



Fulcrum
Therapeutics

 **Nasdaq** FULC

January 2024

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Unlocking the Power of Small Molecules to Change the Course of Genetically Defined Rare Diseases



Diversified biotech developing oral small molecules designed to modify gene expression: **Two wholly owned clinical programs**



Losmapimod: first-to-market potential in facioscapulohumeral muscular dystrophy (FSHD); granted **Fast Track and Orphan Designations**



Pociredir: potential **best-in class** oral small molecule HbF inducer for sickle cell disease (SCD); granted **Fast Track and Orphan Designations**



Discovery efforts validated by two clinical programs

Strong cash position with **runway into 2026**

Founded in 2015

IPO in 2019

Ticker: FULC

Robust Small Molecule Pipeline Across Multiple Rare Diseases

Indication	Asset / MOA	Preclinical	Phase 1	Phase 2	Phase 3
Clinical Programs					
FSHD	Losmapimod (DUX4 Reduction)				
SCD	Pociredir (HbF Induction)				
Discovery Programs					
Blood Disorders					
Muscle Disorders					
Collaborations					
Cardiomyopathies Bristol Myers Squibb™					

FSHD: Facioscapulohumeral muscular dystrophy; HbF: Fetal hemoglobin; SCD: Sickle cell disease



LOSMAPIMOD

for Facioscapulohumeral
Muscular Dystrophy (FSHD)

Fast Track Designation
Orphan Drug Designation

FSHD: Debilitating Disease With No Approved Therapies

The Disease

Chronic, progressive genetic muscular disorder characterized by significant muscle cell death and fat infiltration into muscle tissue

Debilitating Symptoms

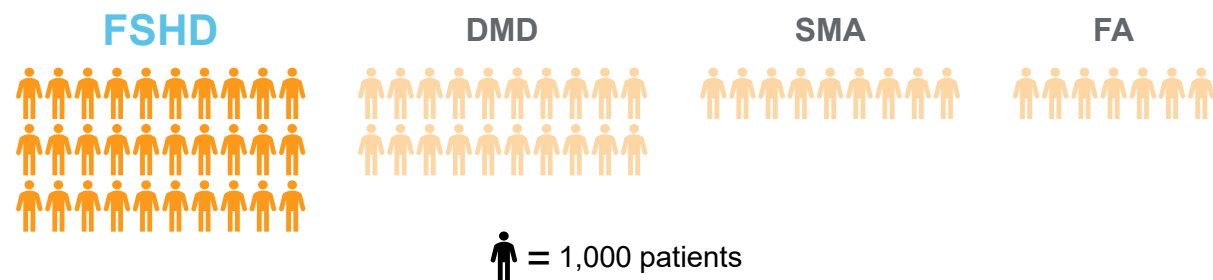
- Significant impairment of upper extremity function and mobility
- Many patients unable to work or live independently
- Approximately 20% of affected individuals become wheelchair-bound

Treatment Options

No approved therapies for FSHD

Population

Second most common adult muscular dystrophy affecting approximately 30,000 individuals in the US*



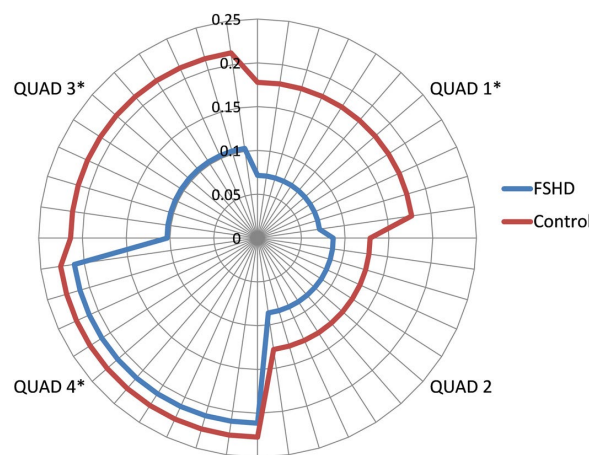
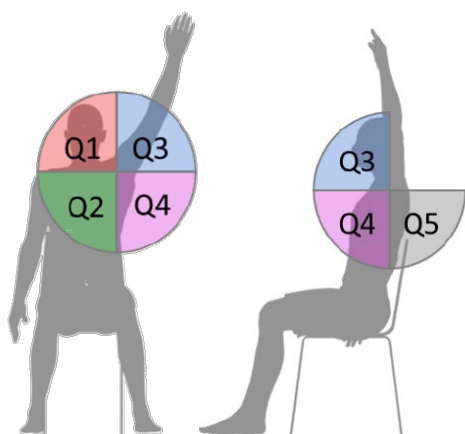
Disease Progression

Implementing innovative clinical outcome measures and metrics is necessary to quantify disease progression

- Reachable workspace (RWS): Measure of disease progression
- Muscle fat infiltration (MFI): Measure of muscle health

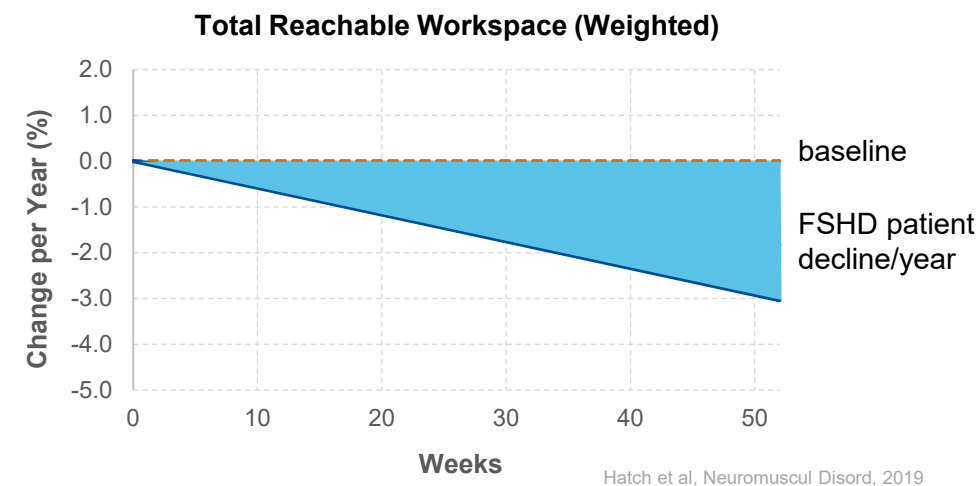
Reachable Workspace Enables Quantification of Disease Progression

RWS measures global upper extremity function



Han et al, Muscle Nerve, 2015

FSHD natural history demonstrates a ~3% RWS decline year over year

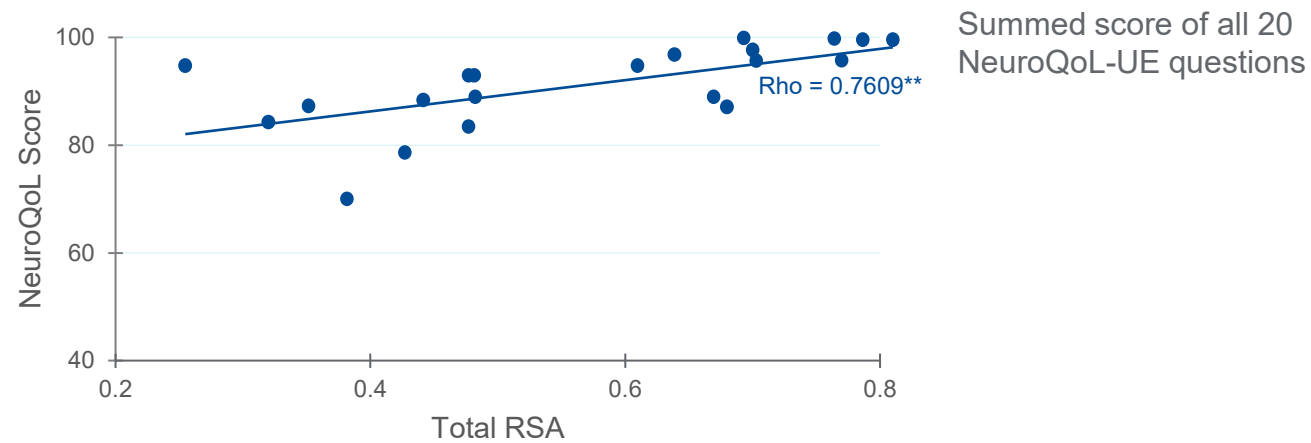


Hatch et al, Neuromuscul Disord, 2019

- Reachable Workspace (RWS) is a quantification of upper limb motion utilizing a contactless sensor-based system
- RWS is evaluated using a series of protocol-directed arm motions (with and without weights) assessing Relative Surface Area (RSA) across five quadrants (Q1-Q5)
- RSA has been shown to correlate with abilities to perform activities of daily living (e.g., eating, self-care)

- Demonstrated sensitivity to disease progression in FSHD and in Duchenne/Becker muscular dystrophy
 - A longitudinal study in a FSHD patient population* exhibited annual declines in RWS of ~3% (measured Q1-Q4) compared to baseline

RWS correlates to FSHD Patient-reported Outcomes such as Neuro-QoL-Upper Extremity in Natural History Studies



Spearman Correlation Coefficients for Reachable Workspace to NeuroQoL-UE

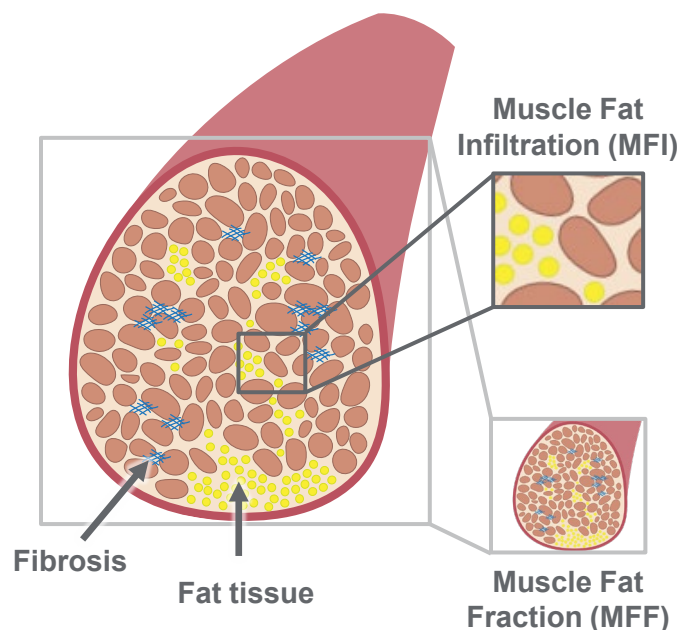
	Total RSA	P-value
NeuroQoL-UE Raw	0.7609	0.0001

