SILENCE THERAPEUTICS

Silence Therapeutics

Corporate Presentation

October 2021

Forward-Looking Statements

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Poised for Transformation

Major Clinical Data Readouts in Wholly Owned Programs Combined with Rapid Discovery Pipeline Growth

Pioneers in RNAi	• Two decades of know-how combined with robust and growing IP estate • Global footprint – R&D in Berlin, headquarters in London and NYC office

Rapidly Advance Clinical Programs	• Positive topline healthy volunteer data in SLN124 program for iron-loading anemia conditions
	• Advancing two proprietary phase 1 clinical programs
	  ◦ SLN360 targeting high and prevalent unmet need in cardiovascular disease due to high lipoprotein(a)
	  ◦ SLN124 targeting high unmet need in thalassemia and myelodysplastic syndrome

Proprietary mRNAi GOLD™ Platform	• Clinical data demonstrated safety, robust pharmacodynamic effect and long duration of action • Anticipate 2-3 INDs per year from 2023 (proprietary and partnered programs) • Significant opportunity to address disease causing targets in the liver
Strong Financial Position	• £81.2m at the end of June 2021 • AIM and Nasdaq listed (SLN) - market cap ~£500m /~$690m*

* Market Capitalization as of September 2, 2021

Summary of Recent News

SLN124 Program (Hepcidin Regulation) Updates:

- FDA acceptance of the US IND in MDS
- On-track for topline data from single-ascending dose studies in Thalassemia/MDS in Q3 2022
- Significant opportunity to expand SLN124 in multiple indications - potential for hematology franchise
- Initiating phase 1 study in polycythemia vera (PV) in H2 2022
- SLN124 healthy volunteer data accepted for presentation at ASH in December

SLN360 Program (Lp(a) Lowering) Updates:

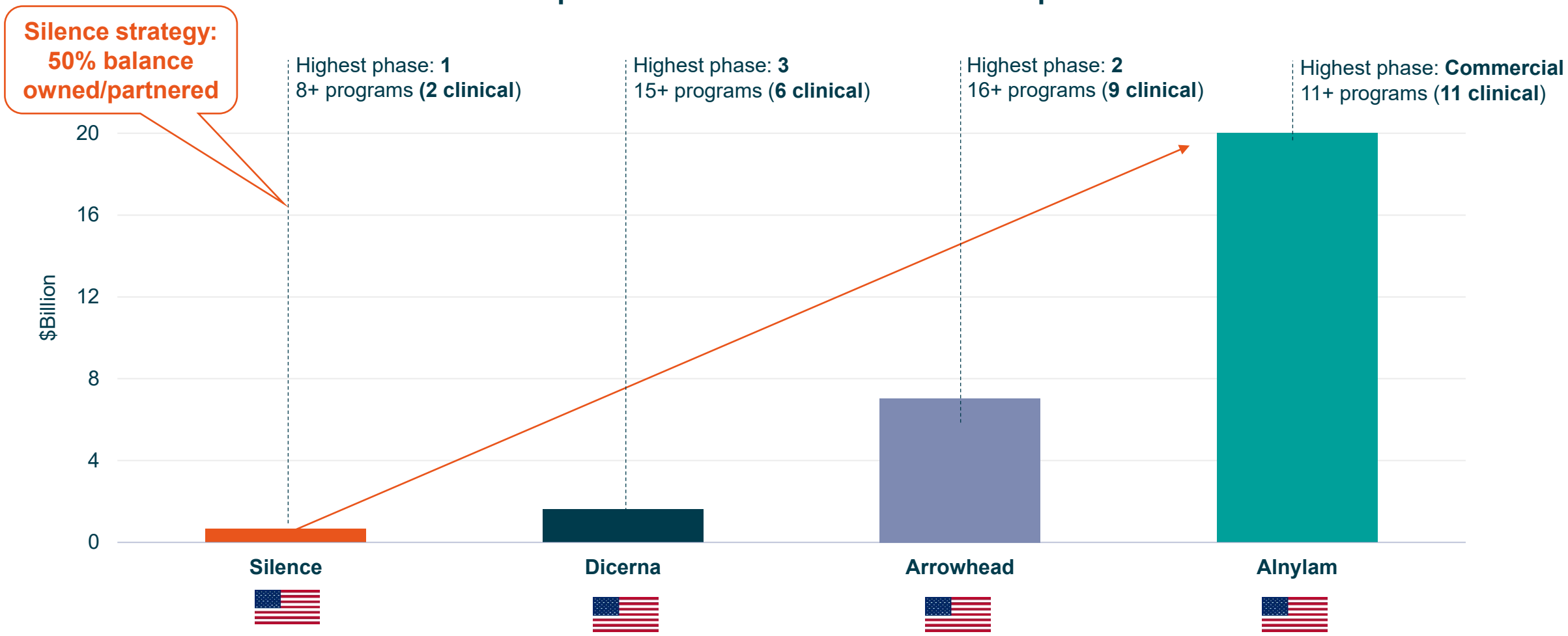
- On-track for topline data in single-ascending dose study in Q1 2022
- Key outcomes from independent safety review committee meeting:
  - Extending follow-up period in the single-ascending dose study from 150 days to 365 days to fully assess the duration of action
  - Established therapeutic dose range and can proceed to multiple-ascending dose study (no need for Cohort 5)

SLN501 (Complement C3 Lowering with Mallinckrodt) Phase 1 initiation in H1 2022

On-track for 2-3 INDs per year from 2023

We believe the Path to Value Creation is Clear

Market capitalization of established RNAi companies



Market Capitalization as of October 19, 2021;
Programs defined as individually named programs from discovery phase through to marketed drugs on company website, October 2021.

Executive Leadership Team with Deep Sector Experience



Mark Rothera
President and CEO

- 30+ years of experience in the biopharmaceutical industry
- Former President & CEO of Orchard Therapeutics and CCO of PTC Therapeutics
- Drove the transition of multiple emerging biotech companies from R&D stage to commercialization



Giles Campion
EVP, Head of R&D and CMO

- 30+ years of experience in the biopharmaceutical industry
- Former CMO and SVP R&D at Prosensa, playing a major role in their Nasdaq IPO and subsequent sale to Biomarin for $680m
- Most recently CMO at Albumedix and held senior R&D roles at GE Healthcare, Novartis and SmithKline Beecham prior
- Medical degree and doctorate from Bristol University



Craig Tooman
Chief Financial Officer

- 30+ years of experience in the biopharmaceutical industry
- Over a decade of experience as public company CFO
- Proven track record raising capital and leading M&A deals



Dr. Barbara Ruskin
SVP, General Counsel and CPO

- 25+ years of global experience in life science IP and corporate law
- Former Partner at Ropes and Gray, associate at Fish & Neave, and SVP GC / CPO at biopharma companies
- Managed general legal and IP matters related to financing and regulatory, BD, licensing and patent portfolio management



Dr. Marie Wikström Lindholm
SVP, Molecular Design

- 13+ years' experience with oligonucleotide therapeutics
- Former Expert Scientist in Discovery Technology and Head of Targeted Delivery at Santaris Pharma / Roche
- Authored 60+ patent applications and peer-reviewed scientific publications



