

Conference call to review clinical data from SB-913 Phase 1/2 CHAMPIONS Study for MPS II

September 5, 2018



Forward Looking Statements

This presentation contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, as amended. These forward-looking statements include, but are not limited to, the design of clinical trials and expected timing for release of data; the anticipated clinical development milestones and other potential value drivers in the future; the expected benefits of our collaborations, the expanded capability of Sangamo's technologies; the research and development of novel gene-based therapies and the application of Sangamo's ZFP technology platform to specific human diseases; successful manufacturing of our product candidates; the potential of Sangamo's genome editing technology to safely treat genetic diseases; the potential for ZFNs to be effectively designed to produce IDS through genome editing; plans to conduct controlled withdrawal of weekly ERT infusions in MPS II subjects in the CHAMPIONS Study; anticipated next steps for the CHAMPIONS Study, including safety monitoring committee review; and Sangamo's expectation that it will present longer-term safety and efficacy results from the CHAMPIONS Study in February at the 2019 WORLDSymposium meeting. These statements are based upon our current expectations and speak only as of the date hereof. Our actual results may differ materially and adversely from those expressed in any forward-looking statements as a result of various factors and uncertainties. Factors that could cause actual results to differ include, but are not limited to, the dependence on the success of clinical trials of lead programs, the lengthy and uncertain regulatory approval process, uncertainties related to the timing of initiation and completion of clinical trials, whether clinical trial results will validate and support the safety and efficacy of Sangamo's therapeutics, risks and uncertainties related to early data, whether the early data from the CHAMPIONS Study will be representative of final results, whether the final results from the CHAMPIONS Study will validate and support the safety and efficacy of SB-913, and the reliance on partners and other third-parties to meet their obligations. Further, there can be no assurance that the necessary regulatory approvals will be obtained or that Sangamo and its partners will be able to develop commercially viable gene-based therapeutics. Actual results may differ from those projected in forward-looking statements due to risks and uncertainties that exist in Sangamo's operations. These risks and uncertainties are described more fully in Sangamo's Annual Report on Form 10-K and Quarterly Reports on Form 10-Q as filed with the Securities and Exchange Commission. Forward-looking statements contained in this presentation are made as of the date hereof, and Sangamo undertakes no obligation to update such information except as required under applicable law.