Hatch et al, Muscle Nerve, 2021

Whole Body Musculoskeletal MRI Enables Assessment of Muscle Health and Dystrophic Progression

Dystrophic Skeletal Muscle Tissue in FSHD

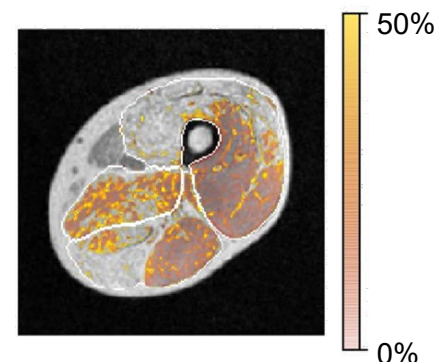
Tissue infiltration contributes to the loss of function by altering biomechanical properties



Whole Body MRI Provides a Holistic and Quantitative Assessment of Muscle Quality and Health

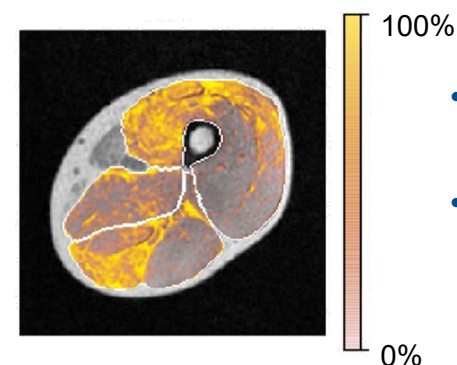
18 muscles are analyzed bilaterally
(36 total muscles analyzed)

Muscle Fat Infiltration (MFI)



- Measurement of the diffuse fatty infiltration in the muscle
- MFI is an indicator of muscle quality and sensitive to early muscle fat replacement

Muscle Fat Fraction (MFF)



- Measurement of the overall amount of fat within the muscle
- MFF is an indicator of FSHD-affected muscles with a strong correlation to clinical function / disability

Unmet Need for Safe and Effective Drug That Slows Disease Progression



Facioscapulohumeral
Muscular Dystrophy (FSHD)

VOICE OF THE PATIENT REPORT

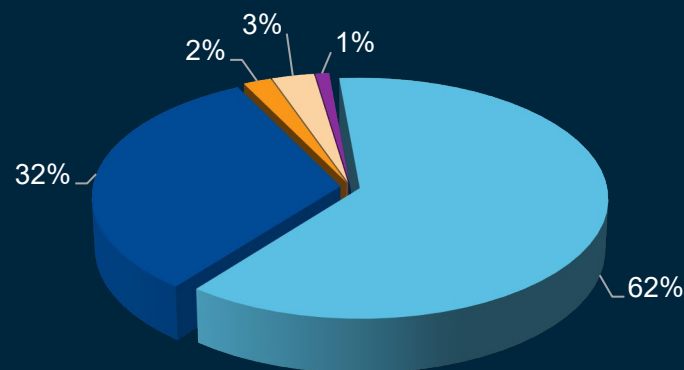
Externally Led
Patient-Focused
Drug Development
Meeting



*This report is dedicated to the individuals
who courageously shared their stories.*

What outcome is the most meaningful in a future treatment?

Patient Respondents, %



- Slowing or stopping the loss of muscle function
- Regaining strength or muscle function
- Lessening pain or fatigue
- Preserving respiratory and lung function
- Improving hearing or vision loss



*“I would like to see something that
would **stop progression** of the
disease”*

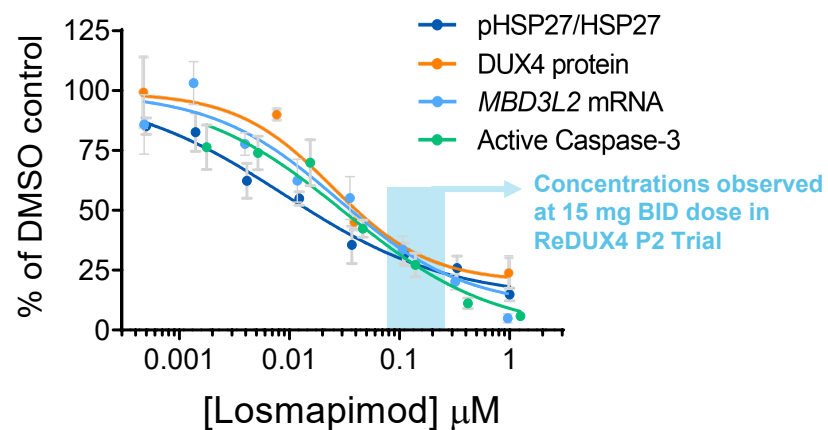
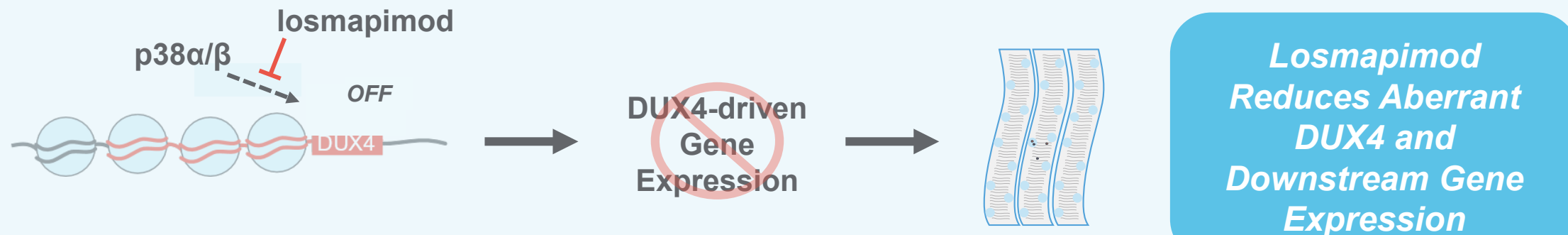
– 26-year-old woman with FSHD

*“...if we had a therapy that at
minimum **slowed the progression...**
we would be able to guide and plan
for what her future looks like.”*

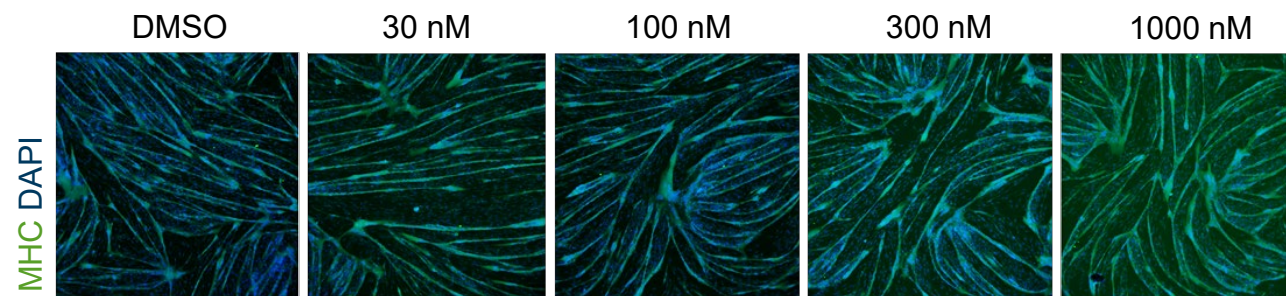
– Mother of young girl with FSHD

*“losing my **independence** is
probably the most frightening and
helpless feeling I have ever had” –*
50-year-old man with FSHD

Losmapimod Inhibits DUX4 Driven Gene Expression and Muscle Cell Death in FSHD Patients



No changes in differentiation



FSHD myotubes

ReDUX4: Phase 2 Trial Design

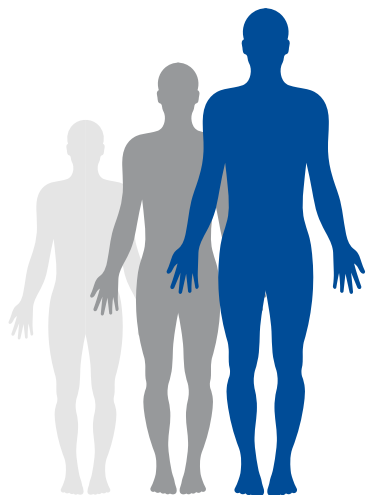
Study Population

ReDUX4:

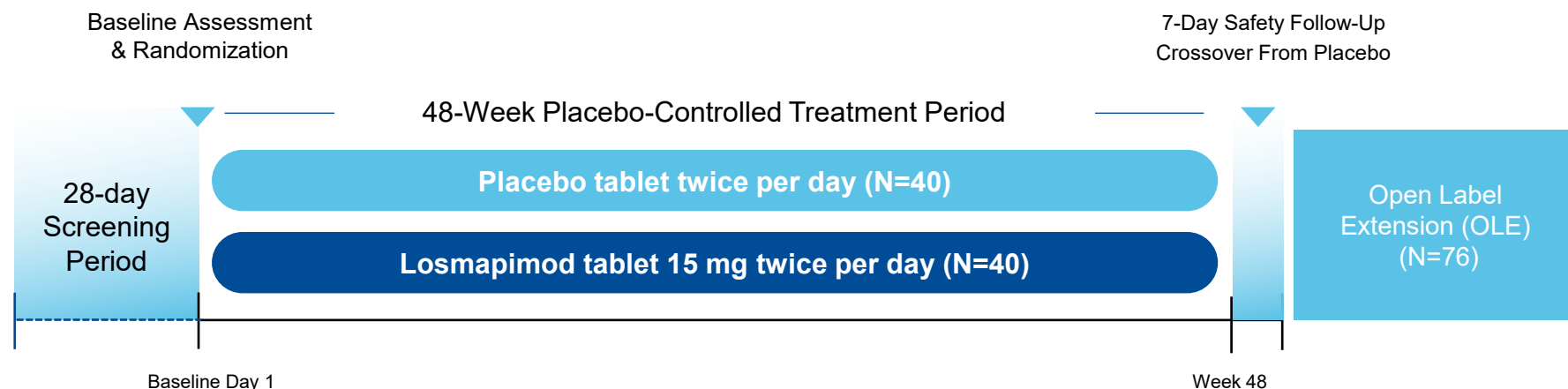
~80 subjects, 18-65 years old

ReDUX4 OLE:

95% of participants continued



Study Design



Study Endpoints

Primary Endpoint

Change from baseline in DUX4 activity (muscle needle biopsy)

Selected Secondary/Exploratory Endpoints

Reachable Workspace (RWS)
MRI Endpoints (MFI, MFF and LMV)
Patients' Global Impression of Change (PGIC)
Safety and tolerability

ReDUX4 Showed Clinical Benefits at Week 48

Function

Preserved or improved muscle function as measured by **RWS** and **Shoulder Dynamometry**

Muscle Health

Decreased **MFI** as measured by MRI

Quality of Life

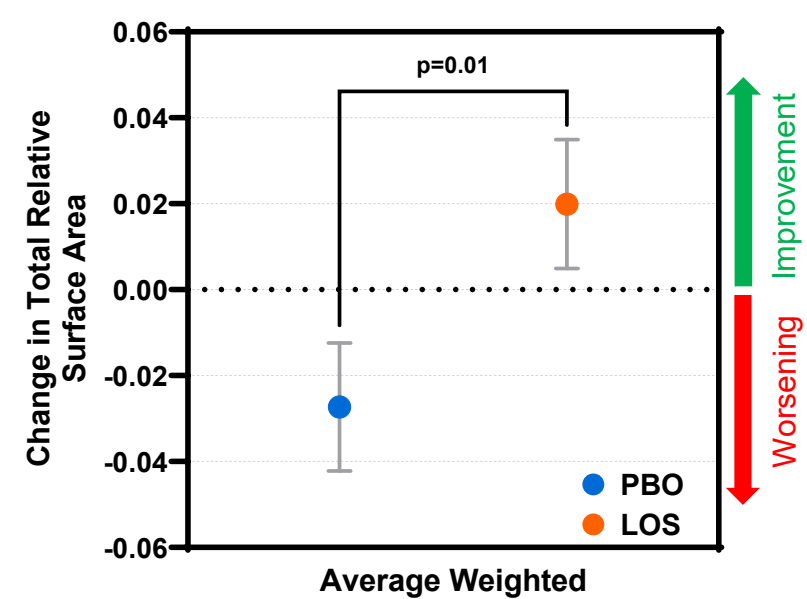
Patients reported feeling better as measured by **PGIC**

Safety/Tolerability

Generally well-tolerated
No serious treatment-related adverse events

Losmapimod Demonstrated Significant Improvement in RWS Relative to Placebo with a Durability of Effect in Open Label Extension

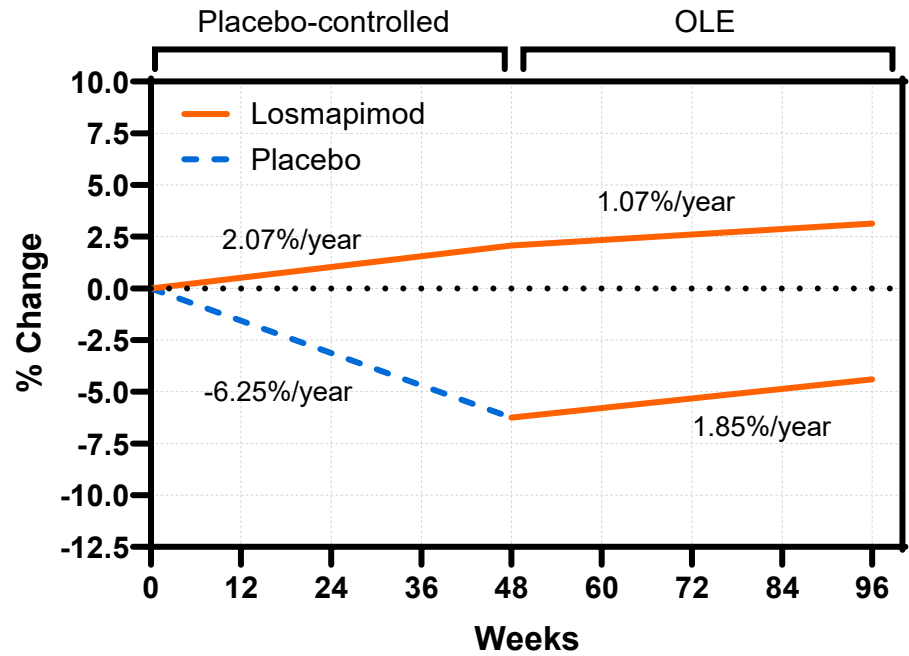
Change from Baseline in Average Total RSA (Q1-5) + Weight at 48 Weeks



Absolute Baseline Average Total RSA + Weight

	PBO	LOS
Baseline RSA (SE)	0.540 (± 0.038)	0.532 (± 0.036)

Annualized % Change of Average Total RSA (Q1-5) + Weight



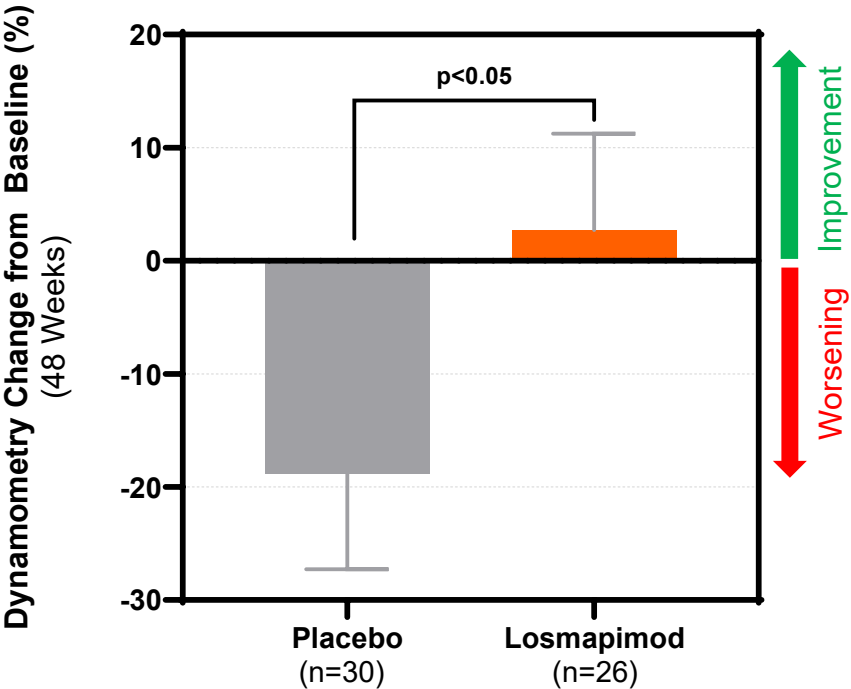
	RCT (48 Weeks) LOS vs. PBO	OLE (96 Weeks) LOS vs. LOS
P-value*	0.04	0.80

Data from ReDUX4 trial and the ReDUX4 OLE trial; RSA: Relative surface area; OLE: Open label extension; PBO: placebo; LOS: losmapimod
*P-value of the difference in rate of change

Losmapimod Demonstrated Significant Improvement in Shoulder Abductors Dynamometry Relative to Placebo at 48 Weeks

UE muscle strength (as measured by dynamometry) is strongly correlated to UE function as measured by RWS

Shoulder Abductors Average Dynamometry of Both Arms



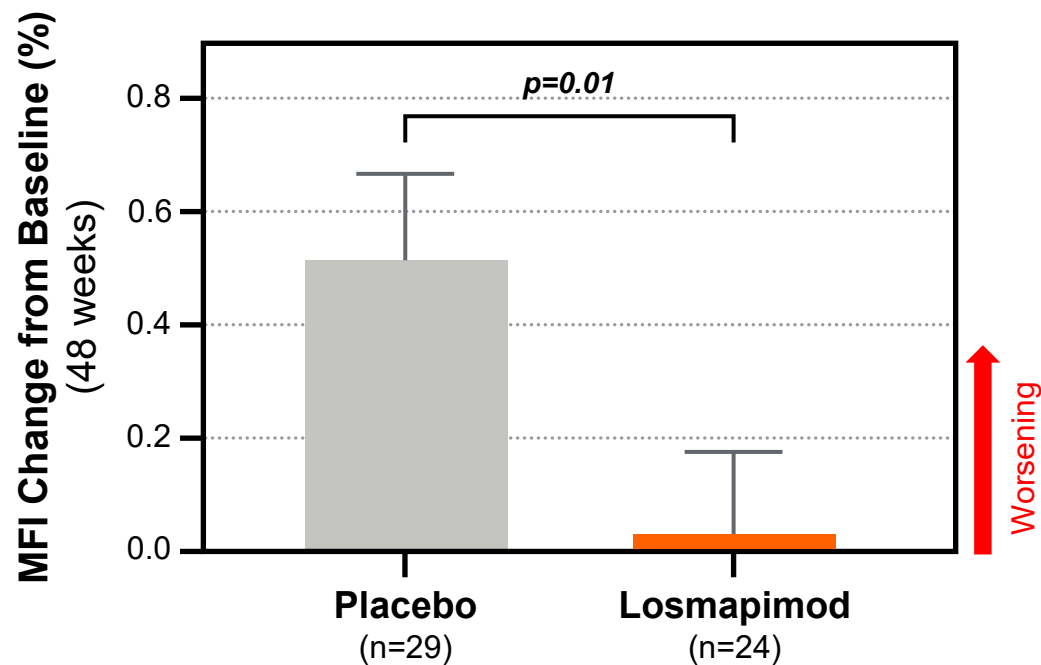
Correlation Between Reachable Workspace and Shoulder Abductor Dynamometry