Jorgen Wittendorff
SVP, Head of Manufacturing

- 25+ years experience in pharmaceutical development
- Extensive experience in complex manufacturing and regulatory compliance (FDA, EMA, and PMDA)

siRNA Can Inhibit Expression of Disease-Associated Genes

nucleus

cytoplasm

HEALTHY

Genes encode messages for all features in the body

DISEASE

In certain diseases the DNA is mutated or abnormally expressed

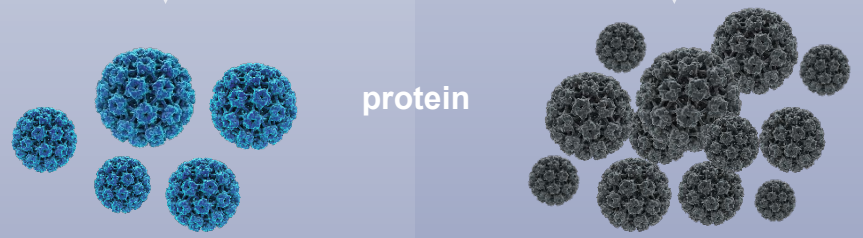


The information in DNA is transcribed into messenger RNA (mRNA)



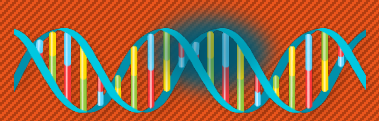
Abnormal DNA message is carried into resulting mRNA

mRNA is then made into proteins. Proteins are responsible for most functions in the body



In some cases mutations instruct the cell to produce too much protein or the protein made does not work

siRNA Can Precisely Target and Silence Disease-Associated Genes



Mutated DNA

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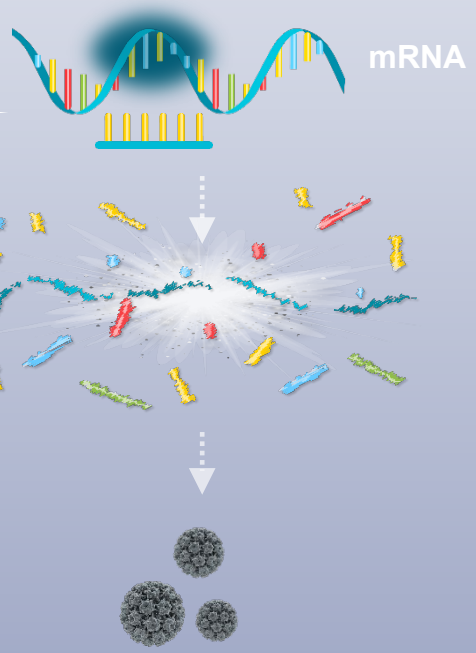
Target-specific short interfering RNA (siRNA) binds to the mRNA

mRNA is degraded and gene is “silenced”

Reduction in disease-causing protein



Natural

Harnesses natural cellular mechanisms present in every cell in the human body

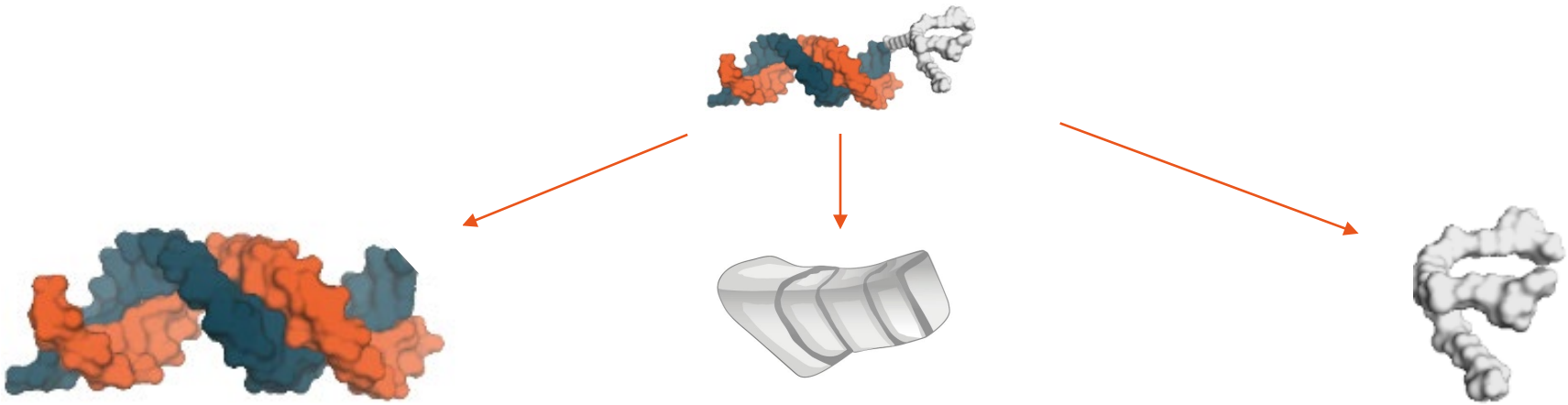
Durable

Long-lasting gene knockdown possible for > 2 months following a single injection

Precise

siRNA designed to bind only to target sequence

Our Toolbox Considers all Elements of siRNA and Ligand Design



siRNA molecule

- siRNA matched to target gene
- Silence has developed chemical modification patterns that enhance stability and improve activity

Linker

- Silence has developed proprietary linkers, enabling the attachment of targeting ligands to the siRNA molecule

GalNAc Ligand

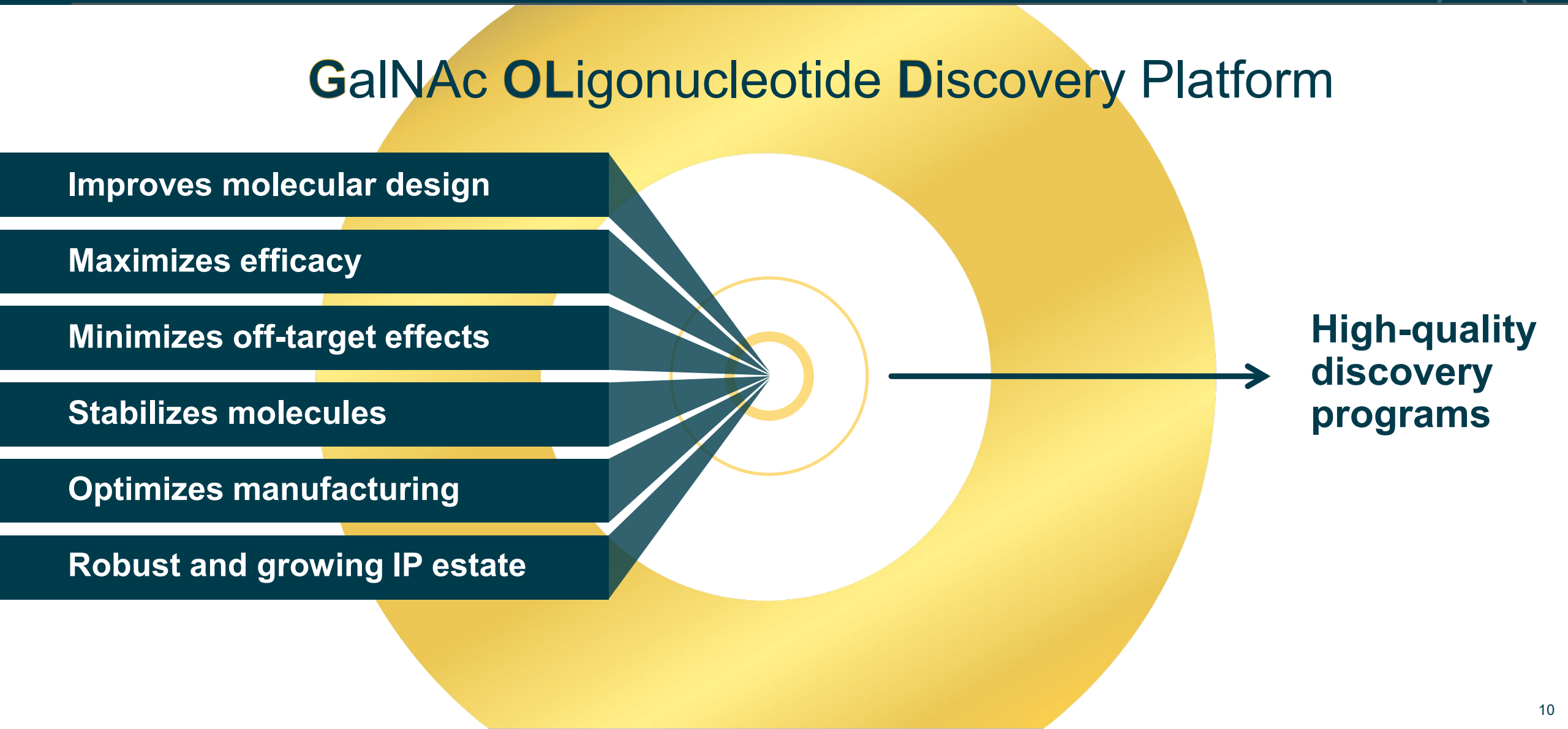
(delivery tool)

