Sangamo THERAPEUTICS

Neurology Collaboration with Biogen

February 2020

Forward-Looking Statements

This presentation contains forward-looking statements within the meaning of the "safe harbor" provisions of United States securities law. These forward-looking statements include, but are not limited to, relating to Sangamo's expected benefits from the collaboration with Biogen, the therapeutic potential of Sangamo's product candidates; the design of clinical trials and expected timing for milestones, such as enrollment and presentation of data, the expected timing of release of additional data, plans to initiate additional studies for product candidates and timing and design of these studies; the expected benefits of Sangamo's collaborations; the anticipated capabilities 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 Sangamo's product candidates; the potential of Sangamo's genome editing technology to safely treat genetic diseases; the potential for ZFNs to be effectively designed to treat diseases through genome editing; the potential for cell therapies to effectively treat diseases; and other statements that are not historical fact. These statements are based upon Sangamo's current expectations and speak only as of the date hereof. Sangamo's actual results may differ materially and adversely from those expressed in any forward-looking statements. Factors that could cause actual results to differ include, but are not limited to, the ability for the Biogen collaboration to clear HSR review; the ability to satisfy all conditions to the closing, Sangamo's ability to maintain strategic collaborations, risks and uncertainties related to dependence on the success of clinical trials; the uncertain regulatory approval process; the costly and research and development process, including the uncertain timing of clinical trials; whether interim, preliminary or initial data from ongoing clinical trials will be representative of the final results from such clinical trials; whether the final results from ongoing clinical trials will validate and support the safety and efficacy of product candidates; the risk that clinical trial data are subject to differing interpretations by regulatory authorities; Sangamo's limited experience in conducting later stage clinical trials and the potential inability of Sangamo and its partners to advance product candidates into registrational studies; Sangamo's reliance on itself, partners and other third-parties to meet clinical and manufacturing obligations; Sangamo's ability to maintain strategic partnerships; competing drugs and product candidates that may be superior to Sangamo's product candidates; and the potential for technological developments by Sangamo's competitors that will obviate Sangamo's gene therapy technology. Actual results may differ from those projected in forward -looking statements due to risks and uncertainties that exist in Sangamo's operations. This presentation concerns investigational drugs that are under preclinical and/or clinical investigation and which have not yet been approved for marketing by any regulatory agency. They are currently limited to investigational use, and no representations are made as to their safety or effectiveness for the purposes for which they are being investigated. Any discussions of safety or efficacy are only in reference to the specific results presented here and may not be indicative of an ultimate finding of safety or efficacy by regulatory agencies. These risks and uncertainties are described more fully in Sangamo's reports filed with the Securities and Exchange Commission, including its most recent annual report on Form 10-K. Except as required by law, we assume no obligation, and we disclaim any intent, to update these statements to reflect actual results.

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

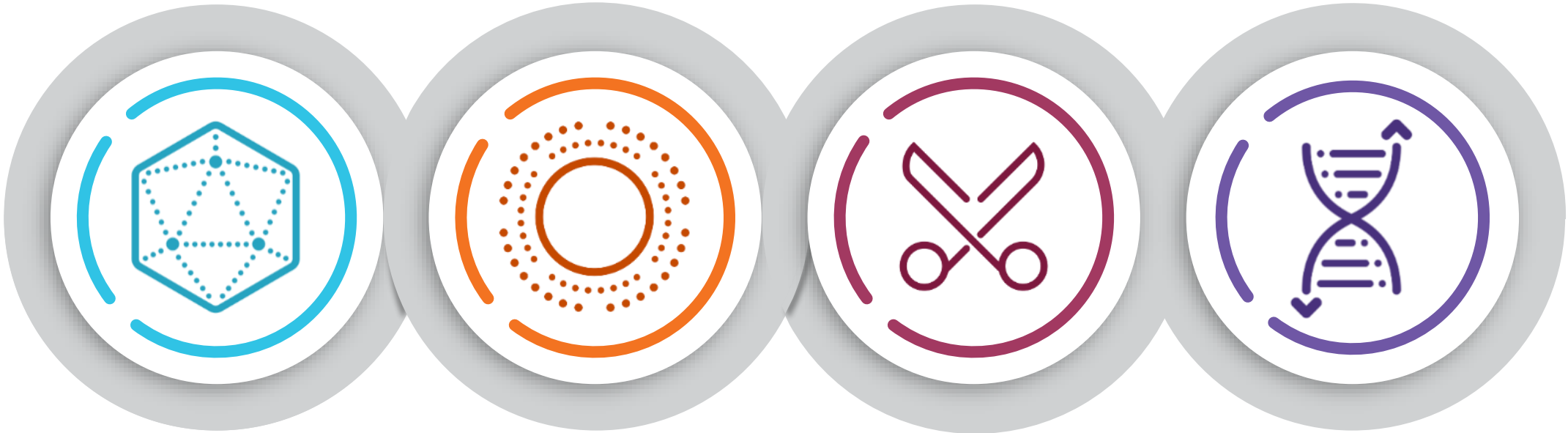
Our proprietary suite of genomic medicine technologies