RSA vs. Dynamometry Shoulder Strength – 2-arm Average

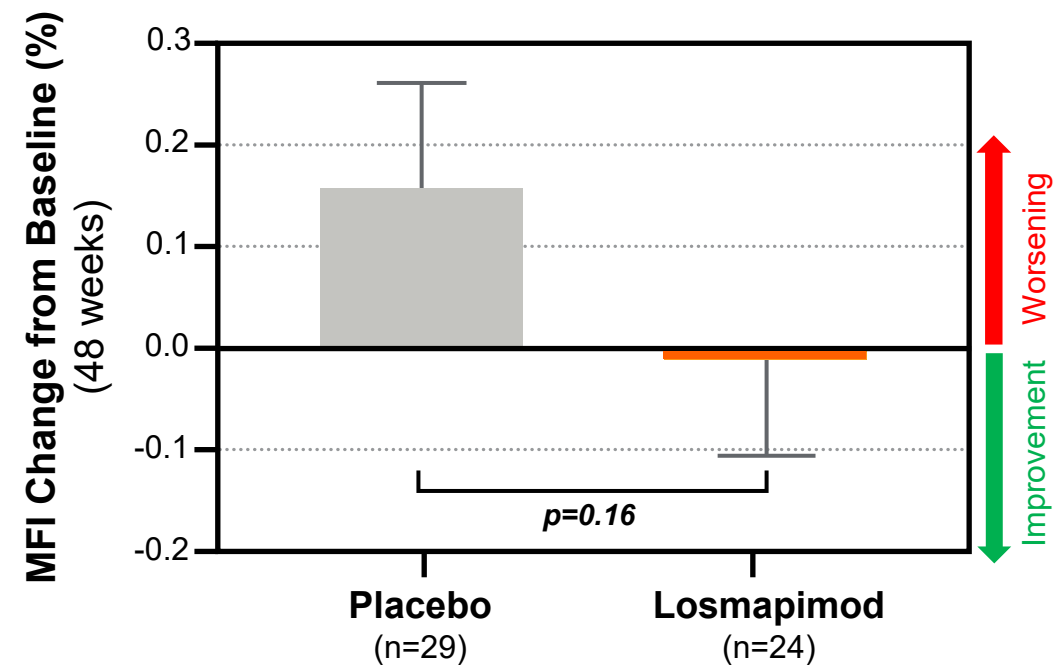
	LOS (n=25)	PBO (n=29)	Total (n=54)
Spearman r (95% CI)	0.86 (0.70, 0.94)	0.86 (0.72, 0.93)	0.86 (0.77, 0.92)
p value	<0.0001	<0.0001	<0.0001

Losmapimod Improved or Maintained Muscle Health at 48 Weeks

Losmapimod slowed fat infiltration in intermediate muscles already affected by disease

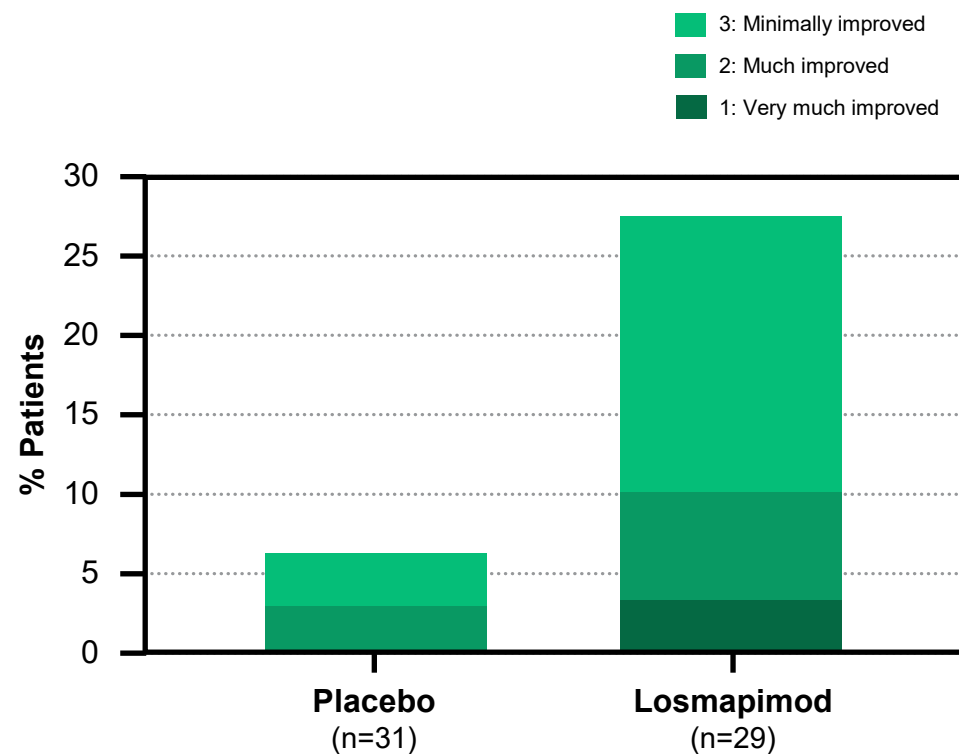


Losmapimod preserved health of normal-appearing muscles, limiting fat infiltration

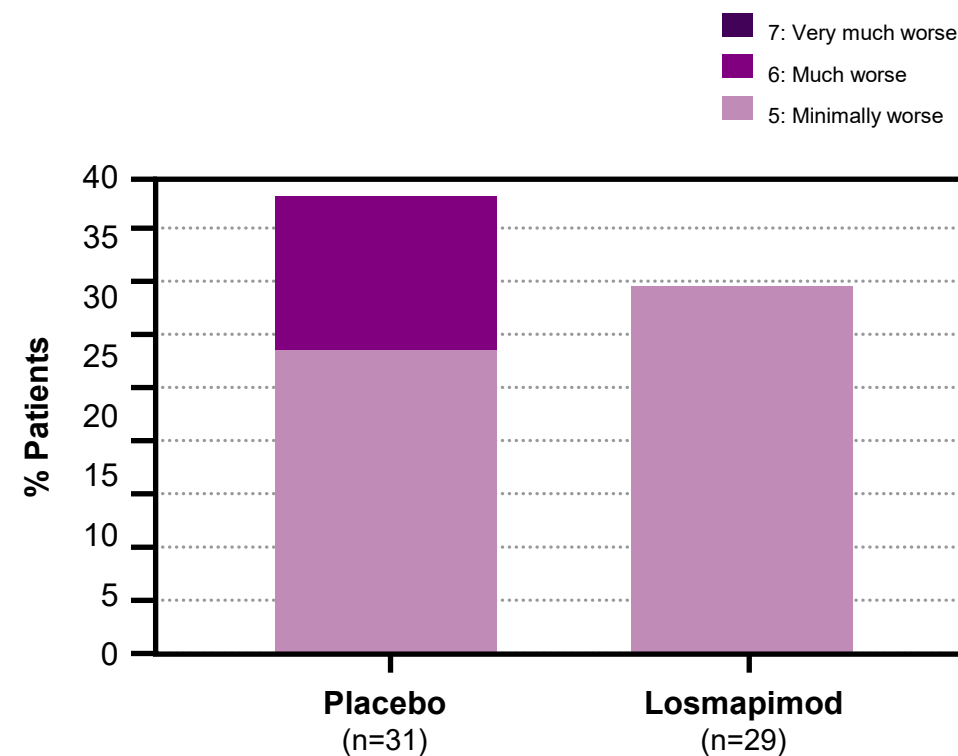


Losmapimod Improved Patient-reported Outcomes at 48 Weeks

Four times as many losmapimod-treated patients felt better vs placebo



20% fewer losmapimod-treated patients felt worse vs placebo



Patients' Global Impression of Change (PGIC)

Losmapimod Was Generally Well-tolerated with No Serious Treatment-related Adverse Events (ReDUX4 – Placebo Controlled Period)

Number of Patients with:	Losmapimod (n=40) n (%)	Placebo (n=40) n (%)
Any TEAE	29 (72.5)	23 (57.5)
Any treatment-related TEAE	9* (22.5)	2 (5.0)
Any serious adverse event (SAE)	2** (5.0)	0
Any TEAE leading to treatment discontinuation	0	0
Any TEAE leading to death	0	0
AE by Maximum Severity		
Mild	18 (45.0)	15 (37.5)
Moderate	9 (22.5)	8 (20.0)
Severe	2 (5.0)	0
Most Common AEs		
Fall	6 (15.0)	2 (5.0)
Procedural pain	2 (5.0)	3 (7.5)
Back pain	2 (5.0)	3 (7.5)
Headache	2 (5.0)	5 (12.5)

- Majority of treatment-emergent adverse events (TEAEs) were mild or moderate
- Majority of TEAEs not related or unlikely related to study drug
- No deaths or subject discontinuations due to TEAEs
- No significant changes in vital signs, laboratory studies or EKG
- Observed safety and tolerability data are consistent with prior losmapimod experience in **>3,600** clinical study participants

*9 subjects in the losmapimod group had TEAEs considered possibly related to study drug, the most frequent of which were dyspepsia, rash, and alanine aminotransferase increase (each occurred in 2 participants)

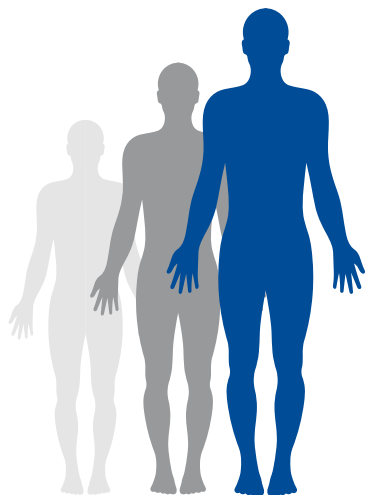
**Three serious adverse events (SAEs), post-op wound infection, alcohol poisoning, and a suicide attempt, were reported in 2 participants in the losmapimod group. All SAEs were severe and assessed as unrelated to study drug

Data from ReDUX4 trial.