- GalNAc ligand delivers molecule to specific liver tissues/cells
- Highly targeted to liver

Continuous Fine-Tuning to Further Improve Performance

mRNAi GOLD™ Platform Approach: Precision-Engineered Therapies

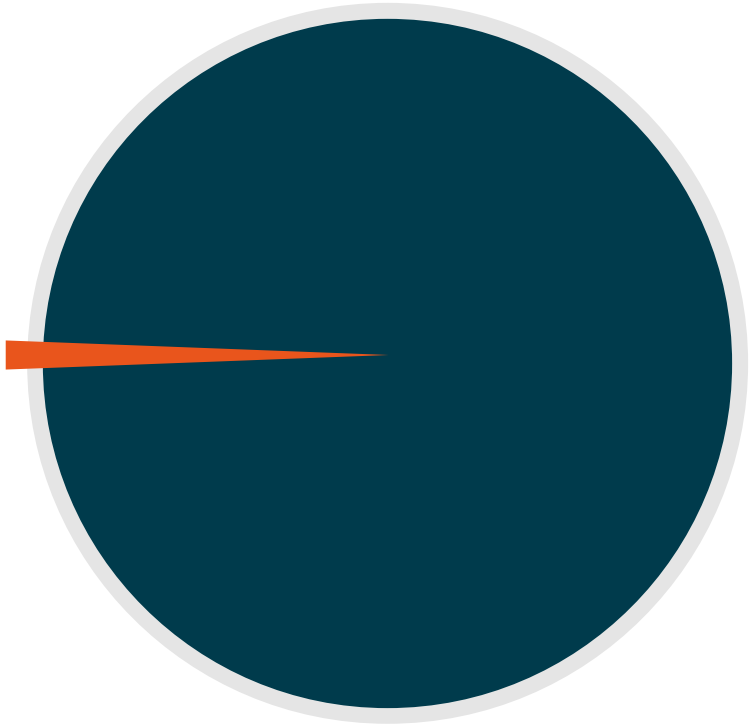
GalNAc OLigonucleotide Discovery Platform



We Believe the Opportunity for our mRNAi GOLD™ Platform is Substantial

Existing RNAi programs have only scratched the surface of the liver target space

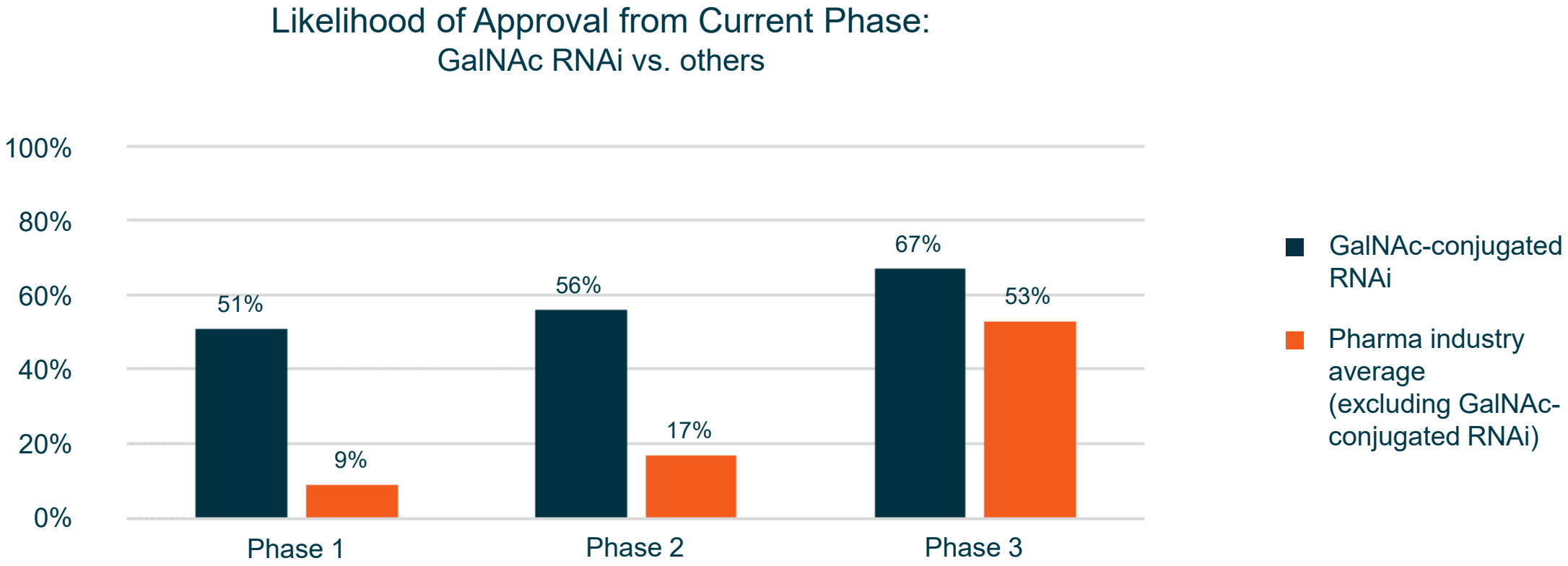
Only ~1% of genes expressed in the liver have been targeted by publicly known siRNAs



Opportunity to identify new siRNAs targeting many of the remaining 99% (~14,000) of liver-expressed genes

Source: Human Protein Atlas, GlobalData

Early-stage GalNAc-conjugated RNAi Programs Have a Much Greater Likelihood of Approval vs. Industry Average



Phase success is defined as the movement of the program to the next phase, not an evaluation of whether endpoints were met.
GalNAc-conjugated RNAi includes both GalNAc-conjugated siRNA and GalNAc-conjugated ASO

Source: Pharmapremia, Informa Pharma Custom Intelligence analysis

Partnership Programs Further Expand Pipeline and Provide ~$7.5 Billion in Potential Milestones Plus Royalties

AstraZeneca

Signed major deal to discover, develop and commercialize siRNA therapeutics for cardiovascular, renal, metabolic and respiratory diseases in March 2020

- Upfront cash payment of $60 million and an equity investment of $20 million
- Up to $4 billion in potential milestones plus tiered royalties for a total of 10 targets
- AZN to cover preclinical, CMC, clinical development and commercialization costs

Mallinckrodt

Expanded collaboration to develop siRNA therapeutics for complement-mediated diseases in July 2020

- Upfront cash payment of $20 million and an equity investment of $5 million
- Up to $2 billion in potential milestones plus royalties for 3 targets
- Exercised option to license 3 complement targets

翰森制药
HANSOH PHARMA

New collaboration to develop siRNA therapeutics for three undisclosed targets announced in Oct. 2021

- Upfront cash payment of $16 million and up to $1.3 billion in potential milestones plus royalties
- Silence has exclusive rights to 2 targets in all territories except China region; Hansoh has China region rights to those 2 targets
- Hansoh has global rights to a third target

Pipeline Balances Proprietary & Partnered Programs



*Silence retains exclusive rights to this program outside of the China region, including Hong Kong, Macau and Taiwan.

