg/kg/d versus standard of care corticosteroid treatment



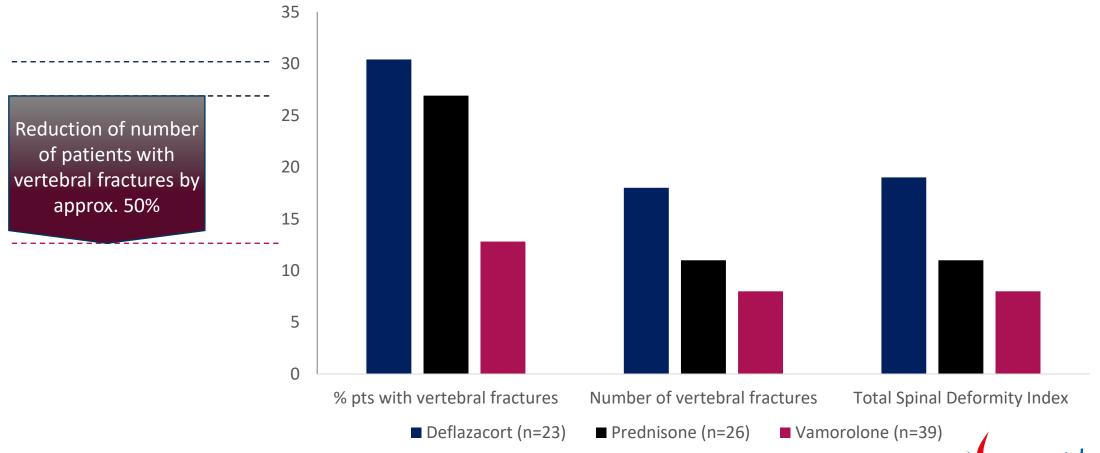




Fewer and less severe spinal fractures with vamorolone compared to classical corticosteroids over 2.5 years



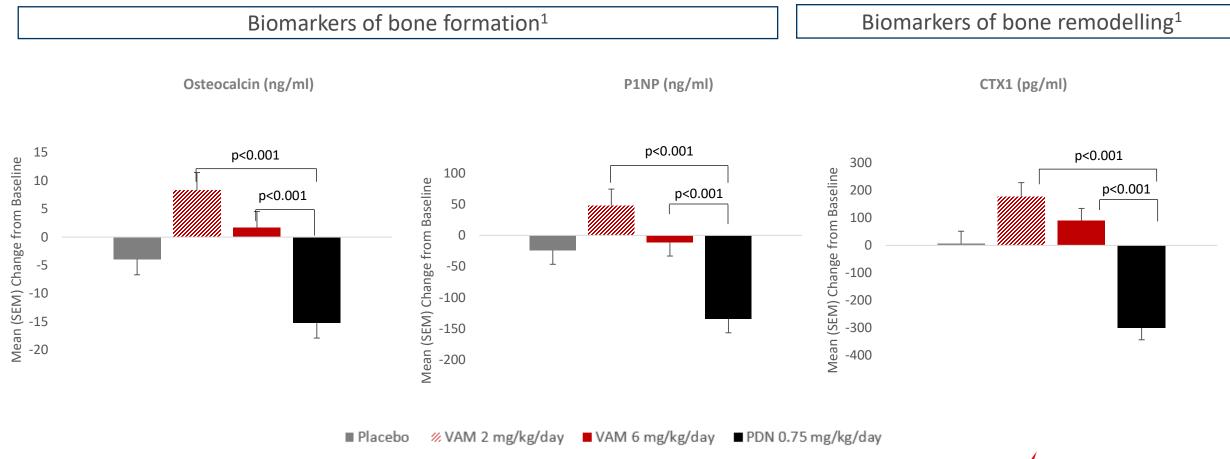
Vamorolone long-term extension (LTE) study vs FOR-DMD, matched comparison, central reading using modified Genant grades¹



Bone biomarker data from VISION-DMD study supports findings on long-term bone health