Gene Therapy
AAV

Gene-Edited Cell Therapy
AAV; ZFN; LV

Genome Editing
AAV; ZFN

Genome Regulation
AAV; ZFP-TF

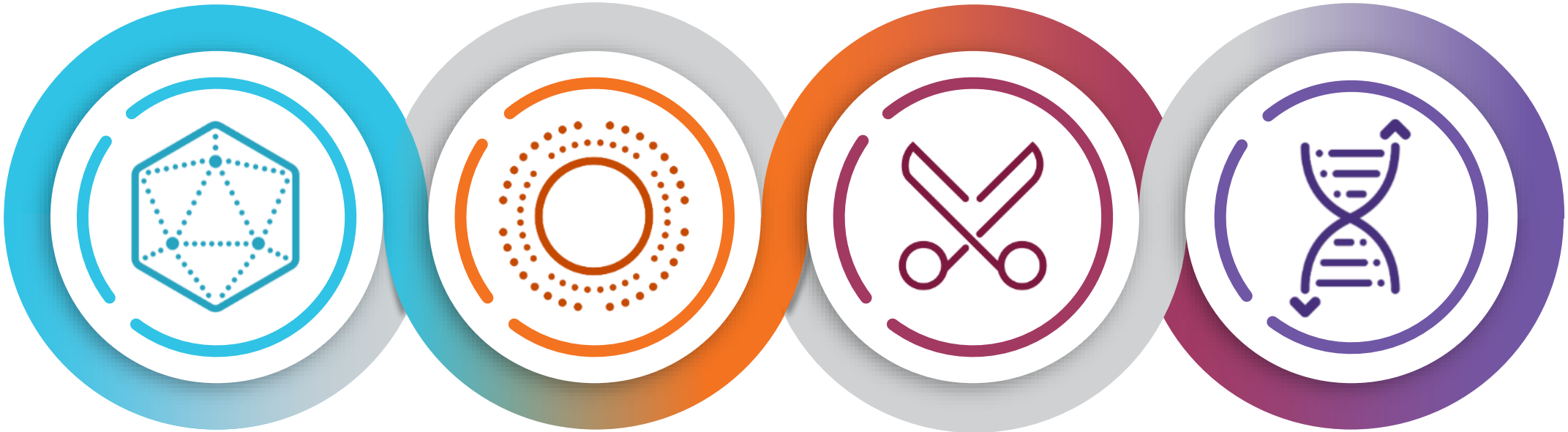


Gene therapy provides tractable, valuable near-term opportunities

Continue to advance *ex vivo* editing to create cell therapies

Sustain momentum toward the long-term goal with *in vivo* genome editing and genome regulation

Our capabilities allow us to design therapeutic approaches targeting the underlying genetic causes of disease



Gene Therapy
AAV

SB-525: Hemophilia A
ST-920: Fabry disease
ST-101: PKU

Gene-Edited Cell Therapy
AAV; ZFN; LV

ST-400: Beta thalassemia
BIVV003: Sickle cell disease
TX200: Solid organ transplant
KITE-037: Allo-CD19 CAR-T
Undisclosed targets

Genome Editing
AAV; ZFN

SB-913: MPS II

Genome Regulation
AAV; ZFP-TF

ST-501: Tauopathies
ST-502: α-synuclein
C9ORF72-linked ALS/FTLD
Huntington's disease
Prion diseases
Undisclosed targets

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Sangamo and Biogen Collaboration

Gene regulation therapies for devastating neurological diseases

Sangamo and Biogen collaboration

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Biogen

- Strategically partners Sangamo’s Alzheimer’s and Parkinson’s programs with Biogen’s world-class neuroscience expertise
- Biogen’s access to Sangamo's gene regulation therapies complements its expanding efforts in gene therapy across diverse neurological diseases
- ZFP-TFs are ideally suited to neurological disorders due to ability to up or down regulate gene expression, targeting disease pathology at its genesis
- Sangamo’s balance sheet significantly strengthened by Biogen’s investment

Collaboration scope and responsibilities

- Exclusive global rights to 3 neurological targets: tau (Alzheimer's), alpha-synuclein (Parkinson's), and one neuromuscular target
- Option for exclusive rights for up to 9 additional targets over 5 years
- Access to Sangamo's zinc finger protein technology (ZFP-TFs and ZFNs) and novel AAV serotypes
- Sangamo to lead early research; Biogen responsible for global development and commercialization
- Sangamo responsible for GMP manufacturing activities for use in initial clinical trial for first 3 products*, leveraging in-house capacity and capabilities; Biogen responsible for subsequent GMP manufacturing activities

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* Reimbursed by Biogen

Collaboration financial summary

Upfront	$350M	$125M upfront payment* $225M purchase of ~24M Sangamo shares @ $9.21/share*
Milestones	$2.37B	$925M – precommercial activities $1.445B – 1st commercial sale and other sales-based milestones
Royalties	Net sales %	High single to low sub-teen double digits
R&D	Funding	Cost sharing of early research; Biogen responsible for all costs thereafter

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*Upon Effectiveness. Effectiveness is contingent on completion of review under antitrust laws, including the Hart-Scott-Rodino (HSR) Antitrust Improvements Act of 1976 in the United States, and other customary closing conditions. The securities offered to Biogen will not be or have not been registered under the Securities Act of 1933, as amended, and may not be offered or sold in the United States absent registration or an applicable exemption from registration requirements.

