Satsuma Pharmaceuticals, Inc.

Corporate Presentation

March 2020

Disclaimer

Important Notice

This Presentation contains forward-looking statements concerning the business, operations and financial performance and condition of Satsuma Pharmaceuticals, Inc. (the "Company"), as well as the Company's plans, objectives and expectations for its business operations and financial performance and condition. Any statements contained herein that are not statements of historical facts may be deemed to be forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "aim," "anticipate," "assume," "believe," "contemplate," "continue," "could," "due," "estimate," "expect," "goal," "intend," "may," "objective," "plan," "predict," "potential," "positioned," "seek," "should," "target," "will," "would," and other similar expressions that are predictions of or indicate future events and future trends, or the negative of these terms or other comparable terminology. These forward-looking statements include, but are not limited to, statements about the Company's expectations regarding the potential market size and size of the potential patient populations for STS101, if approved for commercial use; the Company's clinical and regulatory development plans; the Company's expectations with regard to the data to be derived from its planned Phase 3 clinical trials; the timing of commencement of future clinical trials; the timing or likelihood of regulatory filings and approvals for STS101; the Company's commercialization, marketing and manufacturing plans and expectations; the pricing and reimbursement of STS101, if approved; the implementation of the Company's business model and strategic plans for its business and STS101; the scope of protection the Company is able to establish and maintain for intellectual property rights covering STS101, including the projected terms of patent protection; estimates of the Company's expenses, future revenue, capital requirements, its need for additional financing and its ability to obtain additional capital; the Company's future financial performance; and developments and projections relating to the Company's competitors and the Company's industry, including competing therapies and procedures. In light of these risks and uncertainties, the events or circumstances referred to in the forward-looking statements may not occur. The Company's actual results could differ materially from those stated or implied in forward-looking statements due to a number of factors, including but not limited to, risks detailed in the Company's Quarterly Report on Form 10-K for the year ended December 31, 2019, filed with the Securities and Exchange Commission, as well as other documents that may be filed by the Company from time to time. In particular, the following factors, among others, could cause results to differ materially from those expressed or implied by such forward-looking statements: the accuracy of the Company's estimates relating to its ability to initiate and/or complete clinical trials; the Company's ability to demonstrate sufficient evidence of efficacy and safety in its clinical trials of STS101; the Company's ability to select suitable dosing regimens; the results of preclinical and clinical studies may not be predictive of future results; the unpredictability of the regulatory process; regulatory developments in the United States and foreign countries; the costs of clinical trials may exceed expectations; the Company's ability to raise additional capital; and the risk that costs of clinical trials and preclinical activities will exceed expectations. Although the Company believes that the expectations reflected in the forward-looking statements are reasonable, it cannot guarantee that the events and circumstances reflected in the forward-looking statements will be achieved or occur, and the timing of events and circumstances and actual results could differ materially from those projected in the forward-looking statements. Accordingly, you should not place undue reliance on these forward-looking statements. All such statements speak only as of the date made, and the Company undertakes no obligation to update or revise publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

This Presentation discusses STS101, a product candidate that is under clinical study, and which has not yet been approved for marketing by the U.S. Food and Drug Administration. No representation is made as to the safety or effectiveness of STS101 for the therapeutic use for which STS101 is being studied.

Executive summary

Large addressable market	• 39M patients in U.S alone (100M + in Europe; >1 billion globally) • 2nd leading cause of disability worldwide in terms of number of years lost to disability • 14M U.S. oral triptan prescriptions in 2018, despite ~40% of patients being nonresponsive
DHE: established efficacy & safety	• DHE demonstrated superior efficacy in acute migraine compared to both current and emerging treatments; however, DHE use has been limited by route of administration and/or performance of available dosage forms
Satsuma solution	• STS101 (DHE nasal powder formulation + delivery device) is the product of >15 years of R&D • Phase 1 study in 42 subjects achieved and sustained target plasma DHE concentrations
Near-term value inflection	• Phase 3 EMERGE® efficacy trial in 1,140 patients initiated July 2019 and expected to read-out data in 2H 2020
Snapshot	• $117.9M cash as of 12/31/19 • Funds operations at least through NDA filing anticipated late 2021 • 20 employees, with offices in South San Francisco (HQ) and Research Triangle, NC