Unlike classical corticosteroids, vamorolone does not have a negative impact

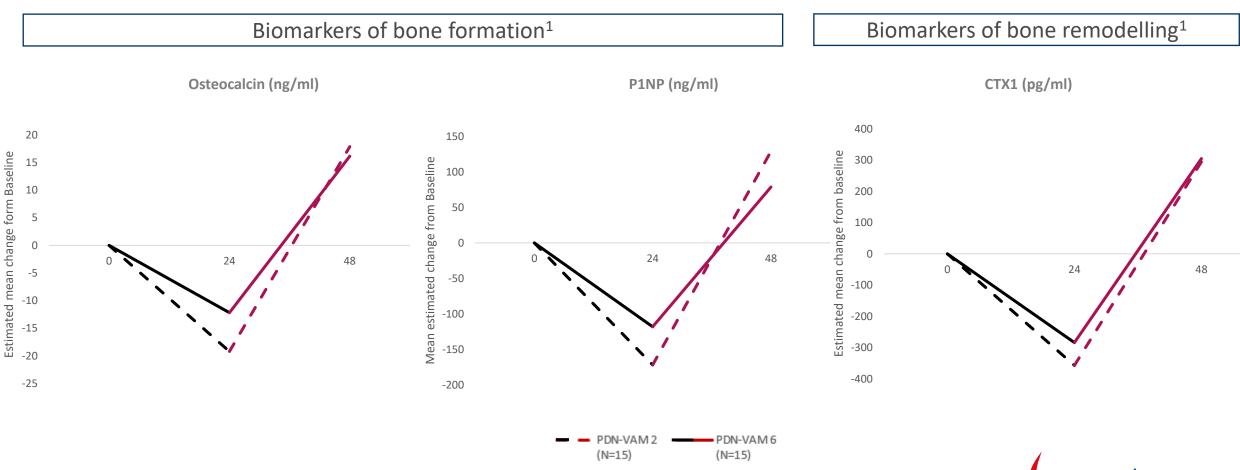




Bone biomarker data from VISION-DMD study supports findings on long-term bone health



Rapid recovery of bone biomarkers after switching from prednisone





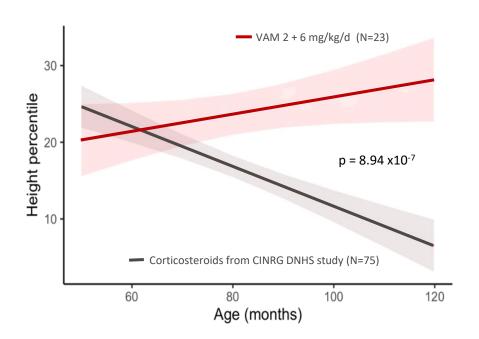
Vamorolone allows for normal bone development and growth



Comparison to natural history data and in patients switching from prednisone

Vamorolone did not stunt growth unlike other corticosteroids used in DMD

Modelling of height trajectory from long-term vamorolone data and corticosteroids from CINRG Natural History Data²



Switching from prednisone to vamorolone recovers normal growth trajectory (VISION-DMD study)

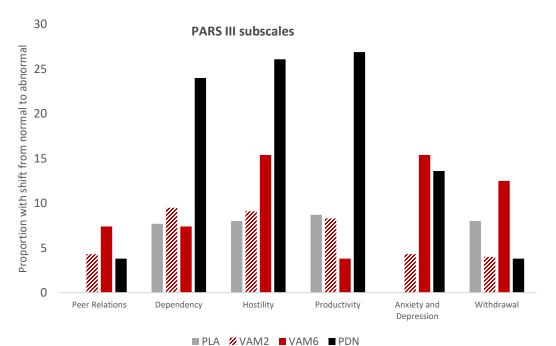




Fewer and less severe behavioral problems reported with vamorolone

Comparison of behavioral problems reported for vamorolone vs prednisone at week 24