Agenda

Welcome

McDavid Stilwell

VP, Corporate Communications and Investor Relations

SB-913 Clinical Data

Ed Conner, MD

Chief Medical Officer

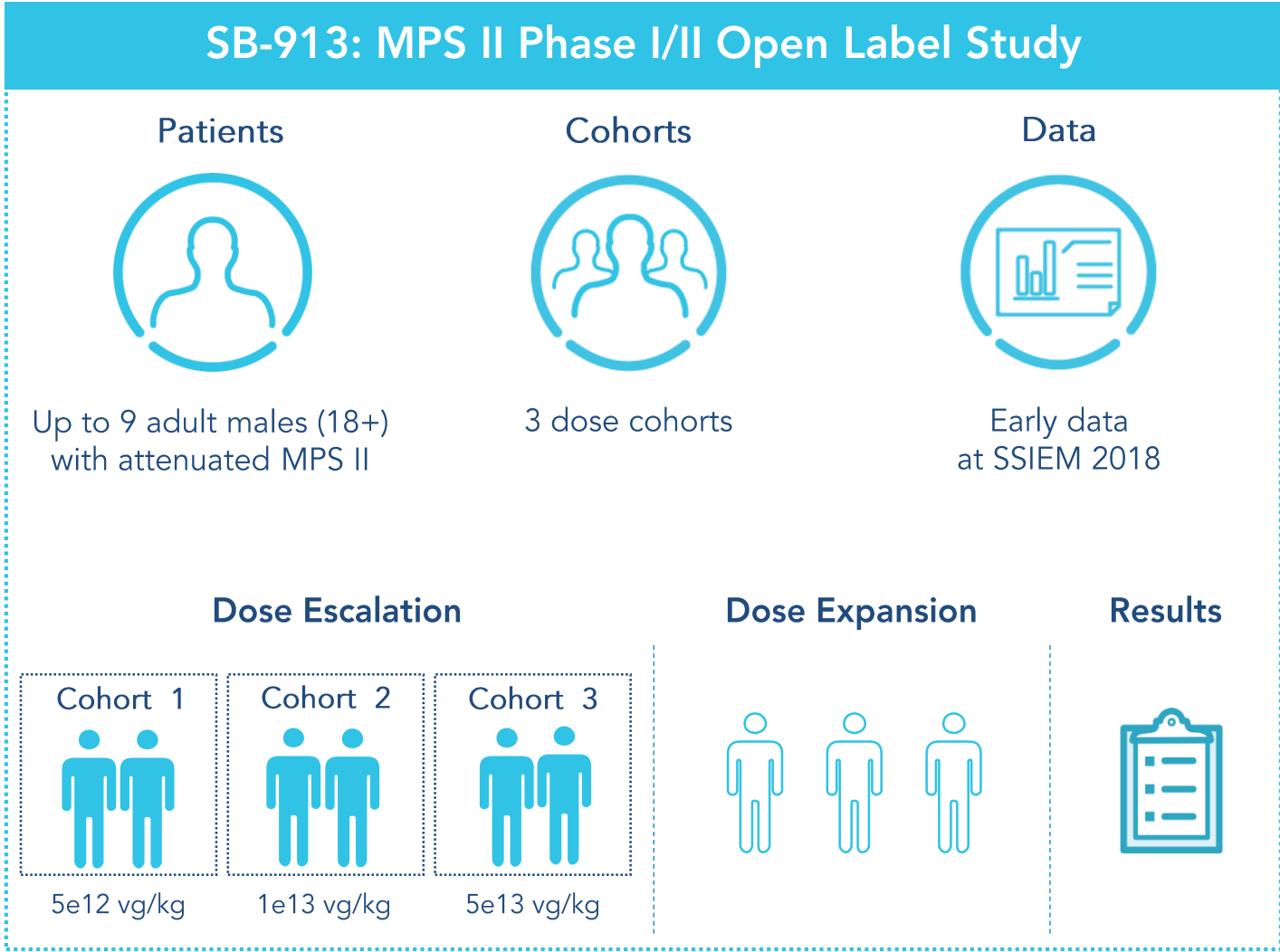
Closing Remarks

Sandy Macrae

Chief Executive Officer



SB-913: MPS II clinical program summary

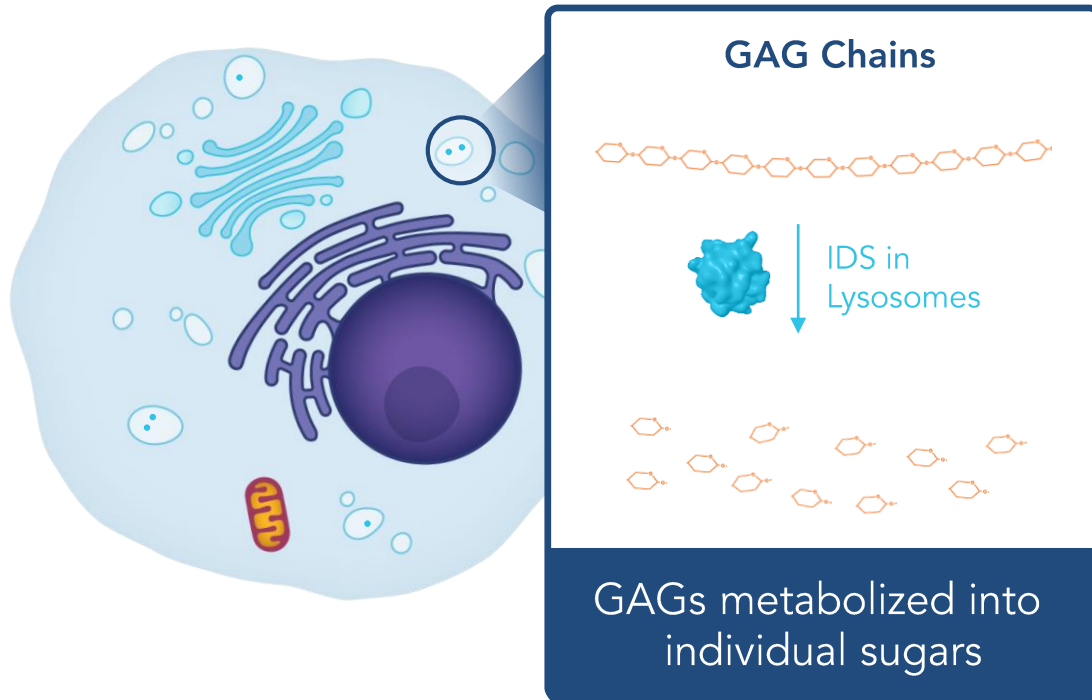


CHAMPIONS Study

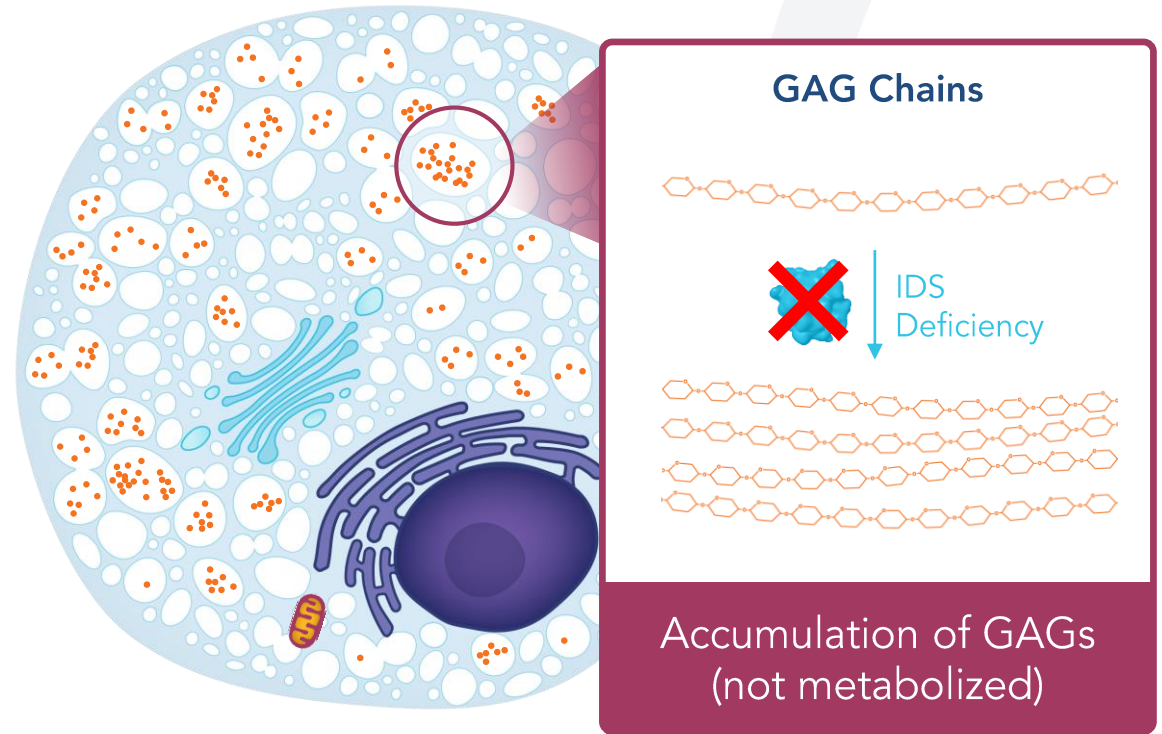
Ed Conner, MD
Chief Medical Officer

A lack of active IDS enzyme results in accumulation of GAGs in the lysosomes, leading to loss of cellular function and organ damage