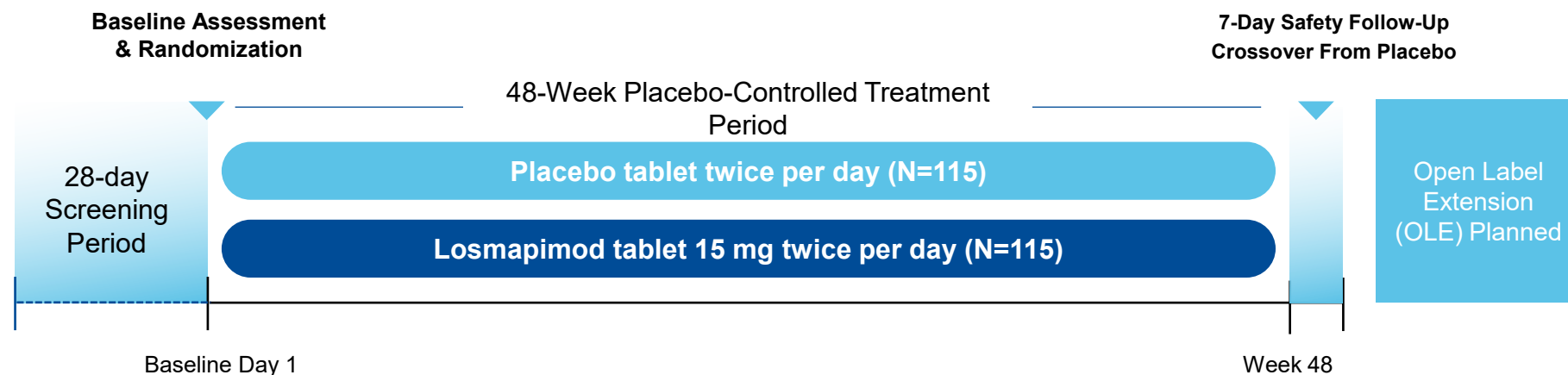
REACH: Global Phase 3 Trial of Losmapimod in FSHD

Study Population

Enrollment completed:
260 patients*, 18-65
years old



Study Design



Study Endpoints

Primary

Average RWS quantification of total relative surface area with 500g wrist weight in dominant arm and non-dominant arms

Secondary

- Neuro-QoL Upper Extremity
- PGIC
- MFI
- Shoulder Dynamometry
- Safety and tolerability

Exploratory

- Healthcare utilization questionnaire
- EQ-5D questionnaire

Losmapimod: First-to-Market Potential in FSHD

No approved therapy for FSHD patients

- Second most common adult muscular dystrophy
- Affects approximately 30,000 people in the US

First-to-market potential

- Oral small molecule to reduce DUX4 gene expression
- Positioned to become first-in-class therapeutic for untreated patient population

Disease modifying potential

- Potential patient benefit in measures of function and patient reported outcomes
- Potential to preserve muscle health
- Favorable safety profile in over 3,600 participants across multiple studies

Development path forward

- Phase 3 registrational REACH trial ongoing
- FDA Fast Track and Orphan Drug designations
- Method of use patent into 2038



Pociredir

for Sickle Cell Disease

Fast Track Designation
Orphan Drug Designation

Sickle Cell Disease: Debilitating Disease with High Unmet Need

The Disease

Genetic disorder caused by mutation in Hemoglobin-Beta (*HBB*) gene

Results in abnormal sickle-shaped red blood cells that rupture or block blood vessels

Debilitating Symptoms

- Vaso-occlusive crises (VOCs)
- Other complications, including stroke, neuropathy, and acute chest syndrome
- Anemia / hemolysis
- Morbidity and mortality

Global Impact



Despite Therapeutic Options, Significant Unmet Need Remains for People Living With SCD

Hydroxyurea

Current Standard of Care

- ⊕ Potential to ameliorate disease pathology
- ⊖ Non-responders
- ⊖ Waning efficacy
- ⊖ Safety and tolerability issues

HbS Polymerization Inhibitors

Increasing Total Hemoglobin

- ⊕ Addresses anemia
- ⊖ Does not address broad disease pathology
- ⊖ Does not improve outcomes

P-Selectin Inhibitors

Leukocyte Binding to P-selectin

- ⊕ Reduces VOCs
- ⊖ Does not address broad disease pathology
- ⊖ IV administration

Ex Vivo Genetic Therapies

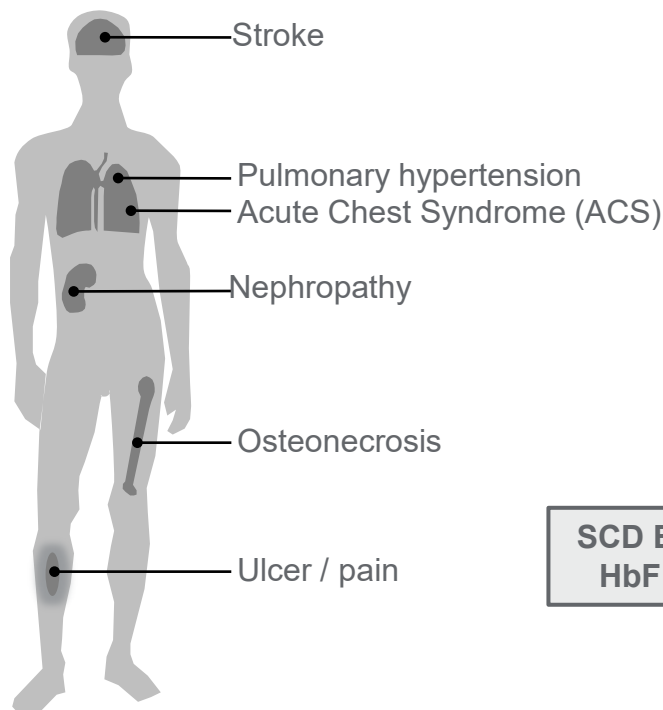
BCL11A Editing & Beta-globin Gene Delivery

- ⊕ Potential for a cure
- ⊖ Highly invasive
- ⊖ Unknown durability
- ⊖ Barriers to access

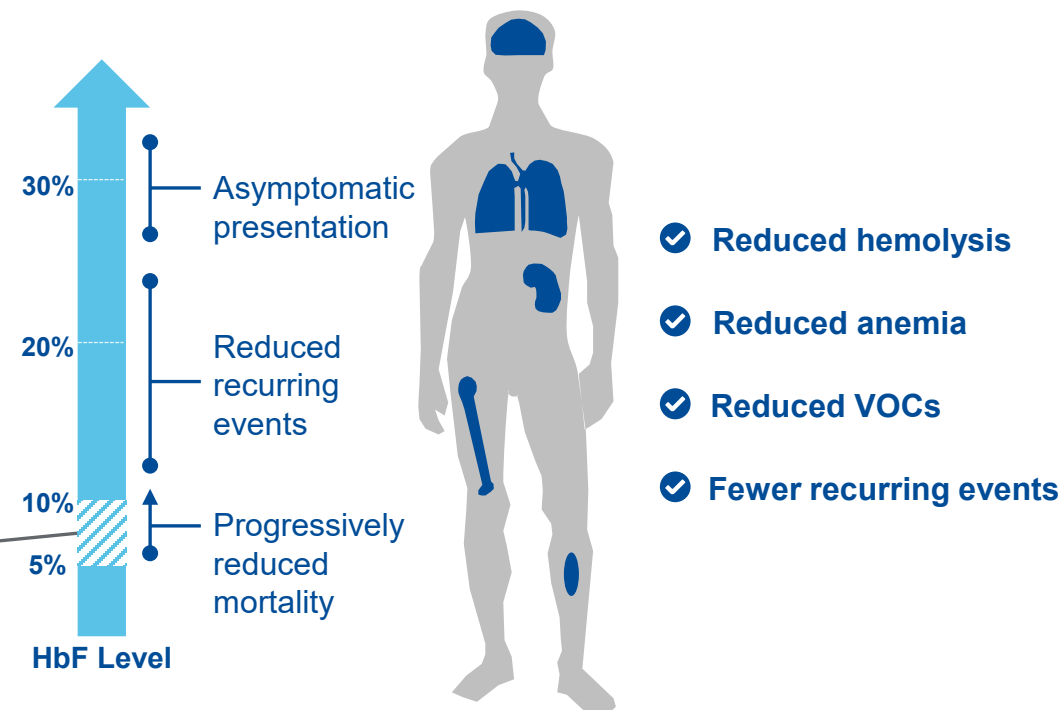
Higher HbF Levels Result in Reduced Symptomology in People Living with Sickle Cell Disease

Even incremental increases in HbF can lead to meaningful improvement in disease severity

Typical SCD Subject



SCD Subject with High HbF Levels



By Raising HbF Levels, Pociredir Provides the Potential to Ameliorate Disease Pathology through Convenient Oral Dosing

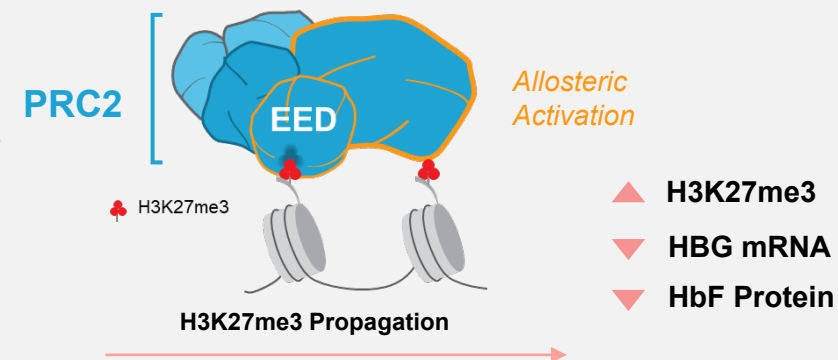
Targeting EED Results in HbF Increases

CRISPR + Compound Screening Engine
Experimentally screened candidate targets

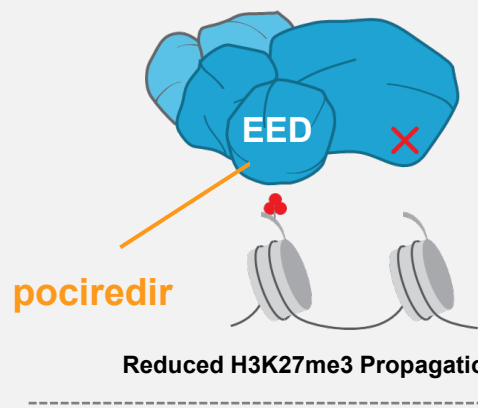
Computational Data Mining
Computationally mined candidate targets