Maximizing Output through the Silence mRNAi GOLD™ Platform

- **High-quality target identification** using translational genomics
- **Lower attrition rates** in discovery enabled by machine learning
- **GalNAc strategic partnerships** to enhance pipeline opportunities (e.g. target selection)

Targeting

2-3 INDs/yr

from 2023 through our proprietary and partnered GalNAc programs

SLN360

Lp(a) Lowering Program



SLN360 Targets Lp(a): an Independent Risk Factor for Cardiovascular Disease

- Lp(a) levels are genetically determined
- Recognized as a major untreated risk factor in cardiovascular disease
- Lp(a) levels are not significantly modifiable through lifestyle changes or approved medicines
- Large population worldwide with up to 10% with >90 mg/dL[1] (2-3x increased heart attack risk)[2]

Targeting Lp(a) with SLN360 Has the Potential to Address Major Unmet Needs in Cardiovascular Disease

[1] Varvel et al. Arterioscler Thromb Vasc Biol. 2016;36:2239, Tsimikas et al. Atherosclerosis. 2020;300:1 [2] Kamstrup et al. Circulation. 2008;117:176, Kamstrup et al. JAMA. 2009;301(22):2331

Cardiovascular Event Risk Significantly Increases with High Lp(a)

Substantial Risk of CV Event at Lp(a) ~90 mg/dL

Event	Increased Risk
Heart Attack[1]	2 - 3x
Aortic Stenosis[2]	2 - 3x
Heart Failure[3]	1.6 - 1.8x
Ischemic Stroke[4]	1.2 - 1.6x
Mortality[5] (all cause/CV)	1.2 - 1.7x

780 Million Worldwide with >90 mg/dL Lp(a)

Lp(a) level:	>50 mg/dL	>90 mg/dL
Prevalence[6]	~20%	~10%
USA	66m	33m
EU	103m	51m
Globally	1,560m	780m

Populations: USA 328.2 million, EU 513.5 million (incl. UK), Global 7,800 million

[1] Kamstrup et al. Circulation. 2008;117:176, Kamstrup et al. JAMA. 2009;301(22):2331, [2] Kamstrup et al. J Am Coll Cardiol. 2014;63(5):470, [3] Kamstrup et al. JACC Heart Fail. 2016;4(1):78, [4] Langsted et al. J Am Coll Cardiol. 2019;74(1):54,
[5] Langsted et al. Eur Heart J. 2019;40(33):2760, Arsenault et al. JAMA Netw Open. 2020;3(2):e200129, [6] Varvel et al Arterioscler Thromb Vasc Biol. 2016;36:2239, Tsimikas et al. Atherosclerosis. 2020;300:1, Nordestgaard et al. Eur Heart J. 2010;31:2844

Lp(a)-lowering Drugs Present a Similar Opportunity to Cholesterol-lowering Drugs, Which Had Sales of >$30B at Peak

High Cholesterol vs High Lp(a) in Cardiovascular Disease

High Cholesterol is a Modifiable Risk Factor

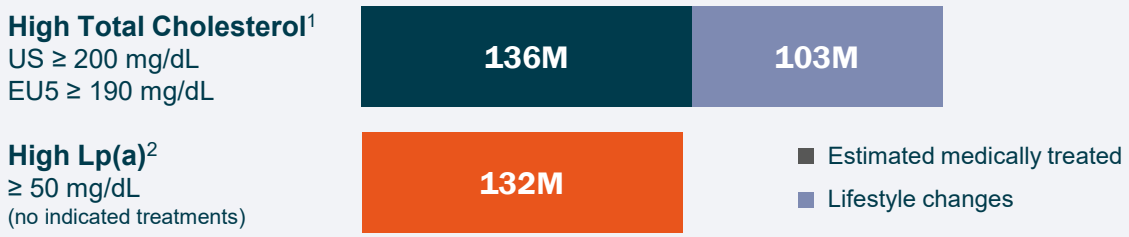
High Lp(a) is a Genetic Risk Factor

- Some patients require cholesterol lowering treatment: Lifestyle changes can have a positive impact
- Most patients will require Lp(a) lowering treatment: Lifestyle changes have no effect on Lp(a) levels

Similar Medically Treated Population

Patients with High Total Cholesterol vs. High Lp(a)

US + EU5 Markets



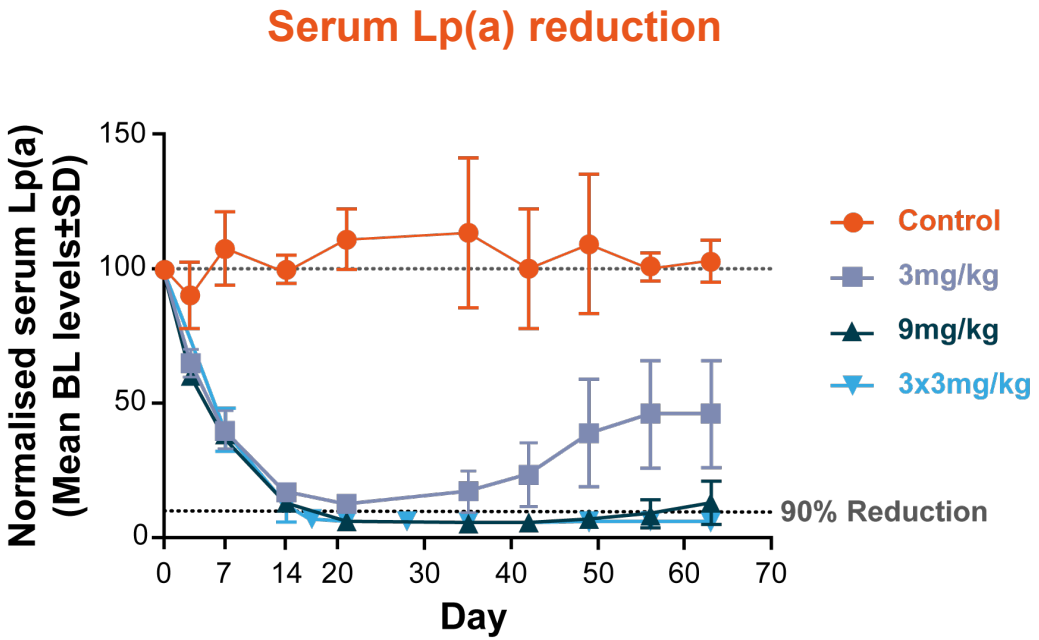
Blockbuster Potential

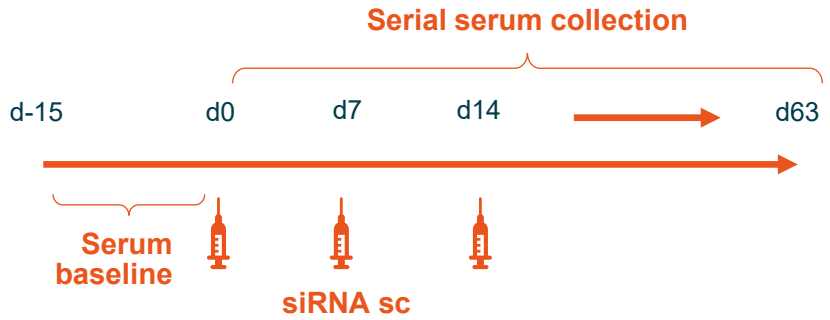
Sales of Cholesterol-Lowering Drugs Peaked at >$30B[3,4]