VISION-DMD Study	Placebo N = 29	Prednisone 0.75 mg/kg/d N = 31	Vamorolone 2 mg/kg/d N = 30	Vamorolone 6 mg/kg/d N = 28
Behavior problems AESIs, N (%)	4 (13.8)	10 (32.3)	5 (16.7)	6 (21.4)
Moderate/severe AESIs, N (%)	1 (3.4)	7 (22.6)	1 (3.3)	-
AESIs leading to discontinuation, N (%)	0	1 (3.2)	0	0



PARS III scale: proportion of patients shifting from normal to a clinically relevant worsening by subscale, defined as shift from normal adjustment score (z-score <1) at baseline to abnormal adjustment score (z-score ≥1) at Week 24 based on normative data from Henriksen 2009



AGAMREE® (vamorolone) clinical data value proposition

- Durable efficacy comparable to standard of care with AGAMREE® 6 mg/kg/day
 - Statistically robust efficacy vs placebo at 24 weeks for both 2 mg/kg/day and 6 mg/kg/day
 - No loss of efficacy when switching from prednisone to vamorolone
 - Long-term efficacy of vamorolone 6mg/kg/day comparable to standard of care corticosteroids at 48 weeks
- Preserved bone health with AGAMREE®, unlike deleterious effect of standard of care corticosteroids (CS)
 - Normal bone turnover biomarkers and reduction of risk of spinal fractures with long-term treatment vs CS
 - Height trajectory as expected from CDC normalized growth curves unlike CS and comparable to placebo
- Improved safety profile compared to prednisone evident in the first 24 weeks
 - Placebo-like treatment emergent adverse events (TEAEs) with vamorolone 2 mg/kg/day
 - Fewer and milder TEAEs with vamorolone 6mg/kg/day compared to prednisone, including behavioral problems
- Effective 3-fold dose range with a dose-dependent safety profile allows for individualized dose adjustment as needed to best manage tolerability to maintain treatment long-term



Full approval by FDA, EMA, MHRA and NMPA for AGAMREE® in DMD

- Regulatory filings under review in Switzerland and Israel
- Orphan drug exclusivity in U.S. (7 years) and Europe (12 years incl. pediatric extension)
- Patent protection at least until 2040 (U.S.) and 2035 (EU)

	20	2023		2024			20	25	20	26	
	Q3	Q4	Q1	Q2	Q3	Q4	H1	H2	H1	H2	
		Approval Oct	Launch Mar								Catalyst
* * * * * * *		Approval Dec	Launch Jan								
			Approval Jan			NICE √	Launch				-) santhera
①					Filing Sep 24				Launch		
*:			Filing Mar 27			Approval Dec	Soft Launch				Sperogenix



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US: Launch by partner Catalyst

EU: Staggered launch by Santhera with first country Germany started in January 2024

UK: Positive recommendation by NICE (National Institute for Health and Care Excellence)

CH: Outcome expected in late H1-2026 or early 2026 if Article 13 (including foreign authorities` assessment) is accepted

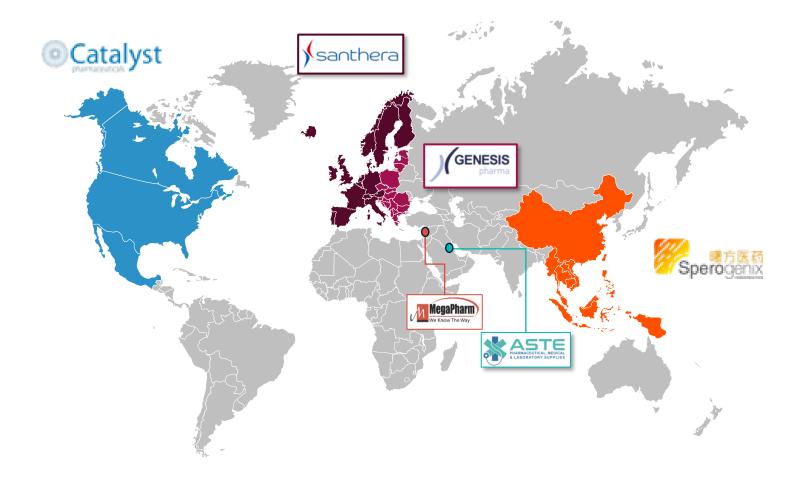
CN: Approved by NMPA and DO in HK in Dec 2024; Soft launch while under pricing negotiations