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Accomplished team with deep and relevant experience

Management

John Kollins
Co-founder, President & CEO

Transcept PHARMACEUTICALS, INC. · CoVX · élan pharmaceuticals · Athena neurosciences

Mic Iwashima
VP & Head of Operations

SNBL

Detlef Albrecht, MD
Chief Medical Officer

SORBENT THERAPEUTICS · relypsa · ILYPSA · alza

Rob Schultz
VP & Head of CMC

Pearl · AstraZeneca · KOS · gsk

Tom O'Neil
Chief Financial Officer

Protagonist Therapeutics · Arcadia · SORBENT THERAPEUTICS · ChemGenex

Shannon Strom
VP & Head of Regulatory Affairs & Quality

ROIVANT SCIENCES · AstraZeneca · Pearl · CATO

Board of Directors

Heath Lukatch TPG Biotech, Chairman	**Rajeev Shah** RA Capital	**Ken Takanashi** Shin Nippon Biomedical Laboratories	**Mike Riebe** Independent, AstraZeneca, Head of Inhalation Product Development	**Thomas King** Independent, Former CEO roles with Vivus, Alexza, Cognetix, and Anesta	**Elisabeth Sandoval** Independent, Former Chief Commercial Officer and Executive VP of Corporate Strategy, Alder	**John Kollins** President & CEO

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Acute treatment of migraine is a large market with significant unmet needs

HIGH PREVALENCE	▪ **~ 39M** people in the U.S. ▪ **> 100M** in Europe ▪ **> 1 billion** globally ▪ Most prevalent among **adults ages 18-44;** affects **women over men 3:1**
LEADING CAUSE OF DISABILITY + WORK ABSENCE	▪ **Second leading cause of disability worldwide** in terms of number of years lost to disability ▪ Up to **157M estimated lost workdays** annually in the U.S.
HIGH DIRECT AND INDIRECT COSTS	▪ **$36 billion annually** in est. **healthcare and lost productivity costs in U.S.** ▪ **> 15M Rx's** for migraine-specific acute treatments in the U.S. in 2018
ACUTE TREATMENT MARKET IS LARGE AND UNDERSERVED	▪ **Unmet need** for acute treatment of migraine persists despite the emergence of new preventive treatment options ▪ Up to **40%** of people with migraine **do not get adequate responses** from their initial acute treatment Rx

Sources:
Migraine Research Foundation, IQVIA.
Cameron, Headache 2015
Ferrari, Cephalalgia 2002
Färkkilä, Cephalalgia 2002
Lipton, Headache 2017

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Available and emerging options for acute treatment of migraine have significant limitations

	Class	Advantages	Disadvantages
Existing Treatments	**OTC analgesics**	✓ Generally recommended for mild-to-moderate pain	✕ Limited efficacy
	Triptans	✓ Inexpensive generics available in convenient oral dosage forms ✓ Over 90% of U.S. Rx's for migraine-specific acute treatments	✕ Early treatment required for efficacy ✕ Recurrence within 24 hours ✕ Inconsistent and sub-optimal efficacy ✕ Up to 80% don't achieve sustained pain freedom ✕ Slow and variable onset of action and short duration of effect, particularly with oral and nasal ✕ Side effects and Medication Overuse Headache (MOH) ✕ Low treatment persistence: up to 66% of patients don't refill their initial triptan prescription
	DHE	✓ Recommended 1st-line therapy ✓ Standard of care for MOH and status migrainosus	✕ Injectable DHE – Patients prefer non-injectables – Requires healthcare provider involvement (IV and frequently IM) – With IV, common side effects include nausea and vomiting ✕ Liquid nasal spray DHE (Migranal) – Difficult and time-consuming multi-step administration procedure – Low, slow and highly variable PK results in sub-optimal efficacy for many
Emerging Therapies	**Oral CGRP antagonists**	✓ Reduced potential for AEs resulting from vasoconstrictive effects vs. triptans and ergot alkaloids (including DHE)	✕ Reported efficacy is modest in comparison with efficacy historically reported with triptan and DHE products ✕ Potential for interactions with Rx & OTC meds, vitamins, supplements, etc. may complicate prescribing
	Lasmiditan **(oral 5-HT1_F agonist)** *FDA-approved 10/2019*	✓ Reduced potential for AEs resulting from vasoconstrictive effects vs. triptans and ergot alkaloids (including DHE)	✕ Commonly reported adverse events include dizziness, fatigue, sedation and paresthesia ✕ Label warnings include driving impairment (≤8 hrs), serotonin syndrome, MOH, CNS depression ✕ Safety of treating > 4 migraines in 30 days not established ✕ Potential for abuse? Referred by FDA to DEA for potential controlled substance scheduling