Lipitor® (atorvastatin)	**Crestor®** (rosuvastatin)	**Zocor®** (simvastatin)
$12.9B peak sales	**$7.0B** peak sales	**$5.2B** peak sales

[1] Datamonitor Healthcare | Informa 2018, [2] Varvel et al Arterioscler Thromb Vasc Biol. 2016;36:2239, Tsimikas et al. Atherosclerosis 2020;300:1, Nordestgaard et al. Eur Heart J. 2010;31:2844,
[3] Biomedtracker, Internal Analysis; [4] Kidd, J., Nat Rev Drug Discov. 2006;5(10):813

SLN360 Demonstrated Sustained and Deep Lp(a) Knockdown in Non-Human Primate Model





Group	mg/kg	Days
1	0	0
2	3	1
3	9	1
4	3	1, 7, 14

SLN360 demonstrated ideal profile in NHP model

Efficacy: Robust Lp(a) knockdown observed after first dose (>90%)

Durability: Sustained reduction of Lp(a) serum levels (>90%) for duration of study

Safety: <1% exposure outside liver and kidney with no detected off target effects

SLN360 Phase 1 Program Overview

Design	Global randomized, double-blind, placebo controlled single-ascending dose and multiple dose study
Aim	Investigate the safety, tolerability, PK and PD response of SLN360 in subjects with high Lp(a)
Single-Ascending Dose Cohorts	8 subjects per cohort (6 active, 2 placebo), up to 5 cohorts
Multiple-Ascending Dose Cohorts	12 subjects per cohort (9 active, 3 placebo), up to 4 cohorts
Dosing	30 mg, 100 mg, ≤ 300 mg, ≤ 600 mg and ≤ 900 mg
Population	88 subjects total with high Lp(a) approximately ≥ 60 mg/dL



PD: Pharmacodynamics; PK: Pharmacokinetics

Current Status of SLN360 Phase 1 Program

Milestones

- Single-ascending dose Cohorts 1-4 enrolment complete; Results expected Q1 2022
- **Independent safety review committee recommendations:**
  - **Established dose range and can proceed to multiple-ascending dose portion (no need for Cohort 5)**
  - **Extend follow-up of single-ascending dose cohorts from 150 to 365 days**

Strategy

- **Single-ascending dose data drives ASCVD phase 2 start in 2H 2022, subject to regulatory discussions**
- Dose and interval can be predicted from single-ascending dose data
- Multiple-ascending dose provides early safety assessment in our phase 2 ASCVD population

ASCVD = Atherosclerotic Cardiovascular Disease

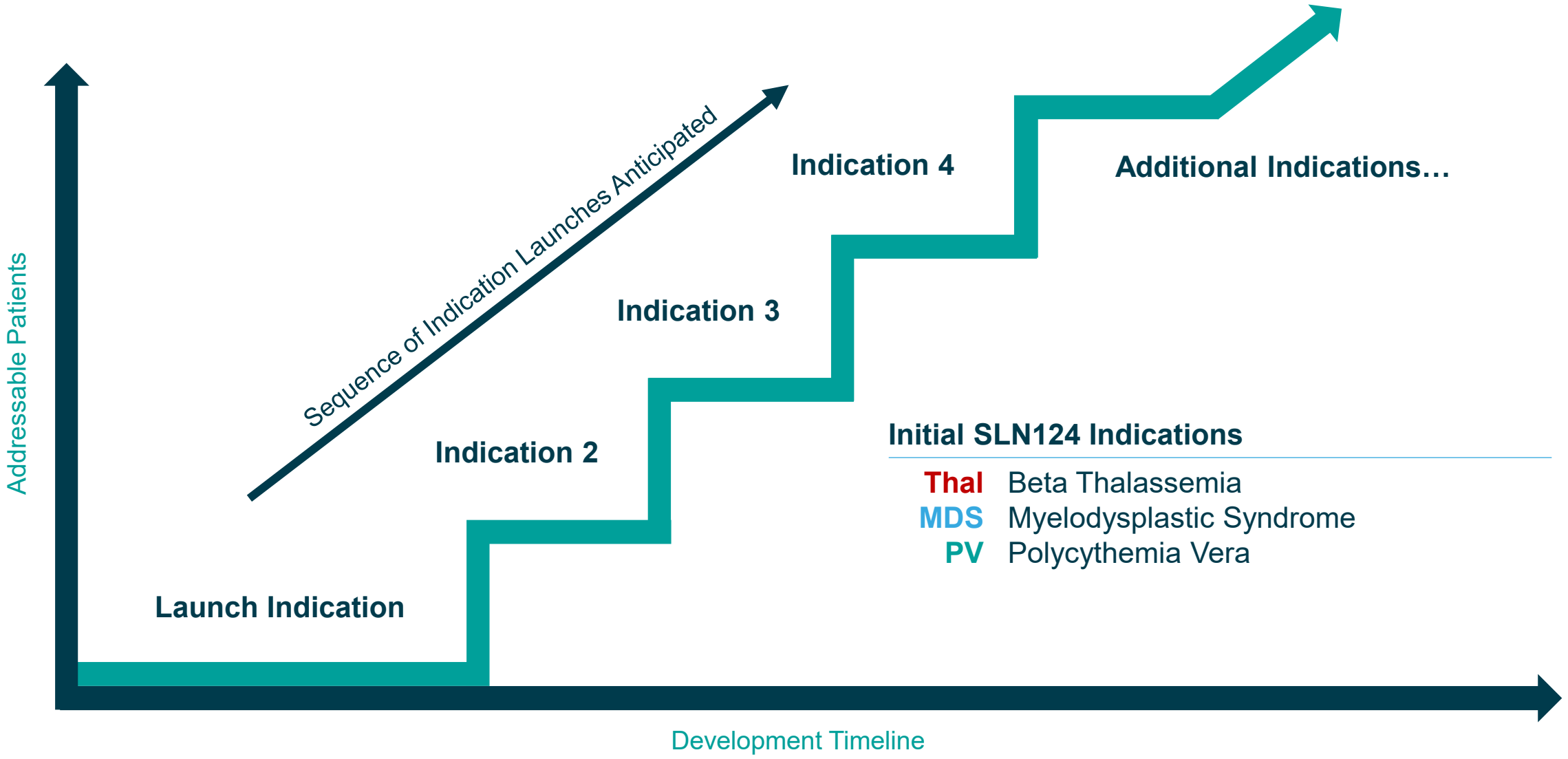


SLN124

Hepcidin Regulation Program

We see SLN124 as a Hematology Franchise Opportunity

With the potential to reach several patient groups in indications with high unmet need