Normal Cell



MPS II Cell

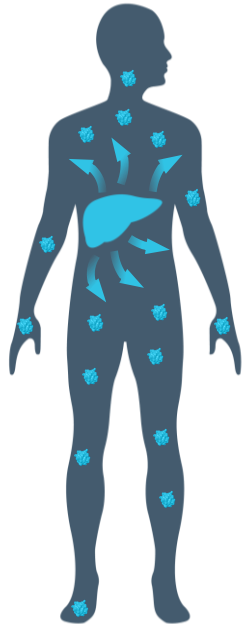


Toxic build up enlarges lysosomes, crowds critical organelles and engorges the cell

Genome editing is designed to produce IDS continuously to increase enzyme exposure for receptor-mediated uptake

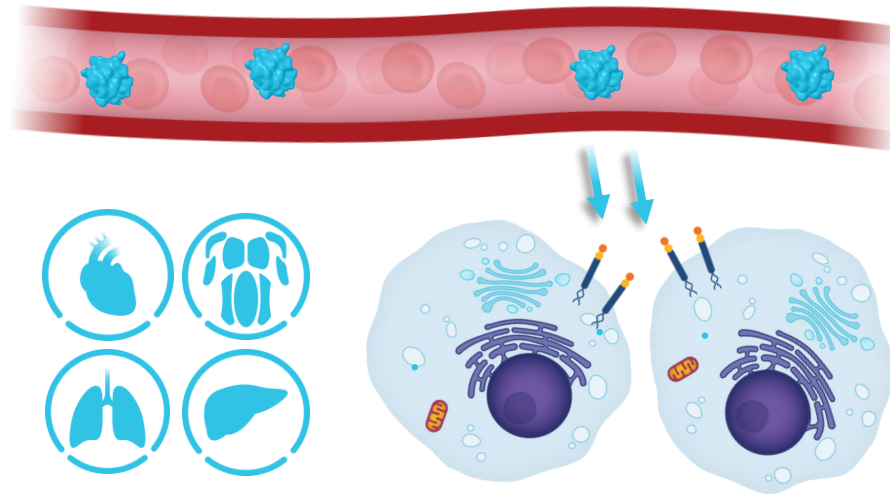
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Edited liver cells steadily release IDS enzyme into the circulation



2

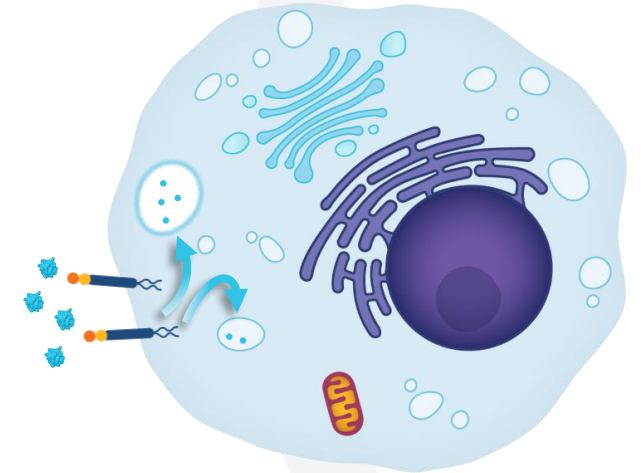
Continuous IDS enzyme production increases IDS exposure in tissues throughout the body, facilitating receptor-mediated uptake of enzyme



Continuous IDS exposure may also facilitate uptake in tissues with limited vascularization

3

IDS enzyme is transported to lysosomes to metabolize GAGs



Goal is for continuous IDS production to stabilize or reduce GAG accumulation

The first clinical trial evaluating *in vivo* genome editing



- Phase 1/2 open-label, dose-escalation study to assess the safety and tolerability of SB-913 in up to 9 adult subjects (>18y) with MPS II
- Study drug: SB-913 consists of two ZFNs targeting the albumin locus and the human IDS gene packaged into AAV2/6 vectors
- Key exclusion criteria:
 - Pre-existing antibodies to AAV2/6 or polymorphisms of albumin gene
 - History of resistance or severe adverse reactions to ERT
 - History of liver or kidney dysfunction or contraindication to steroids

CHAMPIONS Study: Objectives

Primary Objective:

- To evaluate the safety and tolerability of SB-913

Secondary Objectives:

- To evaluate change from baseline in:
 - Plasma IDS activity
 - Urine GAG levels
 - AAV2/6 clearance

Exploratory Objectives

- Assessments to determine clinical, functional and biochemical effects of SB-913

CHAMPIONS Study: Design

- Three dose cohorts with 2 subjects each (total of 6 subjects):

– 5.00 E+12 vg/kg* 

– 1.00 E+13 vg/kg* 

– 5.00 E+13 vg/kg* 

- Independent safety monitoring committee review prior to each dose escalation
- Subjects continued their weekly ERT infusions
- Subjects received oral prednisone prior to SB-913 dosing which was tapered over 20 weeks

CHAMPIONS Study: Demographics and follow up

- Safety data available on first 5 subjects analyzed as of 10 JUL 2018
- Additional IDS enzyme activity and GAG data available on the first 4 subjects with 16 week follow up