**Identified Targets
that Regulate HbF**

**Identified EED as a Novel Drug Target of
Polycomb Repressor Complex 2**



Pociredir is a Potent and Selective EED Binder



- ▼ H3K27me3
- ▲ HBG mRNA
- ▲ HbF Protein

pociredir

Highly Selective

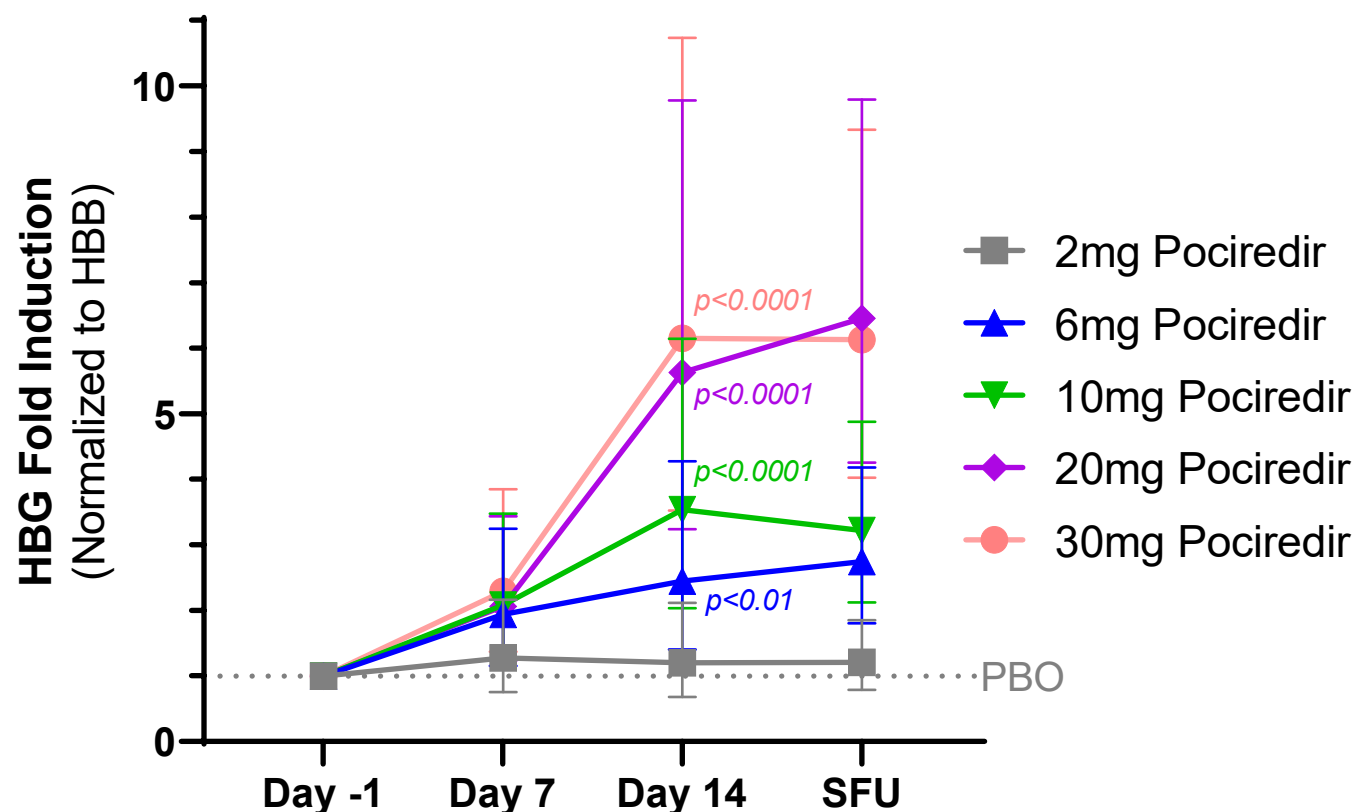
Clean Off-target Profile

Composition of Matter Patent Expires 2040

Dose-dependent HBG mRNA Induction in Healthy Volunteers

Gamma Globin (HBG) mRNA Induction is both Time- and Dose-dependent in MAD Cohorts

HBG Fold Induction in Healthy Volunteers



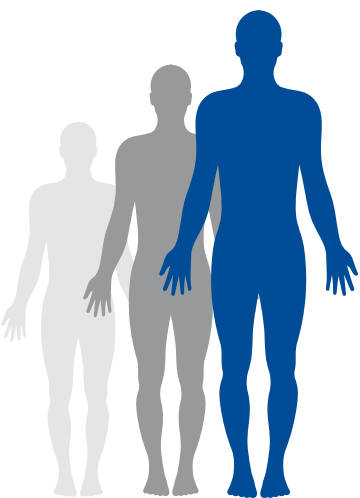
Safety follow-up (SFU) samples were collected 7 – 10 days post 14-day treatment period; PBO: placebo; Data presented as geometric LS mean ratio (to placebo) with 95% confidence interval; mixed-effects model for repeated measures (MMRM) analysis performed for Day 7 and Day 14; analysis of covariance (ANCOVA) utilized for SFU data; HBG: hemoglobin gene; HBB: hemoglobin subunit beta gene

Pioneer Phase 1b Clinical Trial in SCD Subjects

Study Population

Males and females with SCD, between age 18 – 65

Approximately 10 subjects per cohort



Study Design



Study Endpoints

Primary	Secondary	Exploratory
Safety and tolerability	Change in %HbF protein	Target engagement
Pharmacokinetic measurements	Change in reticulocytes	Incidence of VOCs
	Red cell distribution width	Biomarkers of hemolysis
		QOL measures
		% F cells

U.S. FDA lifted the clinical hold for pociredir on August 18, 2023. *Reinitiated trial at the 12mg dose, to be followed by the 20mg dose

Pociredir Was Generally Well-tolerated with No Serious Treatment-related Adverse Events (Pioneer Ph1b – Open Label)

Number of Patients with:	Pociredir (n=16) n (%)
Any TEAE	10 (62.5)
Any treatment-related TEAE	5 (31.3)
Any serious adverse event (SAE)*	4 (25.0)
Any TEAE leading to treatment discontinuation	0
Any lab-related TEAE	0
Patients with TEAE (by Maximum Severity)	
Mild	4 (25.0)
Moderate	5 (31.3)
Severe	1 (6.3)
Most Common TEAEs	
Pain crisis	4 (25.0)
Headache	3 (18.8)

- 23 Treatment Emergent Adverse Events (TEAEs) in 10/16 (62.5%) patients
 - 8/23 treatment-related TEAEs in 5/16 (31.3%) patients: (headache [x2], lip numbness, diarrhea, fatigue, somnolence, nausea, tinnitus)
 - All mild in severity, non-serious and resolved while patient remained on study drug
- 4/23 TEAEs (in 4 patients) characterized as VOC (pain crisis) per protocol definition
 - None reported as related to study drug
 - Two VOCs occurred in patients documented non-adherent to study drug
- Single SAE in patient on study drug*
 - VOC with chest syndrome, reported as not related to study drug

* In 3 (of 4) patients, SAE began prior to first dose of study drug

Instituted Observed Dosing and On-Treatment Analysis Following Initial Non-Adherence

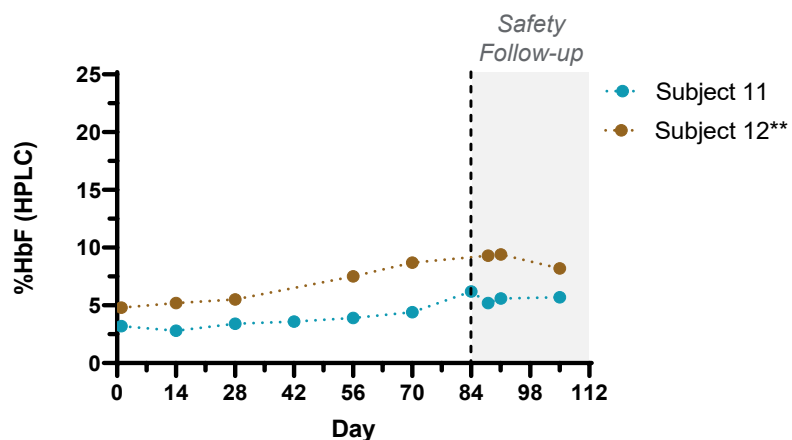
Subject	Dose	Confirmed treatment duration (days)	On-treatment analysis eligible**
1	6 mg	56	✓
2	6 mg	42	✓
3	6 mg	42	✓
4	6 mg	0	
5	6 mg	0	
6	6 mg	0	
7*	6 mg	84	✓
8	6 mg	84	✓
9*	6 mg	28	✓
10*	6 mg	28	✓
11	2 mg	84	✓
12	2 mg	84	✓
13	12 mg	51	✓
14*	12 mg	25	✓
15*	12 mg	22	✓
16	12 mg	4	

U.S. FDA issued a full clinical hold for pociredir on February 23, 2023. Safety data collection continued with data cutoff of March 3, 2023.

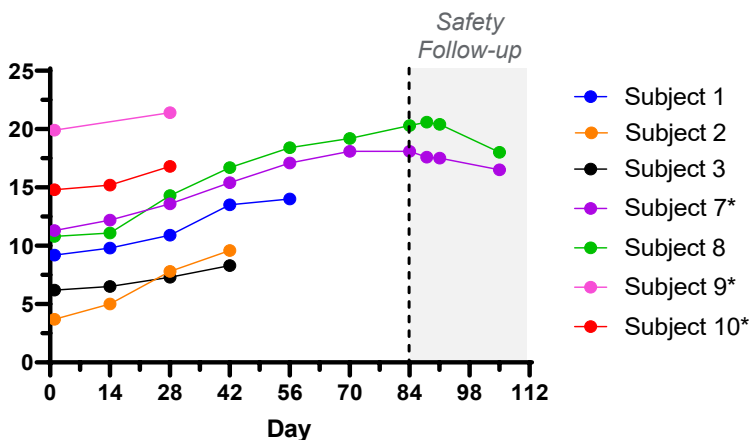
* Subjects concurrently receiving hydroxyurea; ** On-treatment analysis eligible requires detectable drug levels (PK) and drug accountability/subject interview
Confirmed treatment duration days are consecutive days of dosing starting on first day of dosing
Orange box indicates subjects enrolled after observed dosing initiated

Appears to Have a Dose Dependent, Clinically Relevant and Consistent Increase in HbF