PV Represents a Substantial New Opportunity

Polycythemia Vera

Prevalence
44-57/100,000[1]

~150,000*

~3.5m*

Incidence
The annual incidence of PV is between 1-3/100,000.[2]

Myelodysplastic Syndrome

Prevalence
20/100,000[3,4]

~70,000

~1.5m

Incidence
The annual reported incidence of MDS is ~5/100,000 (age adjusted).[3]

Beta Thalassemia

Prevalence
1/100,000[5,6,7]

~5,000

~100,000

Incidence
Over 40,000 infants are born with Beta Thalassemia each year.[7]

*Using 44/100,000

US Population: 333m, global population: 7,800m

[1] Mehta, J. et al. Leukemia & Lymphoma (2014); [2] Titmarsh, G. et al. Am J Hematol (2014); [3] Cogle, C. R. Curr Hematol Malig Rep (2015); [4] www.aamds.org/diseases/mds
[5] Galanello, R., Origa, R. Orphanet J Rare Dis (2010); [6] Kattamis, A. et al. Eur J Haematol (2020); [7] Modell, B., Darlison, M., Bull World Health Organ (2008)

SLN124 Key Facts

SLN124 modulates hepcidin, the master regulator of plasma iron in the body

By silencing TMPRSS6, SLN124 enables the body to increase endogenous hepcidin and modulate iron distribution

Strong preclinical data in animal disease models, demonstrating therapeutic potential in different pathologies (i.e., amelioration of anemia, reduction of iron overload or hematocrit control)

Long duration of action of SLN124 combined with favorable safety profile in healthy volunteers

Potential for broad mechanistic mode-of-action approach

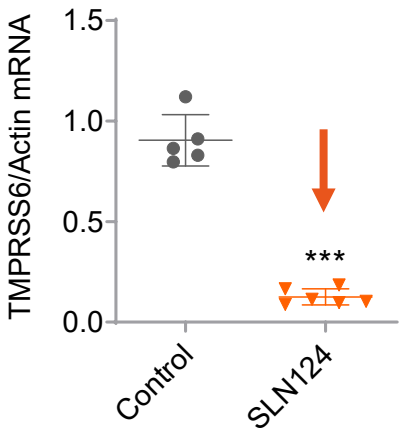
US rare pediatric disease designation for beta thalassemia

Orphan Drug Designation for MDS (US) and beta thalassemia (EU; US)

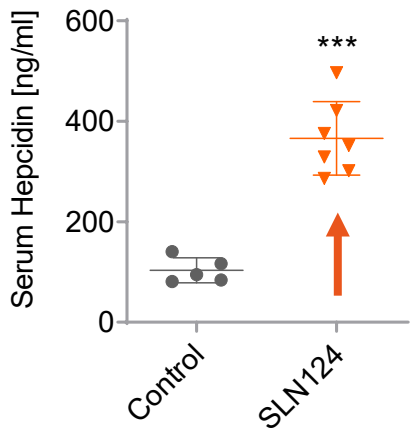
EU = European Union; MDS = myelodysplastic syndrome; US = United States

SLN124 is Designed to Restore Endogenous Hepcidin and Normalize Iron Levels

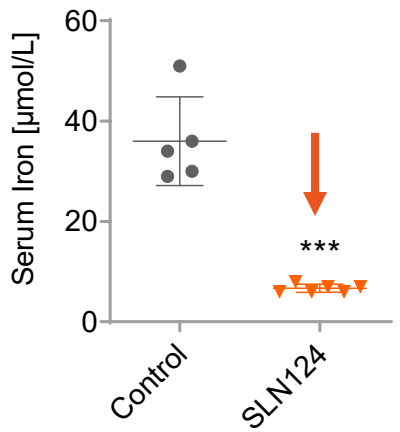
1 **Reduces TMPRSS6 in the liver**



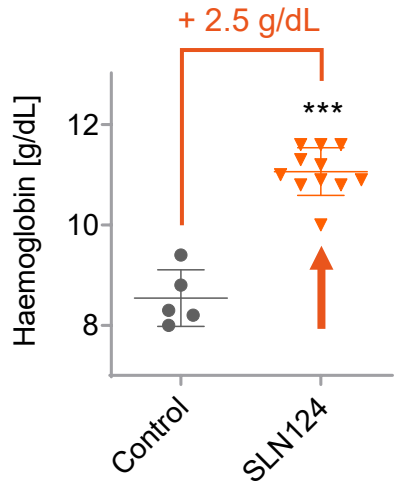
2 **Raises endogenous hepcidin**



3 **Lowers systemic iron levels and normalizes distribution**



4 **Improves red blood cell production**



SLN124 Aims to Reduce Anemia and the Need for Blood Transfusions and Iron Chelation Therapies

Study performed in a rodent model for beta thalassemia ($Hbb^{th3/+}$); *** p≤0.001

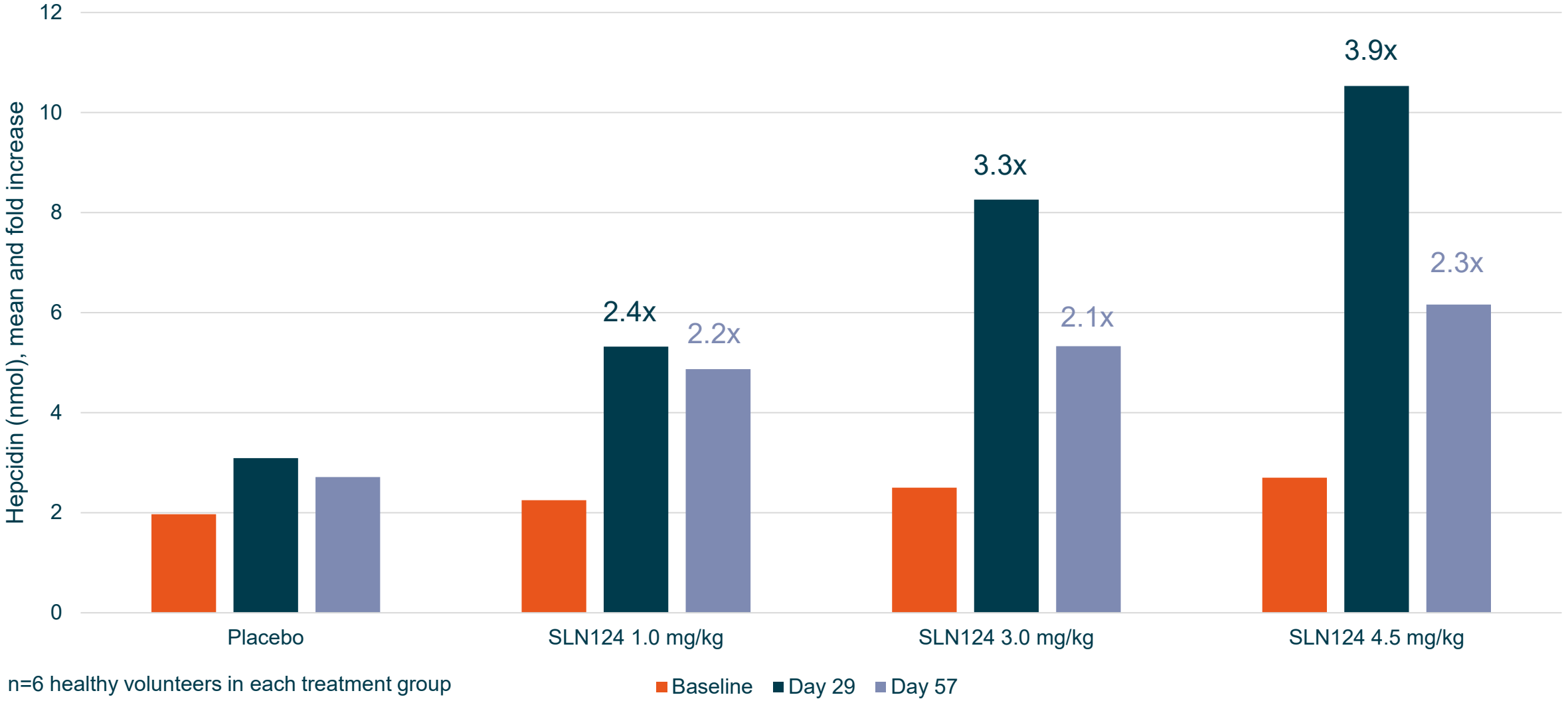
SLN124 Phase 1 Healthy Volunteer Study Design