Demographics	
Subject Characteristics	Overall (N=5)
Age (Years)	
n	5
Min-Max	19 - 61
Mean (SD)	37.4 (17.24)
Sex, n (%)	
Male	5 (100%)
Race, n (%)	
Asian	1 (20.0%)
White	4 (80.0%)

Approx. Exposure		
Subject	Dose Cohort	Follow-Up (Weeks)
1	1	32
2	1	24
3	2	16
4	2	11
5	3	2

CHAMPIONS Study: 16 week GAG results, Cohorts 1 and 2

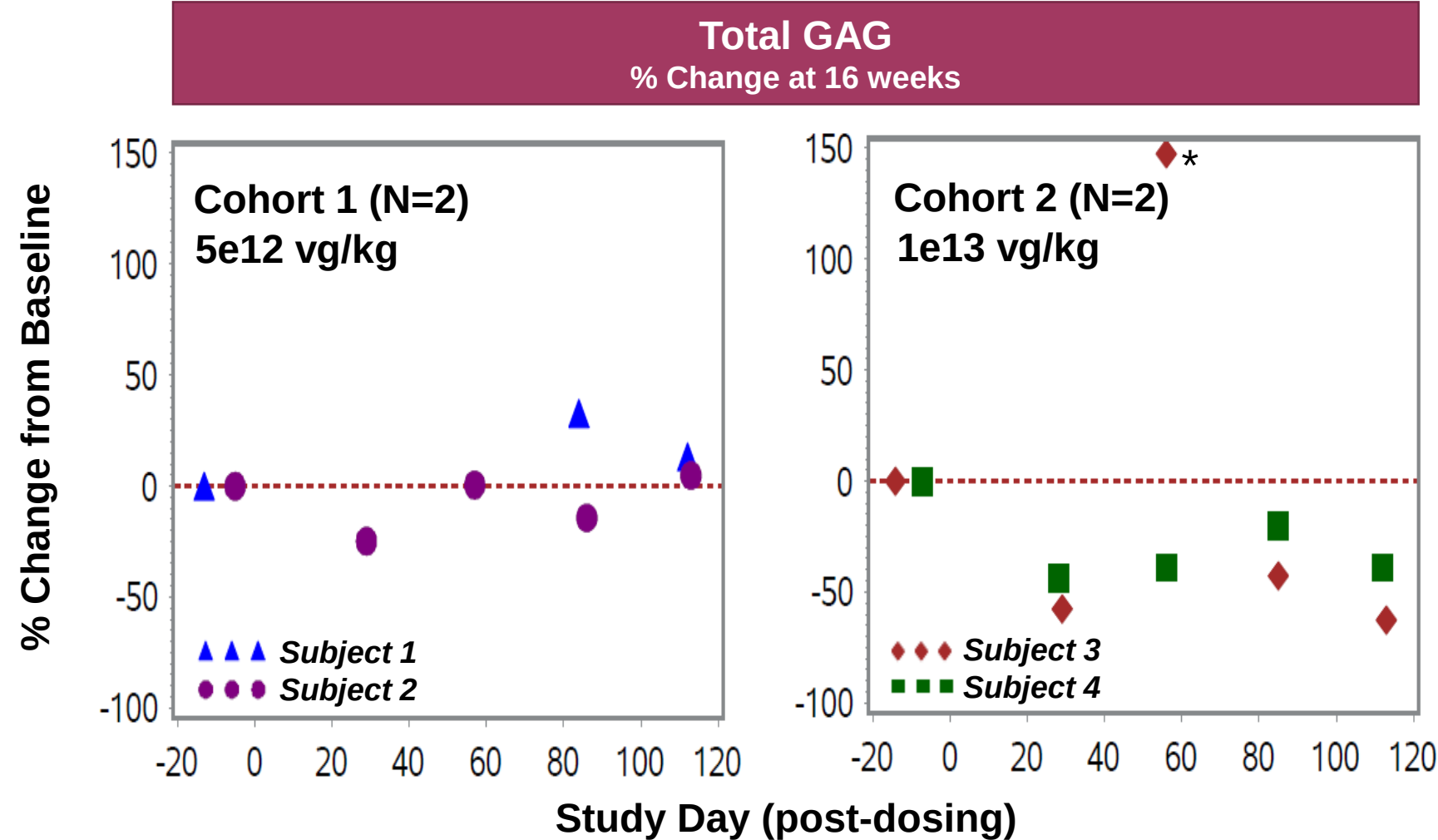
- At 16 weeks post-dosing of SB-913, there was a substantial decrease in all GAG biochemical markers in the two Cohort 2 subjects

	Total GAG* % Change at 16 weeks Mean (SD)	Dermatan Sulfate** % Change at 16 weeks Mean (SD)	Heparan Sulfate** % Change at 16 weeks Mean (SD)
Cohort 1 (Subject 1)	+13.0	-14.5	-15.6
Cohort 1 (Subject 2)	+4.8	+22.6	-31.4
Cohort 1 Mean (SD)	+8.9 (5.8)	+ 4.1 (26.2)	-23.5 (11.2)
Cohort 2 (Subject 3)	-62.5	-47.4	-69.9
Cohort 2 (Subject 4)	-39.1	-16.3	-53.0
Cohort 2 Mean (SD)	-50.8 (16.5)	-31.8 (22.0)	-61.5 (12.0)

* Urine total GAG measured by validated 1,9-dimethylene blue (DMB) colorimetric assay

** Urine dermatan sulfate and heparan sulfate measured by validated MS-MS assay
(liquid chromatography followed by tandem-mass spectrometry)