Stepwise global expansion with strong partners under way

Santhera holds global rights in all territories not yet covered by agreements

Geo-expansion

- Santhera is actively pursuing further international partnerships
- Currently patients are treated with Agamree in the US, multiple European countries, Israel, China and Qatar





Santhera commercial launch in key European geographies

Santhera aims to market vamorolone in DMD itself in territory with population of ~ 410 million

First launch in Germany in January 2024

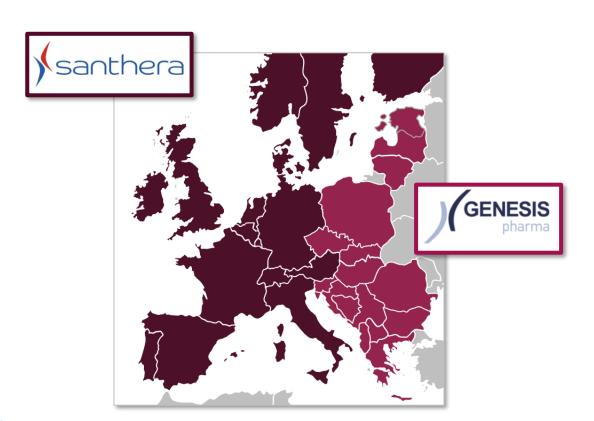
- Staged roll-out across the key European markets
- Strong and growing stakeholder support

Lean commercial organization

- Up to 50 incremental employees over next two years
- Country activities supported by central hub

European market opportunity in DMD alone

- Expected peak sales of EUR >150 million in Santhera territory
- Additional revenue from distribution partner Genesis





Market access and launch milestones in Europe

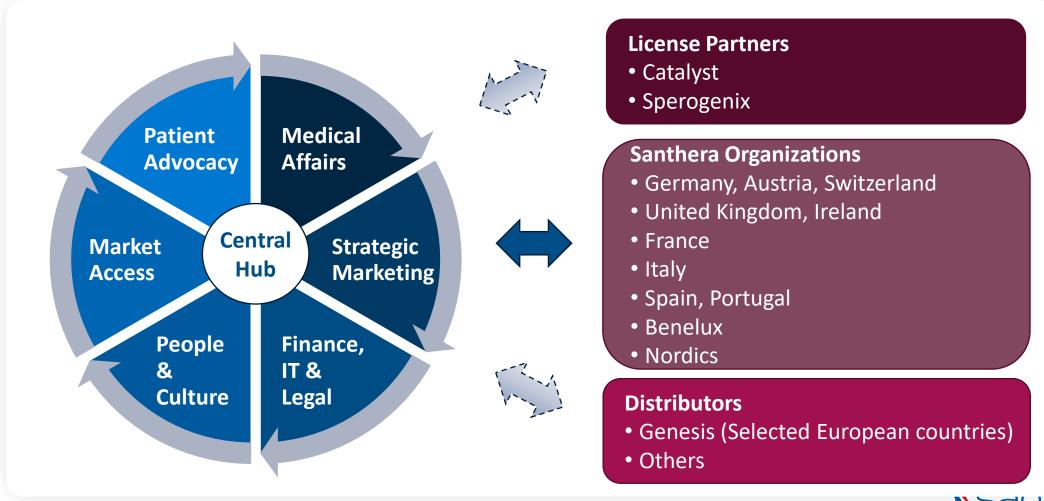
- UK in Q1-2025 will follow Germany as the second country with commercial, reimbursed launch
- Several other countries are in market access discussions with authorities with launches planned for 2025