Design	Randomized, double-blind, placebo controlled, single-ascending dose study
Aim	Investigated the safety, tolerability, PK and PD response of SLN124 in healthy volunteers
Single-Ascending Dose Cohort	3 cohorts, 8 subjects per cohort (6 active, 2 placebo)
Dosing	1 mg/kg, 3 mg/kg and 4.5 mg/kg
Population	24 healthy adults



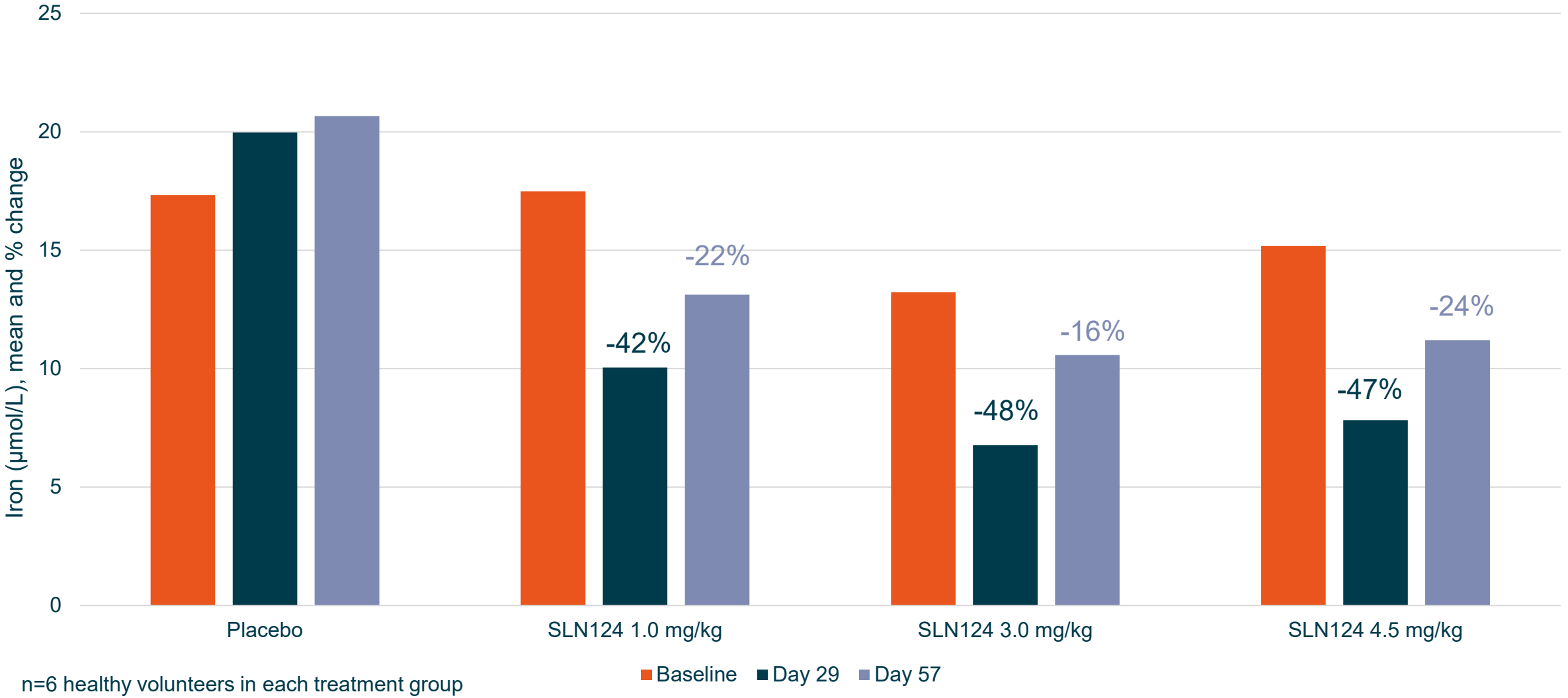
PD: Pharmacodynamics; PK: Pharmacokinetics

SLN124 Increased Average Hepcidin up to ~4-Fold After a Single Dose with Effect Sustained for ≥ 2 Months



n=6 healthy volunteers in each treatment group

SLN124 Reduced Serum Iron by ~50% After a Single Dose with Effect Sustained for ≥ 2 Months



n=6 healthy volunteers in each treatment group

Positive Topline Results from SLN124 Healthy Volunteer Study

- First clinical data from **mRNAi GOLD™** platform
- Demonstrated proof of mechanism for SLN124
- All 3 dose levels of SLN124 were safe and generally well-tolerated
- SLN124 increased average hepcidin up to ~4-fold after a single dose with effect sustained for at least 2 months
- SLN124 reduced serum iron by ~50% after a single dose with effect sustained for at least 2 months

Abstract Accepted for Presentation at ASH in December 2021

SLN124 Phase 1 Program in Adult Thalassemia and MDS

Design	Global, randomized, single-blind, placebo controlled single-ascending and multiple-ascending dose studies
Aim	Investigate the safety, tolerability, PK and PD response of SLN124 in adults with thalassemia and MDS
Single-Ascending Dose Cohorts	8 subjects per cohort (6 active, 2 placebo), up to 4 cohorts per study
Multiple-Ascending Dose Cohorts	8 subjects per cohort (6 active, 2 placebo), up to 3 cohorts per study
Dosing	1 mg/kg, 3 mg/kg and ≤ 10 mg/kg
Population	up to 112 adults with non-transfusion dependent thalassemia and VL/LR-MDS

GEMINI II

Single-ascending dose data expected in Q3 2022

MDS = myelodysplastic syndrome; PD = Pharmacodynamics; PK = Pharmacokinetics; VL/LR-MDS = very low- and low-risk MDS

A Phase 1 study in PV is to be initiated in H2 2022

- **SLN124 Phase 1 study to be initiated in H2 2022**
  - Study Aim: Investigate the safety, tolerability, PK and PD response of SLN124 in patients with polycythemia vera
- **Subsequent development:**
  - Key clinical study endpoints focused on hematological measures
    - i.e. red packed cell volume, cell hemoglobin content, TSAT, hemoglobin
  - Early and late clinical studies use same end-points simplifying development path to approval

PD = Pharmacodynamics; PK = Pharmacokinetics

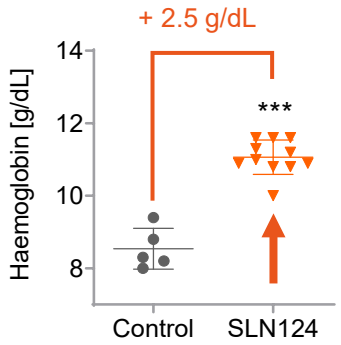
SLN124 Has The Potential For a Broad Mechanistic Mode-of-Action Approach

Silencing TMPRSS6 **by SLN124** increases endogenous hepcidin, with potential beneficial effects in several hematological disorders.