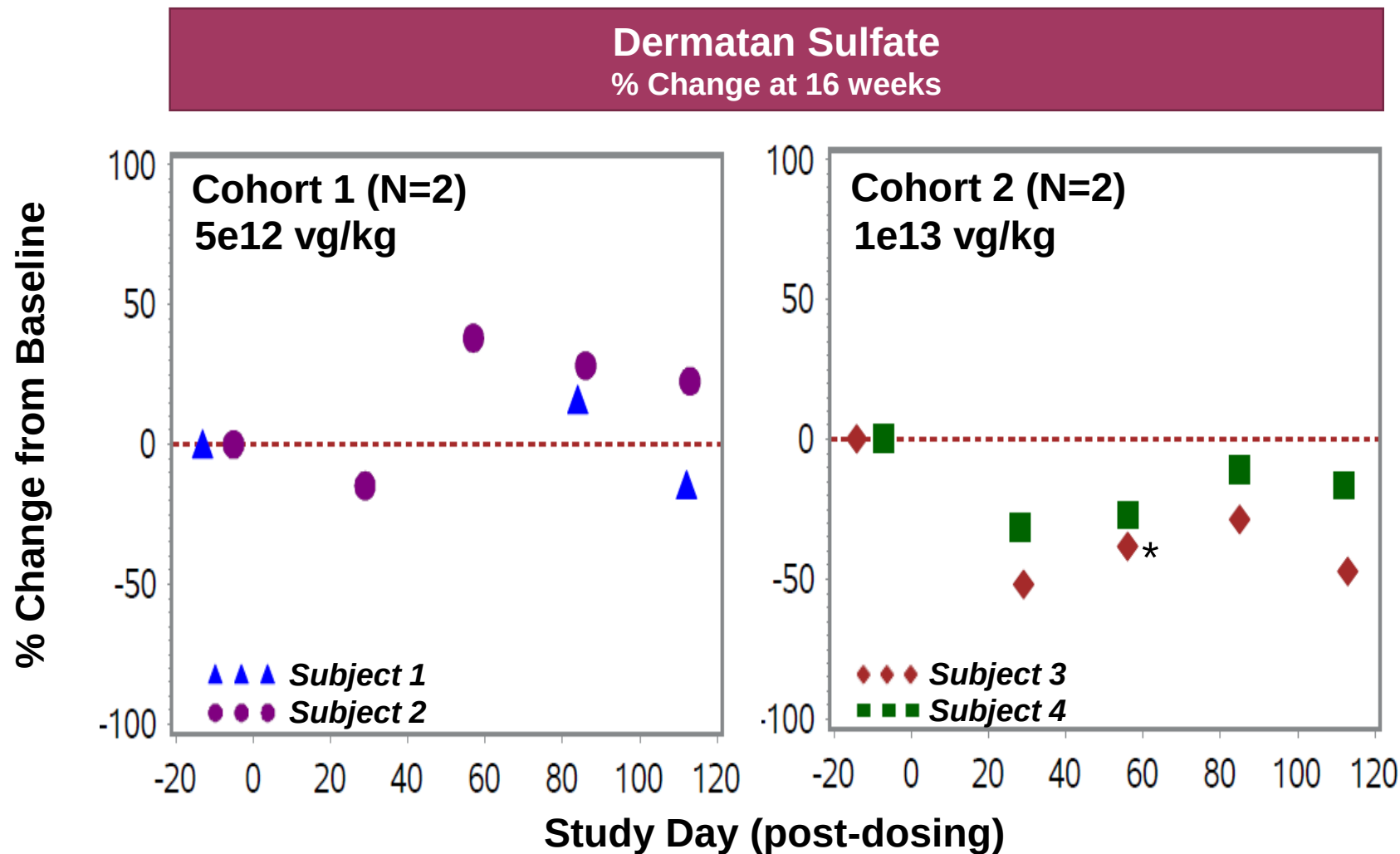
CHAMPIONS Study: Week 16 GAG results, Cohorts 1 and 2



Urine total GAG measured by validated 1,9-dimethylene blue (DMB) colorimetric assay

*sample obtained 4 days after hospitalization for SAE of atrial fibrillation, subject was hypotensive for several hours