			2024			2025				2026		
		Status	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	H1	H2
	Germany	Launched	Launch	Prio	ing negot	iations*						
1 b	UK	NICE Recommendation	Pricir	ng negotia	ations	NICE	Launch					
瀛	Spain	Submitted		NPP		Pricing	negotiatio	ons				
	Italy	Submission Q1-2025		NPP Pricing negotiations								
	France	Submitted		Pricing negotiations TBI						BD)		
	Other EU	Ongoing		Launch preparations								



Santhera commercial set-up with central hub structure at headquarters

Headquarter core functions collaborate with license partners and support own lean country teams as well as distribution partners



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Market opportunity to change the foundational therapy in DMD

AGAMREE® can adress the shortcomings of current standard of care corticosteroid use

AGAMREE[®] opportunity for change

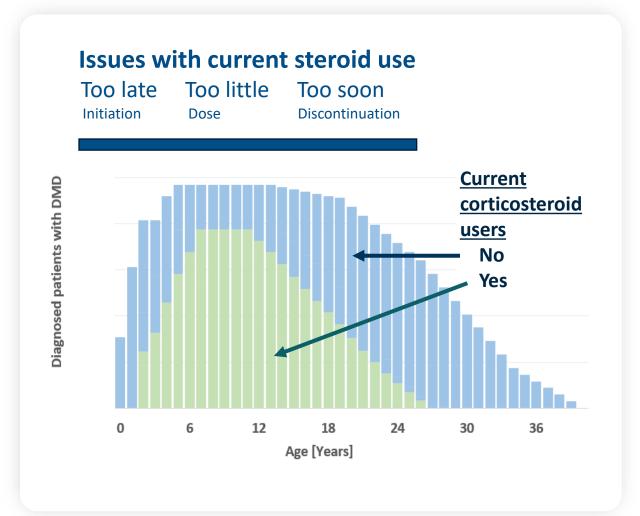
- Replacing current corticosteroid treatment initiation
- Switching patients from standard corticosteroids
- Restarting treatment for patients recently discontinued

Market Size

In Santhera's own commercialized markets, there are about 13,000 patients with DMD, of which approximately 8,000 boys/men are being treated with standard corticosteroids^{1,2}

AGAMREE® potential

- In own markets, up to 5,000 patients are expected to be on AGAMREE® by end of 2028
- In own markets, standard range of orphan drug pricing leads to a peak sales estimate of EUR >150 million
- In entire Europe, sales of EUR >150 million are expected by 2028 already (including partners)





Vamorolone in Becker muscular dystrophy

Becker muscular dystrophy (BMD) disease profile and corticosteroid use

Genetics

X-linked recessive form of muscular dystrophy typically diagnosed between age 5 and 15

Cause

Partial loss of function of dystrophin with a broad clinical variability

Patients

Higher life expectancy and lower prevalence than DMD (approx. 1/3)

Symptoms

Progressing muscle weakness and degeneration with later and slower onset compared to DMD

Medical need

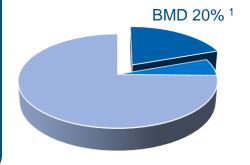
No approved treatment and under-represented development efforts

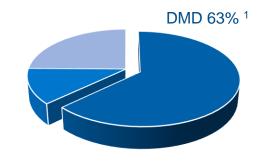
CORTICOSTEROIDS IN BMD

Steroid use is lower compared to DMD due to perceived less favorable benefit-risk ratio for current steroids1 Vamorolone addresses safety concerns and may qualify for a chronic treatment in BMD

Evidence for corticosteroid use in BMD

- Efficacy from limited patient case studies
- Data from *in vivo* models of inflammation





- currently on corticosteroids no longer on corticosteroids
- never been on corticosteroids