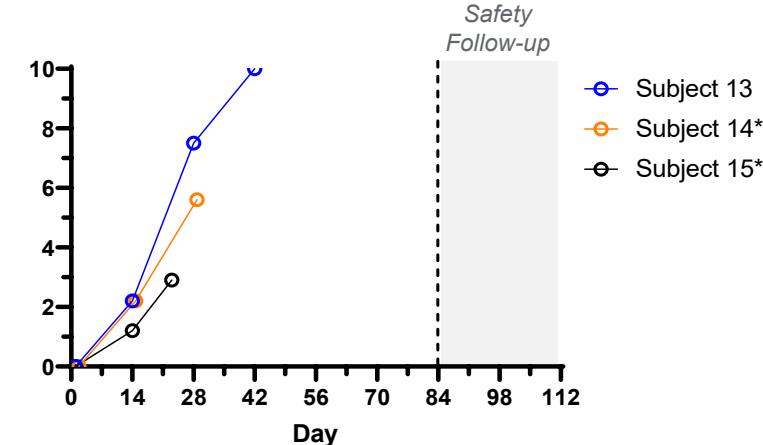
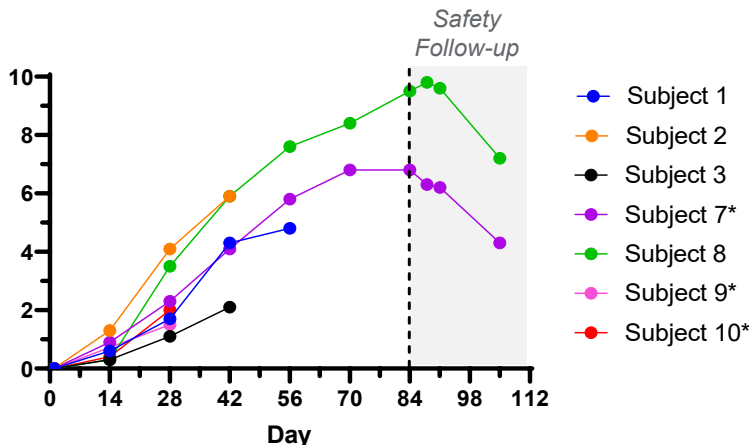
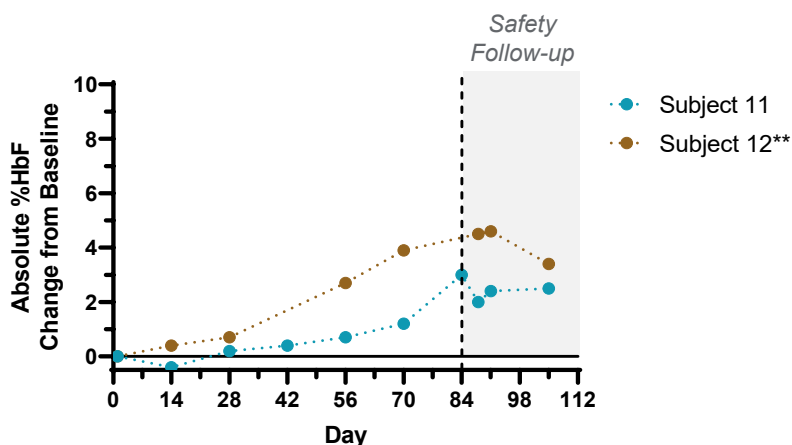
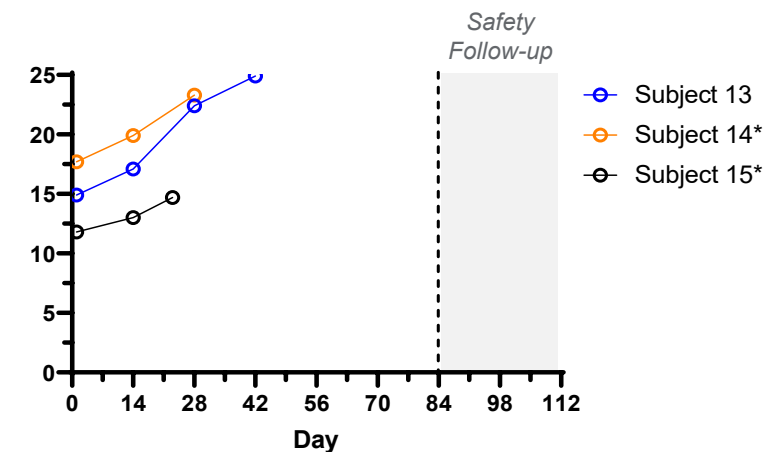
2mg



6mg



12mg



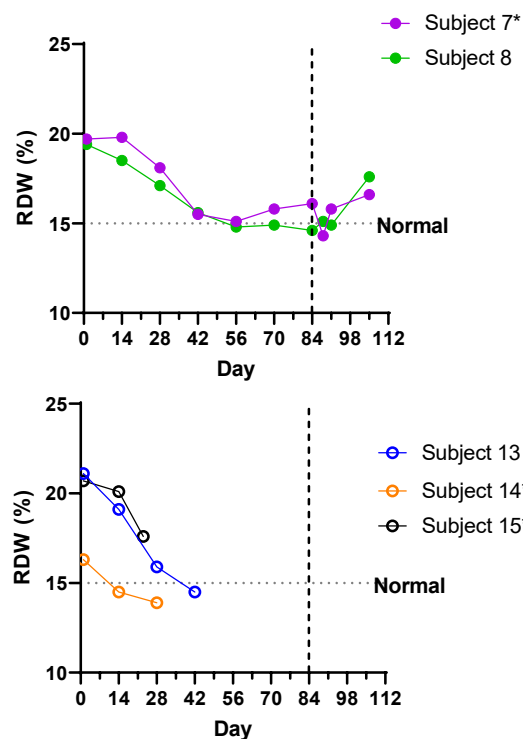
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*Subjects on stable dose of hydroxyurea; Note: Subject 15 ceased dosing on Day 22

** Day 42 and day 84 data not available for subject 12; samples were received by the lab outside of stability window

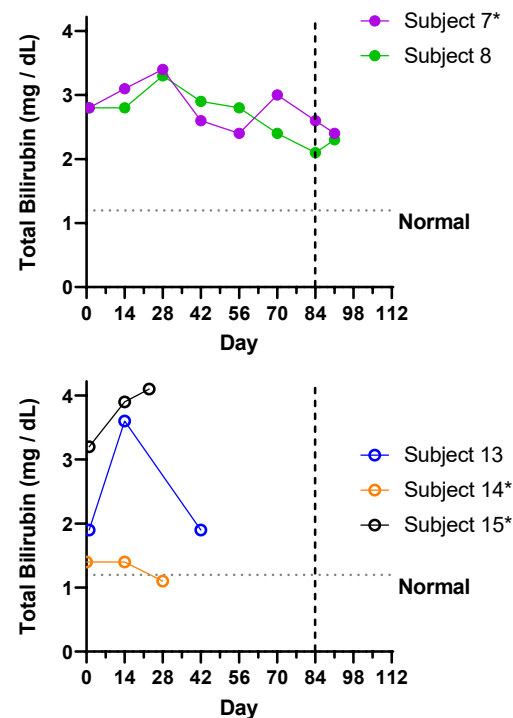
Initial Data from 6 mg and 12 mg Pociredir Demonstrates Improvements in Biomarkers of Hemolysis

Red Cell Distribution Width (RDW)



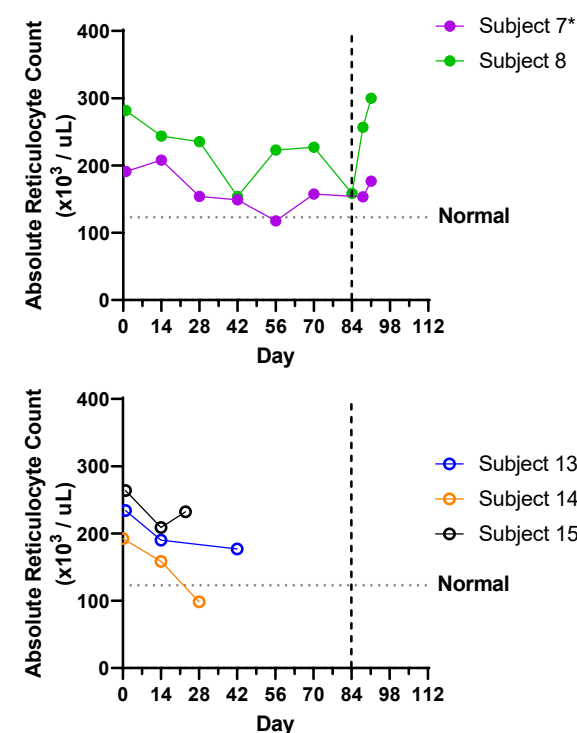
Reductions in RDW indicate RBCs are becoming more uniform in shape

Total Bilirubin



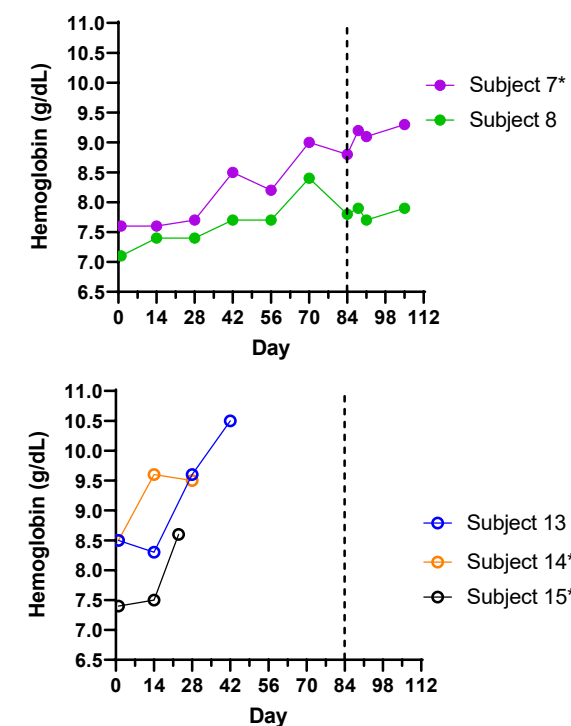
Bilirubin decreases indicate less hemolysis