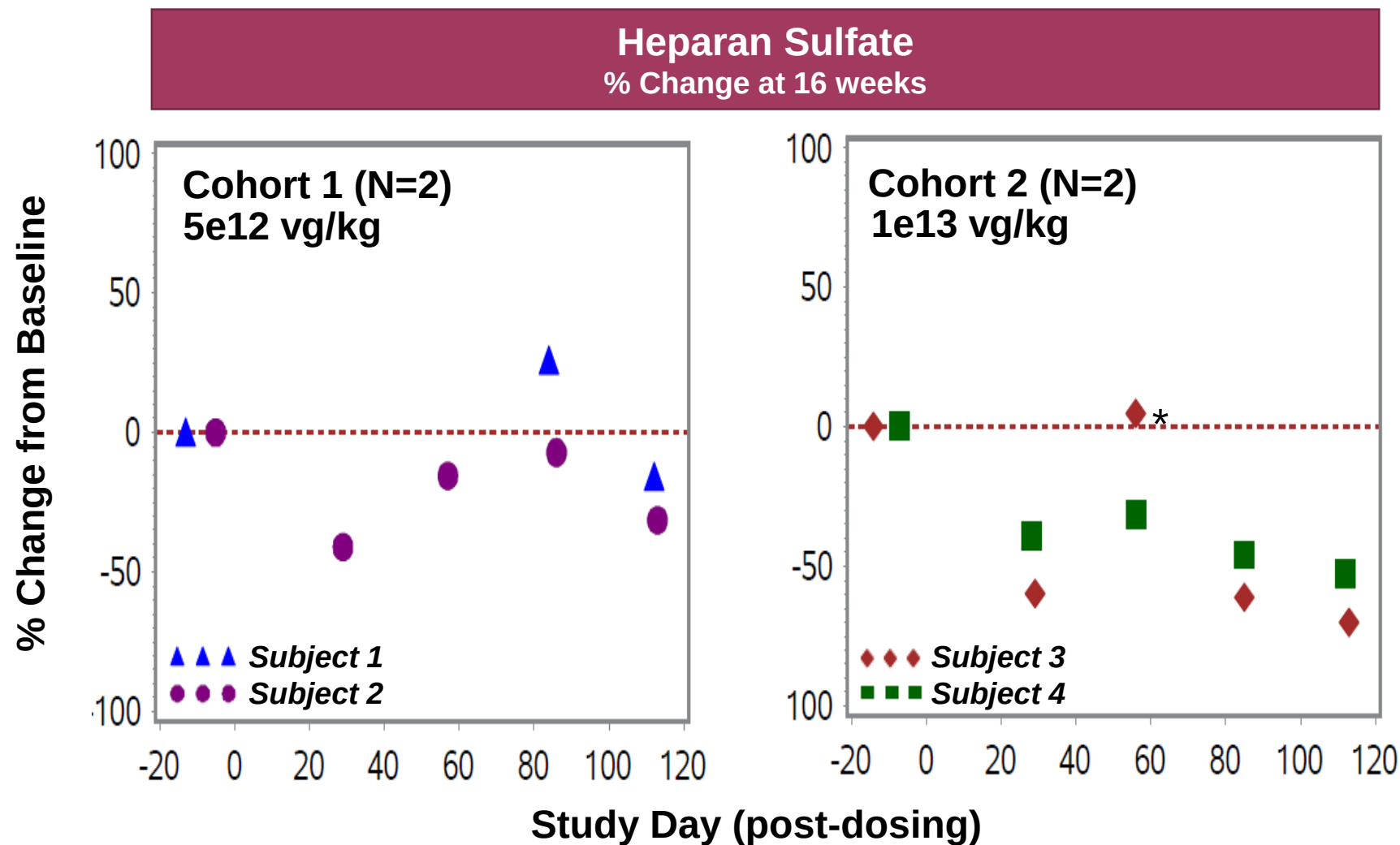
CHAMPIONS Study: Week 16 GAG results, Cohorts 1 and 2



Urine dermatan sulfate and heparan sulfate measured by validated MS-MS assay

*sample obtained 4 days after hospitalization for SAE of atrial fibrillation, subject was hypotensive for several hours

CHAMPIONS Study: Week 16 GAG results, Cohorts 1 and 2



Urine dermatan sulfate and heparan sulfate measured by validated MS-MS assay

*sample obtained 4 days after hospitalization for SAE of atrial fibrillation, subject was hypotensive for several hours

CHAMPIONS Study: Week 16 IDS results from Cohorts 1 and 2

- Plasma IDS activity was obtained at trough (defined as immediately prior to ERT dosing when possible and no less than 96 hours after last ERT infusion)
- Plasma IDS activity measured by standard validated fluorometric assay using 4MU substrate
- Plasma IDS activity was below level of quantification* at baseline and for the first 16 weeks post-dosing of SB-913

CHAMPIONS Study: Drug-related adverse events (AEs)

- All study drug-related AEs were mild (Grade 1), resolved without intervention, and were not dose-dependent

Preferred Term	Cohort 1 (N=2) n [T]	Cohort 2 (N=2) n [T]	Cohort 3 (N=1) n [T]	Overall (N=5) n(%) [T]
Any Event	2 [5]	1 [5]	0 [0]	3 (60.0) [10]
ALT increased	0 [0]	1 [1]	0 [0]	1 (20.0) [1]
AST increased	0 [0]	1 [1]	0 [0]	1 (20.0) [1]
Asthenia	1 [1]	0 [0]	0 [0]	1 (20.0) [1]
Cold sweat	1 [1]	0 [0]	0 [0]	1 (20.0) [1]
Dizziness	1 [1]	0 [0]	0 [0]	1 (20.0) [1]
Erythema	0 [0]	1 [2]	0 [0]	1 (20.0) [2]
Flushing	0 [0]	1 [1]	0 [0]	1 (20.0) [1]
Pruritus	1 [2]	0 [0]	0 [0]	1 (20.0) [2]

CHAMPIONS Study: Adverse event (AE) summary

- All subjects reported treatment emergent adverse events (TEAEs), consistent with ongoing MPS II disease
- Most were mild (Grade 1), and resolved without treatment
- 2 Serious Adverse Events (SAEs) were reported in 2 subjects and were not considered related to the study drug by the site investigator:
 - Bronchitis (Grade 3)
 - Secondary to subject's medical history of chronic pulmonary disease from MPS II
 - Resolved after medical treatment
 - Atrial fibrillation (Grade 2)
 - Secondary to subject's medical history of cardiac valve disease from MPS II
 - Resolved after medical treatment

CHAMPIONS Study: No persistent AAV-induced transaminitis observed

- All subjects tapered on prophylactic prednisone without need for increased dosing
- One subject in Cohort 2 had mild transient transaminitis at the time of hospitalization for SAE of atrial fibrillation
 - Liver function abnormalities spontaneously resolved after approximately one week
- All subjects continue to have AST and ALT within normal limits