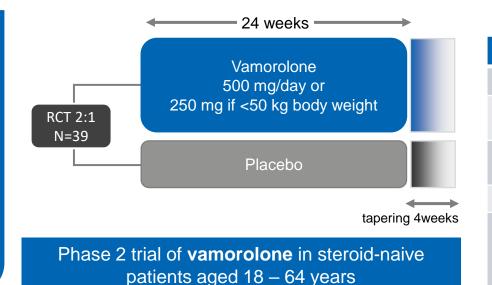


Vamorolone holds promise in BMD based on data generated for DMD

Vamorolone designated orphan drug status by FDA in January 2024

Vamorolone potential benefits in BMD^{1,2}

- Anti-inflammatory agent with reduced side effects via dissociative character of vamorolone
- Cardiac benefit via mineralocorticoid antagonism
- Potential to increase dystrophin levels via suppression of dystrophin-targeted microRNAs



	NCT05166109
Sponsor	ReveraGen
Objectives	Safety and efficacy
Centers	Pittsburgh (USA), Padua (IT)
PI	P. Clemens, USA
Funding	FDA , NIH, Foundation Eradicate Duchenne

CURRENT CLINICAL DEVELOPMENT IN BMD (all three drugs are developed both in BMD and DMD)³

- Phase 2 completed: Givinostat (Italfarmaco), 12-month treatment in 51 patients
- Phase 2 recruiting: EDG-5506 (Edgewise), 12-month treatment in 54 patients
- Phase 2 recruiting: Vamorolone (ReveraGen/Santhera), 24-week treatment in 39 patients
- Natural history study ongoing: (Edgewise), 24-month observational study in 150 patients



Half-year 2024 financial results and update (Sept 12, 2024)



2024

Interim Condensed Report January to June 2024

Santhera Announces Half-Year 2024 Financial Results and Provides Corporate Update

- Revenue from contracts with customers of CHF 14.1 million (H1-2023: CHF 3.9 million)
- Operating result of CHF-17.7 million (H1-2023: CHF-20.3 million) and net result of CHF-15.3 million (H1-2023: CHF-23.3 million)
- AGAMREE® (vamorolone) launched in Germany and Austria as first European markets; North America partner has launched in the U.S.
- Approval of AGAMREE in the UK for the treatment of Duchenne muscular dystrophy (DMD); new drug application (NDA) in DMD under regulatory priority review in China
- Cash and cash equivalents of CHF 16.5 million (June 30, 2024); bolstered by financing of up to CHF 69 million (closed in August 2024) to provide funding into 2026 when cash flow break-even is expected
- Business now fully focused on European commercialization and further geographic expansion of AGAMREE in DMD

Pratteln, Switzerland, September 12, 2024 – Santhera Pharmaceuticals (SIX: SANN) announces the Company's financial results for the six months ended June 30, 2024, reports on progress with AGAMREE® (vamorolone) for the treatment of Duchenne muscular dystrophy (DMD) and provides updates on its corporate and financing initiatives.



Santhera financial status

Santhera Pharmaceuticals is listed on the Swiss Stock Exchange SIX: Ticker SANN

48.1

Cash runway

- August 2024: CHF 52 million post financing and settlement of convertible bonds
- Financing extends runway into 2026 and planned cash breakeven
- Key figures prior to financing Aug 2024 (CHF million as of June 30, 2024 / 6-month period)*

•	Net revenue	14.1
•	Net (loss)	(15.3)
•	Cash (used) in operations	(15.3)
•	Cash & cash equivalents	16.5
•	Convertible bonds (maturity August 2024)	(23.7)

Recent milestones AGAMREE® for DMD

- √ 01-2024: Launch in Germany on Jan 15, 2024
- √ 03-2024: Launch in U.S. on Mar 13, 2024
- ✓ 08-2024: Up to CHF 69 million financing extending runway
- √ 09-2024: Distribution partner Genesis (Selected European)
- √ 09-2024: MAA accepted for review by Swissmedic
- √ 12-2024: Approval in China/Hong Kong for partner Sperogenix

Capital structure

- Basic shares outstanding 12.6 million
- Market capitalization CHF 121 million (per share CHF 9.62)
- Major shareholders Catalyst (11%), Idorsia (10%) and Highbridge Capital (8%)
- Research by H.C. Wainwright, Octavian and ValuationLAB



Shareholders' equity