Absolute Reticulocyte Count



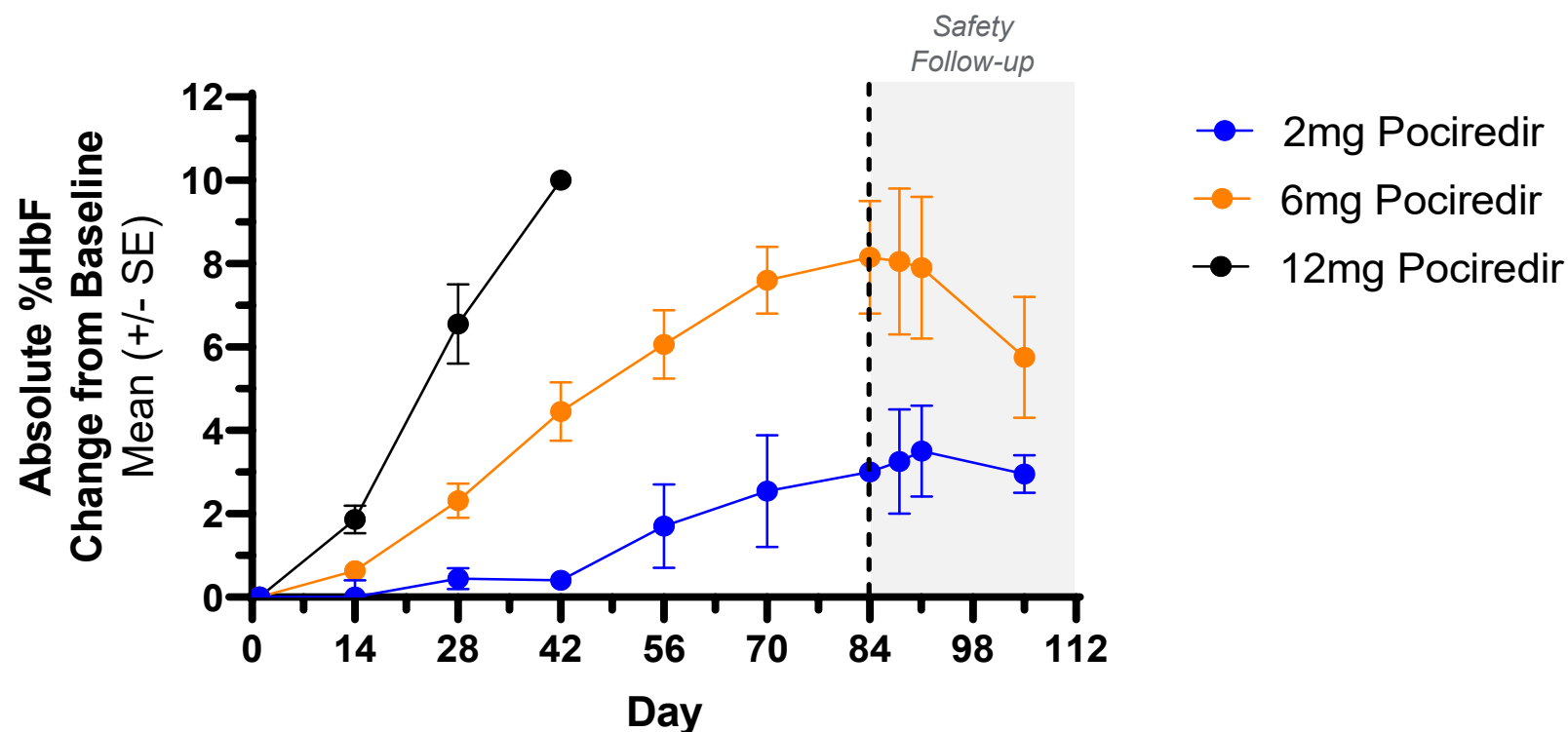
Reductions in reticulocytes and increases in total hemoglobin indicate less anemia and healthier bone marrow function

Total Hemoglobin



Initial Pociredir Data Demonstrates Dose-dependent Increases in HbF

Absolute %HbF Change from Baseline



U.S. FDA issued a full clinical hold for pociredir on February 23, 2023. Safety data collection continued with data cutoff of March 3, 2023.

Note: Summary data includes both subjects on and off hydroxyurea; Subject 15 ceased dosing on Day 22 and therefore, was only included in the analysis up to Day 14

Overview of Key Inclusion and Exclusion Criteria



Key Inclusion Criteria

Patient Severity

Previous experience with
hydroxyurea

AND

Previous experience with a stable
dose of **voxelotor or
crizanlizumab or
L-glutamine**

OR

Lack of access to these
advanced therapies



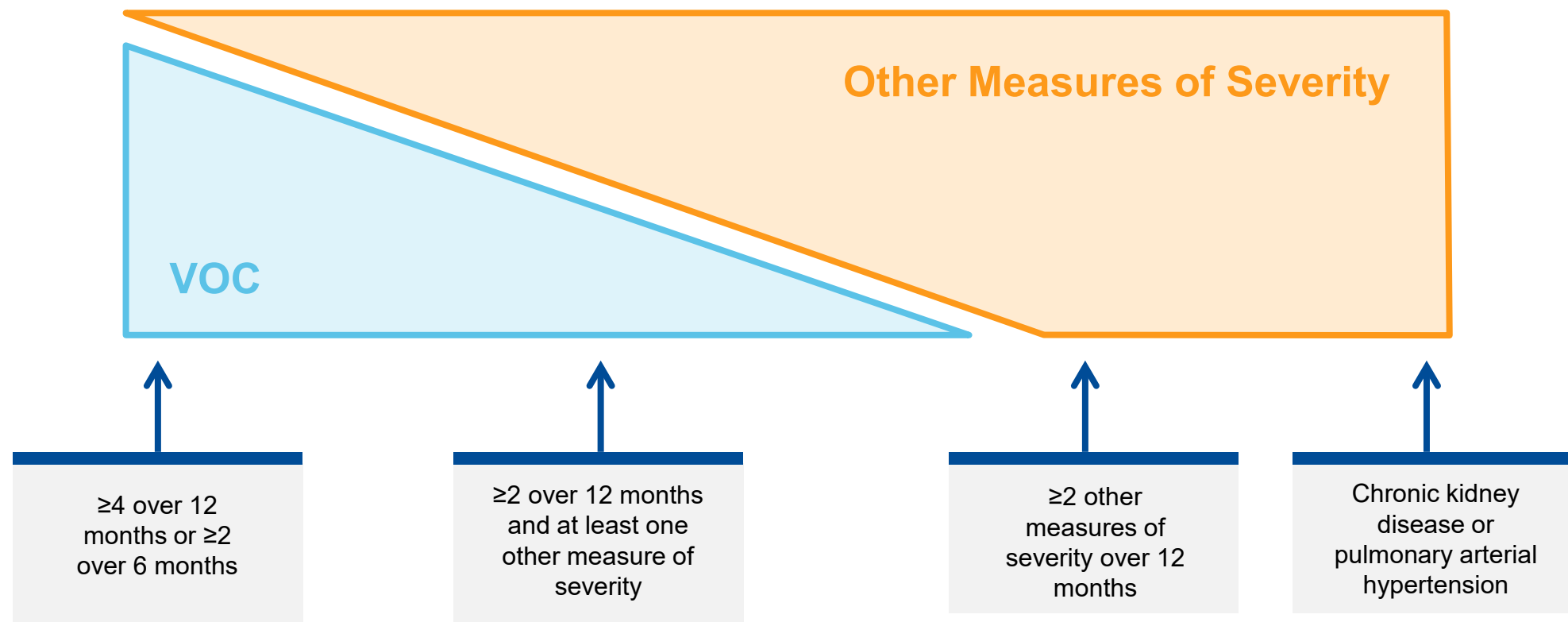
Key Exclusion Criteria

Exclude subjects currently on
/having received the following
therapies within 60 days prior to
initiating pociredir:

**hydroxyurea and voxelotor or
crizanlizumab or L-glutamine**

We estimate that there are approximately 7,500 to 10,000 patients in the U.S. that meet the inclusion and exclusion criteria of the amended protocol

Overview of Key Inclusion Criteria: Patient Severity



Overview of Key Inclusion Criteria: Previous Use of Hydroxyurea AND One Other Approved Therapy

Hydroxyurea

- Continued VOC or episodes of acute chest syndrome for at least 6 months at the maximum tolerated dose
- Inability to tolerate the adverse effects of the therapy
- Unmanageable drug-drug interactions
- Patient refusal

And

Voxelotor or crizanlizumab or L-glutamine

- Continued pain crises and other VOCs while on stable dose for at least 6 months
- Failure to increase Hb by 1 g/dL (for vox.) or continued VOC episodes (for criz. or L-glutamine)
- Inability to tolerate the adverse effects of the therapy
- Unmanageable drug-drug interactions
- Patient refusal

Or

Lack of access to advanced therapies

- Lack of availability
- Lack of insurance coverage

Demonstrates Best-in-Class Potential

Healthy volunteer mRNA data indicate higher levels of HbF induction are possible



To date, all patients on treatment have responded

Levels of HbF increase are clinically relevant among patients both on HU and off HU

Consistency of response demonstrated across patients, independent of baseline HbF

Dose response at 2 mg, 6 mg, and 12 mg

Overall pociredir was generally well-tolerated

Pociredir: Differentiated HbF Inducer with Best-in-Class Potential



Persistent unmet need

SCD is a severe disorder
(estimated US SCD
population is ~100,000)

Approximately 200,000
annual emergency
department visits related
to SCD



Best-in-class potential

Oral small molecule HbF
inducer

Potential to be broadly
protective of SCD
symptomology



Demonstrated proof-of-concept

Dose responsive target
engagement and HbF
increase

Robust HbF increases in
adherent patients, on and
off hydroxyurea*

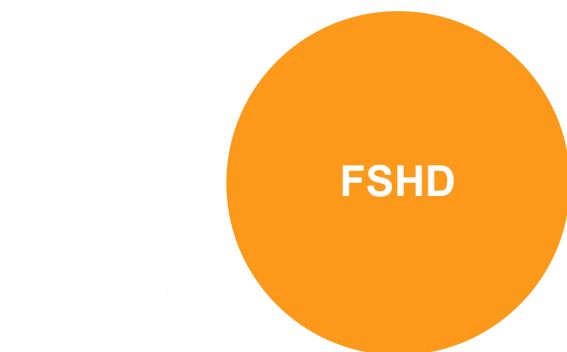


Development path forward

FDA Fast Track
Designation

Composition of matter
patent into 2040

Well-Positioned for Transformational Year in 2024



Losmapimod first-to-market potential for patients with FSHD

Enrollment for REACH Phase 3 trial completed in Q3 2023; topline data expected in Q4 2024



Pociredir has best-in-class potential for SCD

Reinitiated Phase 1b trial at 12mg dose



Foundation for pipeline sustainability in target disease areas

Cash runway into 2026 – No debt or warrants



THANK YOU