SLN124 → **Reduce TMPRSS6** → **Increase endogenous hepcidin** → **Decrease NTBI**

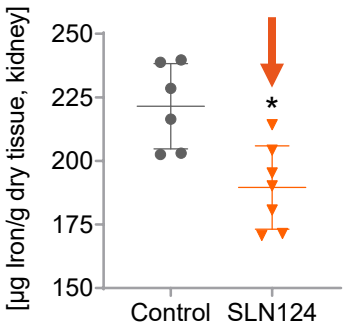
- **Inhibit iron accumulation**
- **Restrict iron to erythropoiesis**

Iron loading anemias (e.g. beta thalassemia, MDS) → **Reduce anemia**[1]



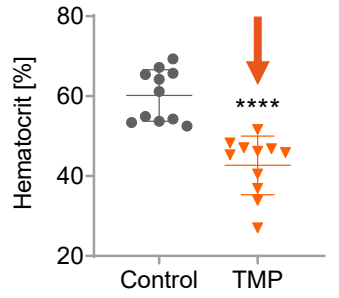
Vadolas et al. 2021 Br J Haematol. PMID: 33942901

Hereditary hemochromatosis → **Prevent iron overload**[2]



Altamura et al., HemaSphere 2019 (PMID 31976476)

Polycythemia vera → **Reduce red packed cell volume**[3]



Presented at EHA 2021

NTBI = non-transferrin-bound iron; Studies performed in a rodent model for 1: beta thalassemia ($Hbb^{th3/+}$), *** p≤0.001; 2: hemochromatosis ($Hfe^{-/-}$), * p≤0.05; 3: polycythemia vera, **** p≤0.0001

Anticipated Events Through 2022

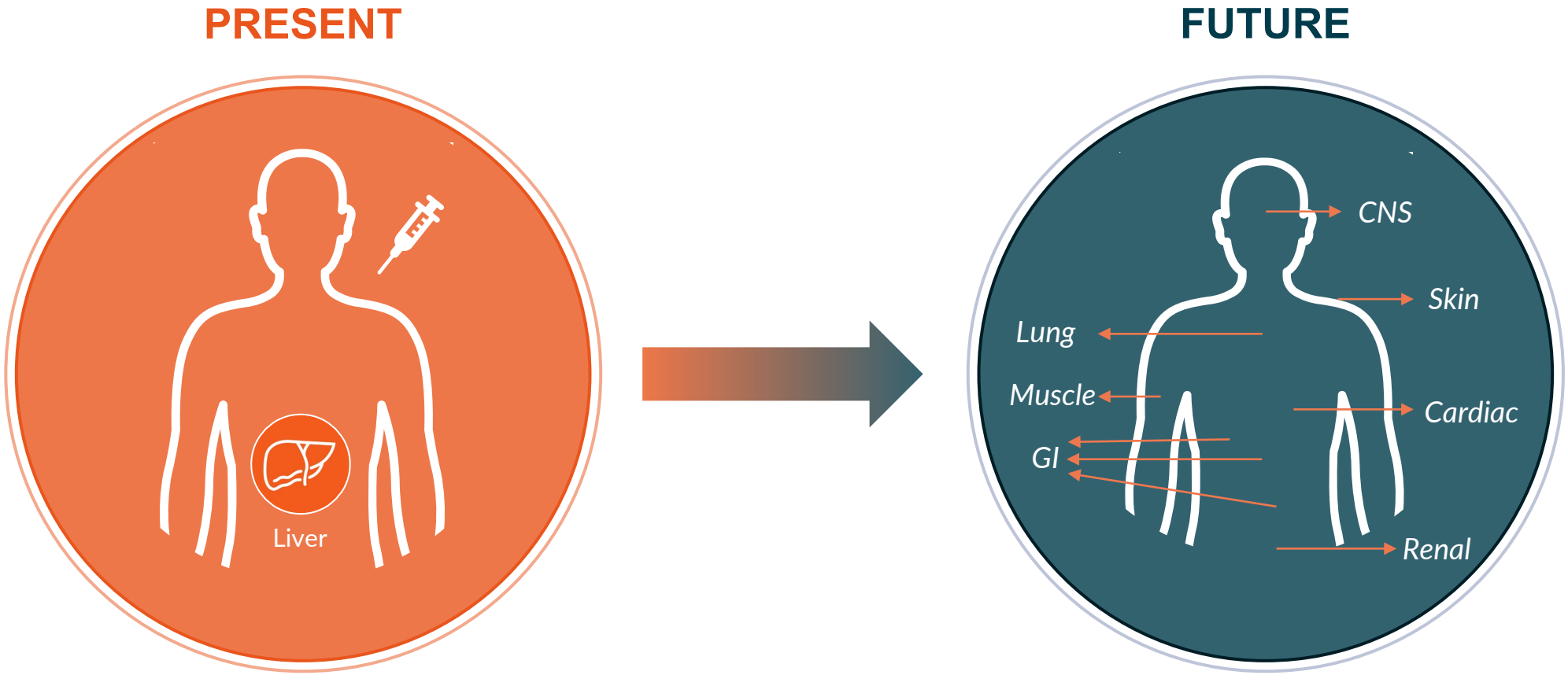
	2021		2022	
	H1	H2	H1	H2
Proprietary Programs				
SLN360 CVD due to high Lp(a)	✓ Started dosing in single-ascending dose study	✓ Fully enrolled single-ascending dose study	★ Topline data in single-ascending dose study	Start phase 2 study
SLN124 Thalassemia and MDS	✓ Started dosing in single-ascending dose studies	✓ Reported positive topline data in healthy volunteer study ✓ US IND in MDS accepted	Present healthy volunteer data at ASH	★ Topline data in single-ascending dose studies
Polycythemia Vera (PV)		✓ Presented POC data at EHA		Start phase 1 study
Undisclosed Programs			*Currently advancing multiple undisclosed programs*	
Partnered Programs				
Mallinckrodt 3 complement targets	✓ Started work on third target	✓ Started IND enabling studies for SLN501 C3 program	Start SLN501 phase 1 study	
AstraZeneca up to 10 undisclosed targets	✓ Started work on second target		*On-track to start work on 5 targets within first 3 years of collaboration*	
Hansoh 2 proprietary targets, 1 partnered target		✓ Initiated collaboration & work on first proprietary target		

mRNAi GOLD™ platform partnership opportunities

Note: all programs are at potential risk of delay due to COVID-19; CVD = cardiovascular disease; MDS = Myelodysplastic syndrome

✓ = milestone achieved ★ = data milestone

Developing a New Extra-Hepatic siRNA Delivery Platform



Tap into the huge opportunity to silence genes outside of the liver

Financial Highlights

(SLN:AIM) and (SLN:Nasdaq)	
Stock Price (09/02/21)	545p / $22.60
Common Shares Outstanding (6/30/21)	89,735,448
Market Capitalization (09/02/21)	~£500m /~$690m
Cash (6/30/21)	£81.2m
Debt	$0