CHAMPIONS Study: Summary of week 16 results

- SB-913 was administered to five subjects with attenuated MPS II at a dose of up to 5.00 E+13 vg/kg and was generally well-tolerated
- No SAEs related to SB-913 were reported and no persistent transaminitis was observed
- Urine GAG biomarkers showed a reduction in a dose-dependent manner
- Two subjects treated with SB-913 at the 1.00 E+13 vg/kg dose showed a mean decrease of >60% in urine heparan sulfate at 16 weeks post-dose
- Plasma IDS activity was below level of quantification at baseline and for the first 16 weeks post-dosing of SB-913
- The sixth subject (high-dose cohort) has been dosed at 5.00 E+13 vg/kg

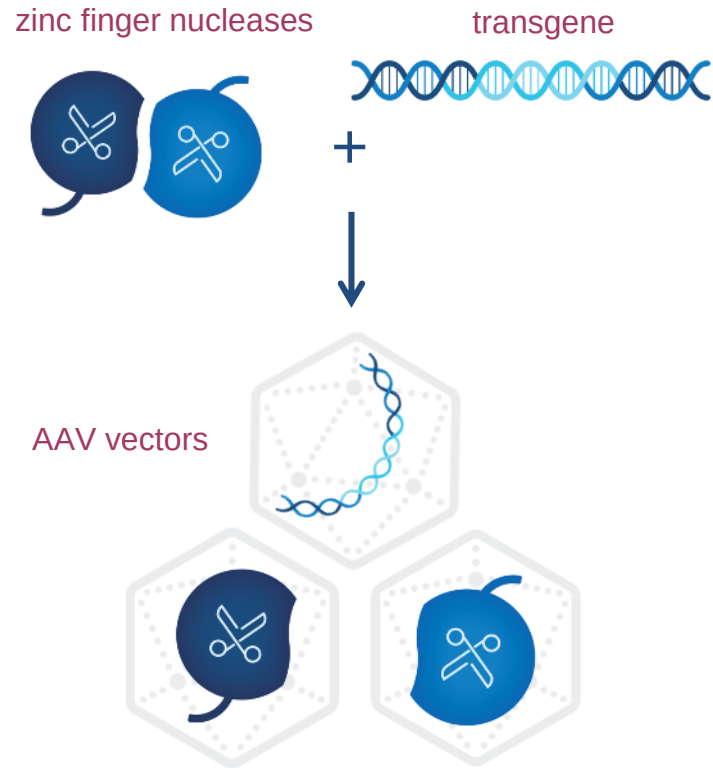
Closing Remarks

Sandy Macrae

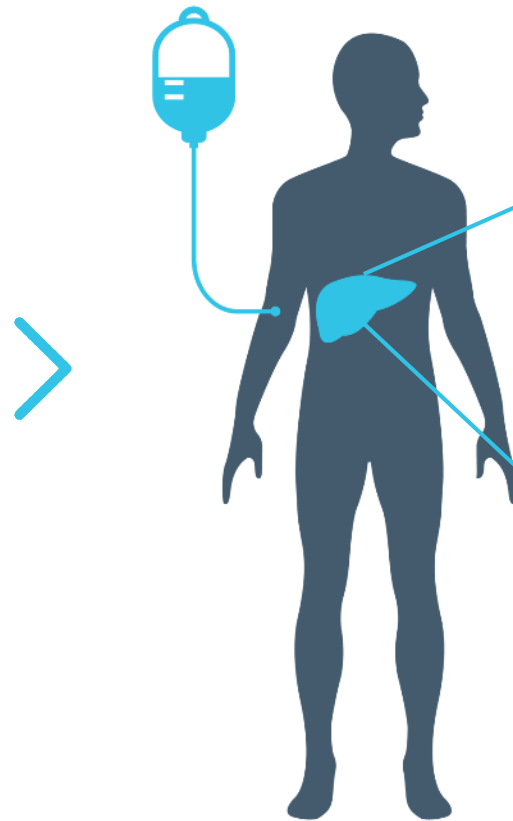
Chief Executive Officer

In Vivo genome editing of albumin: harnessing the liver's most highly expressed locus

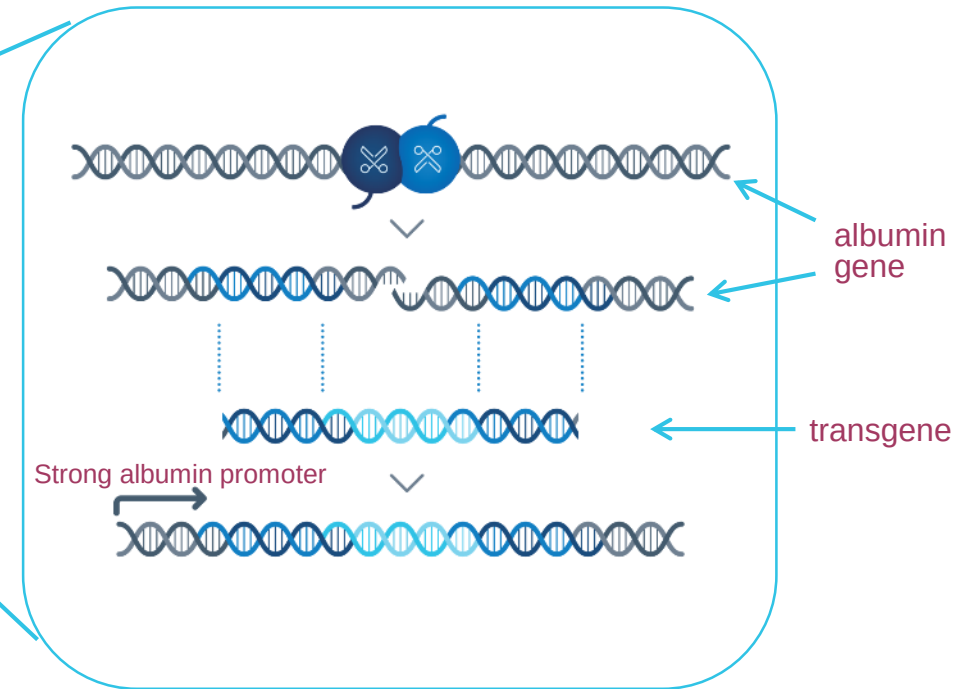
Packaging into AAV vectors



Delivery



In the liver



Sangamo transformed into a clinical stage biotech company focused on the development of genomic medicines in over two years