Sangamo collaboration strategy for therapeutic development and commercialization

Innovation

Platform

Delivery

LNP
AAV

Retain

- Assets with breakthrough potential
- Development and commercialization by Sangamo is financially and operationally feasible
- Synergies across programs and platforms

Therapeutic Area

Inherited Metabolic Diseases (IMDs)

Rare CNS diseases

Immunology

Collaborate

- Therapeutic areas with several competing franchises
- Very significant investment required
- Requires special disease area expertise and/or complementary assets

Therapeutic Area

Hematology

CNS diseases

Oncology

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Biogen collaboration aligned with Sangamo strategic priorities

Proprietary Programs

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Gene Therapy

Fabry Disease (ST-920)
Phase 1/2

PKU (ST-101)
Preclinical

Ex Vivo Gene-Edited Cell Therapy

IBD
Preclinical

MS
Preclinical

Solid Organ Transplant (TX200)
Entering Phase 1/2 in 2020

In Vivo Genome Editing

MPS II
Phase 1/2

In Vivo Genome Regulation

Prion
Preclinical

α-Synuclein (ST-502)
Preclinical

Tauopathies (ST-501)
Preclinical

Collaborative Programs

Sangamo THERAPEUTICS & Partner

Gene Therapy

Pfizer

Hemophilia A (SB-525)
Phase 3 (lead-in study)

Ex Vivo Gene-Edited Cell Therapy

SANOFI

Beta Thalassemia (ST-400)
Phase 1/2

Sickle Cell Disease
Phase 1/2

GILEAD

KITE-037
Phase 1 in 2020

Oncology
Preclinical

In Vivo Genome Regulation

Biogen

Alzheimer's, Parkinson's, neuromuscular + 9 others
Preclinical

Takeda

Huntington's (TAK-686)
Preclinical

Pfizer

ALS / FTD
Preclinical

Increasing productivity and realizing value through pharmaceutical partnerships

	Biogen	GILEAD	Pfizer	Pfizer	SANOFI	Takeda
Target/ therapeutic area	Neurological including AD, PD	Oncology anti-CD19 CAR-T	C9ORF72 ALS	Hemophilia A	Beta thalassemia, Sickle Cell disease	Huntington's disease
Development phase	Preclinical	Preclinical	Preclinical	Phase 3	Phase 1/2	Preclinical
Technology	Genome regulation	Cell therapy	Genome regulation	Gene therapy	Cell therapy	Genome regulation
Royalties (% on net sales)	High-single to low double-digit	Single-digit	Mid- to high-single digit	Low teens to 20	Double-digit	Single-digit
Upfront	$125M payment + $225M in equity purchase	$150M payment + $50M in equity purchase	$12M	$70M	$20M	$13M
Milestones	Up to $2.37B ($925M pre-commercial, and $1.445B for 1st sale and sales thresholds)	Up to $3.1B ($1.3B through 1st sale, and $1.8B sales thresholds)	Up to $150M preclinical and commercial	Up to $475M ($300M for SB-525 and $175M other)	Up to $276M for both programs	-

Cash realized to date through license fees, milestones, and equity: **$698 million**
Future opportunity: **Royalties** on net product sales, as well as
$6.34 billion in potential milestone payments

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Projected pipeline progress in 2020

Preclinical

- PKU (ST-101) — Sangamo
- IBD — Sangamo
- MS — Sangamo
- Oncology (Undisclosed) — PARTNER Kite
- α-Synuclein (ST-502) — PARTNER Biogen
- ALS/FTD — PARTNER Pfizer
- Huntington's Disease (TAK-686) — PARTNER Takeda
- Prion — Sangamo
- Tauopathies (ST-501) — PARTNER Biogen
- Neurology (Undisclosed) — PARTNER Biogen

Phase 1/2

- Fabry Disease (ST-920) — Sangamo
- Beta Thalassemia (ST-400) — PARTNER SANOFI
- Oncology (KITE-037) — PARTNER Kite
- Sickle Cell Disease (BIVV003) — PARTNER SANOFI
- Solid Organ Transplant (TX200) — Sangamo
- MPS II (SB-913) — Sangamo

Phase 3

- Hemophilia A (SB-525) — PARTNER Pfizer

(Pfizer initiated Ph3 lead-in study Oct. '19)

Gene Therapy | *Ex Vivo* Gene-Edited Cell Therapy | *In Vivo* Genome Editing | *In Vivo* Genome Regulation

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