Corporate

- New management team focused on execution
 - Expanded core capabilities and cross-functional therapeutic development model
 - Secured new global headquarters in biotech hub south of San Francisco
 - Patient-focused identity with a sense of urgency and a commitment to excellence
-



Clinical

- Built a strong development organization
 - Activated 5 Phase 1/2 clinical trials and enrolled 14 patients
-



Technology

- Optimized core zinc finger technology platform across key attributes of precision, efficiency and specificity
-



Partnerships

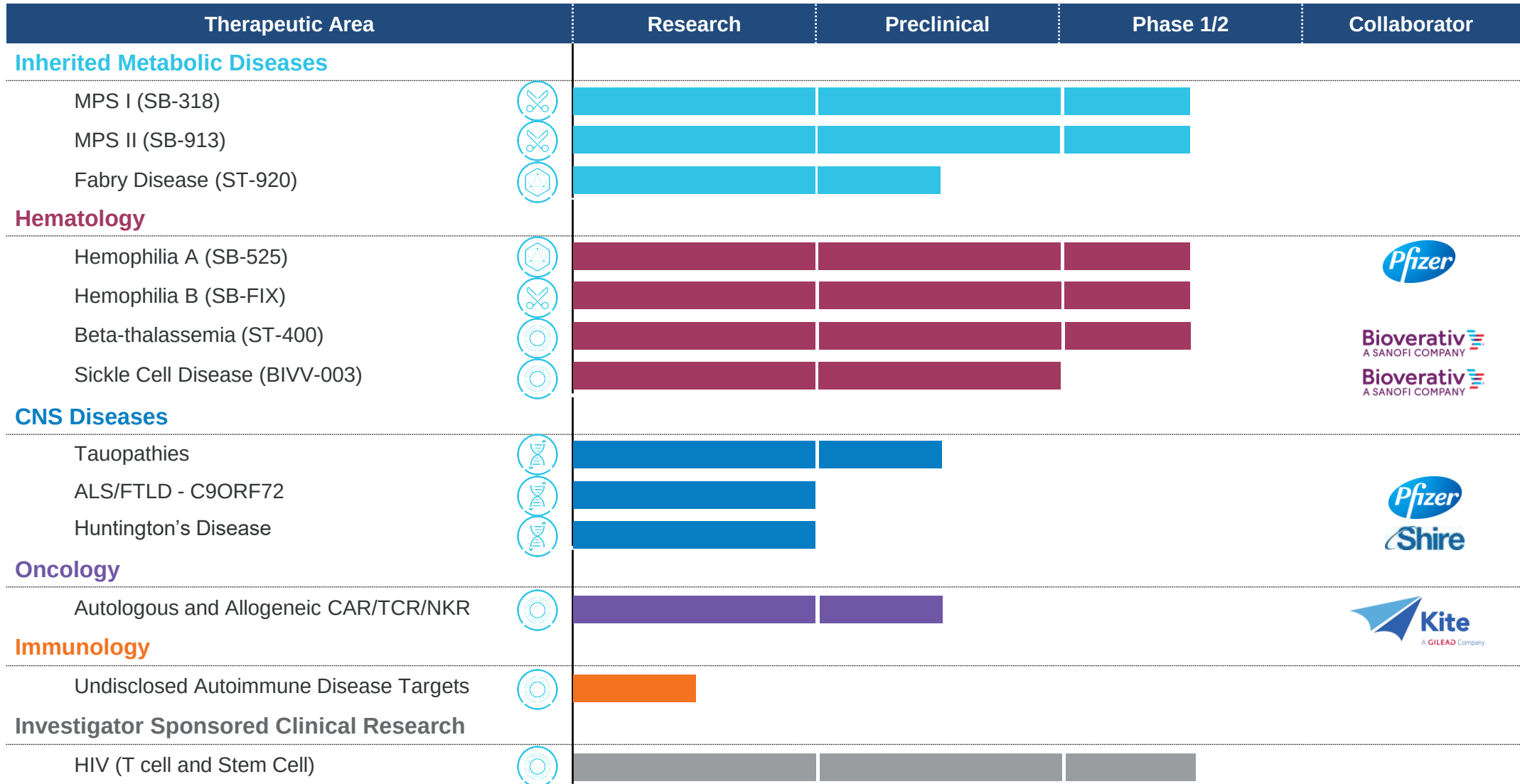
- Established 3 new strategic collaborations with leading biopharma companies – Pfizer (hemophilia A / ALS) and Gilead (immuno-oncology)

Encouraging safety profile for AAV6 across gene therapy and genome editing clinical trials



- AAV6 appears to be well-tolerated based on early data from SB-913 (MPS II) CHAMPIONS Study and SB-525 (hemophilia A) Alta Study
- Safety data for AAV6 from SB-913 and SB-525 may potentially de-risk delivery concerns for other programs
 - SB-318 MPS I
 - SB-FIX hemophilia B
 - ST-920 Fabry disease
- Upon establishing acceptable safety profile in adults, expect to move dosing to adolescents and children for SB-913 MPS II program

Sangamo's evolution anchored by clinical execution and progress





We are committed to translating ground-breaking science
into genomic therapies that transform patients' lives

Thank you.