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DHE has significant advantages over triptans and emerging acute treatments

- Recommended as a first-line therapy for the acute treatment of migraine
- Broad clinical utility, including for difficult-to-treat migraines & triptan "low responders"
- Standard of care for MOH and status migrainosus

Clinical attribute	Triptans	DHE products
Long treatment window with minimal attenuation of effect with late treatment[1] Opportunity for early treatment possible in only ~50% of attacks[2]	✗	✓
Low risk of 24+ hr headache recurrence[3] Recurrence in up to 45% of triptan-treated attacks[3]	✗	✓
Effective in migraine with allodynia[4] Present in majority of attacks (53-79%)[5]	✗	✓
Effective in triptan non-responders[6] ~40% of patients don't respond* to oral triptans;[7] ~50% of triptan non-responders shown to respond to DHE[6]	✗	✓
Low risk of medication overuse headache[8]	✗	✓

Sources:

1. Tepper, Mayo Clin Proc 2011
2. Valade, Cephalagia 2009
3. Winner, Arch Neurology1996
4. Tepper, Headache 2012
5. Lipton, Headache 2017
6. Fisher, Curr Med Res Opin 2007
7. Ferrari, Cephalalgia 2002
8. Saper, Headache 2006

*40% based on pain relief at 2 hours from administration; up to 80% do not achieve sustained freedom from pain

DHE products have shown efficacy but have been burdened by administration challenges

DHE for Injection (IV, IM, SC)	**Migranal** DHE Liquid Nasal Spray	**MAP0004** Inhaled, multi-dose, breath-actuated DHE
Marketed since 1946	Approved in 1997	Discontinued after 3 CRLs (2012-2015) for CMC

Gold standard treatment for severe / refractory migraine

- Injections are painful and burdensome
- Patients prefer non-injectables
- Common side effects of IV-delivery include nausea and vomiting
- Requires healthcare provider involvement (IV and frequently IM)

Inconsistent and unreliable clinical performance and sub-optimal therapeutic response for many patients

- Low, slow, and highly variable absorption of DHE compared to injectable form
- Administration procedure often results in high dose variability
  - Device assembly & priming required
  - 4 sprays administered over 15 minutes required to reach full dose

Phase 3 data underscore DHE differentiation & benefits

- Introduction was highly anticipated by headache physicians
- Developer MAP Pharmaceuticals acquired by Allergan for $958M
- Roadmap for STS101 development

NOT APPROVED

There is an unmet need for a patient-friendly, self-administered, non-injected DHE product that delivers rapid, durable, and robust efficacy

Source: MAP0004 also known by the brand names Semprana and Levadex.

OUR SOLUTION: STS101 (DHE nasal powder)

Proprietary nasal delivery device & dry-powder formulation technologies

Proprietary & patented drug-device combination

- Injectable-like PK with quick and intuitive administration
- Demonstrated a differentiated PK profile and favorable safety and tolerability in Phase 1 study
- Phase 3 EMERGE trial initiated July 2019

Single-use nasal delivery device

- Convenient and patient-friendly; no assembly or priming required
- Enables administration of a full-dose within seconds
- Pocket-sized, smaller than available DHE nasal spray devices; discreet and disposable
- No moving parts; straightforward manufacturing

Mucoadhesive nasal powder formulation

- Incorporates drug carrier and engineered drug particle technologies that facilitate rapid drug absorption and favorable PK
- Demonstrates favorable stability versus liquid DHE formulations
- Established manufacturing processes using standard, commonly-used technologies that we believe will be reproducible on commercial-scale equipment

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Intuitive administration – a full dose within seconds

1 FOLD OFF TAB

2 INSERT IN NOSTRIL

3 SQUEEZE TO DELIVER

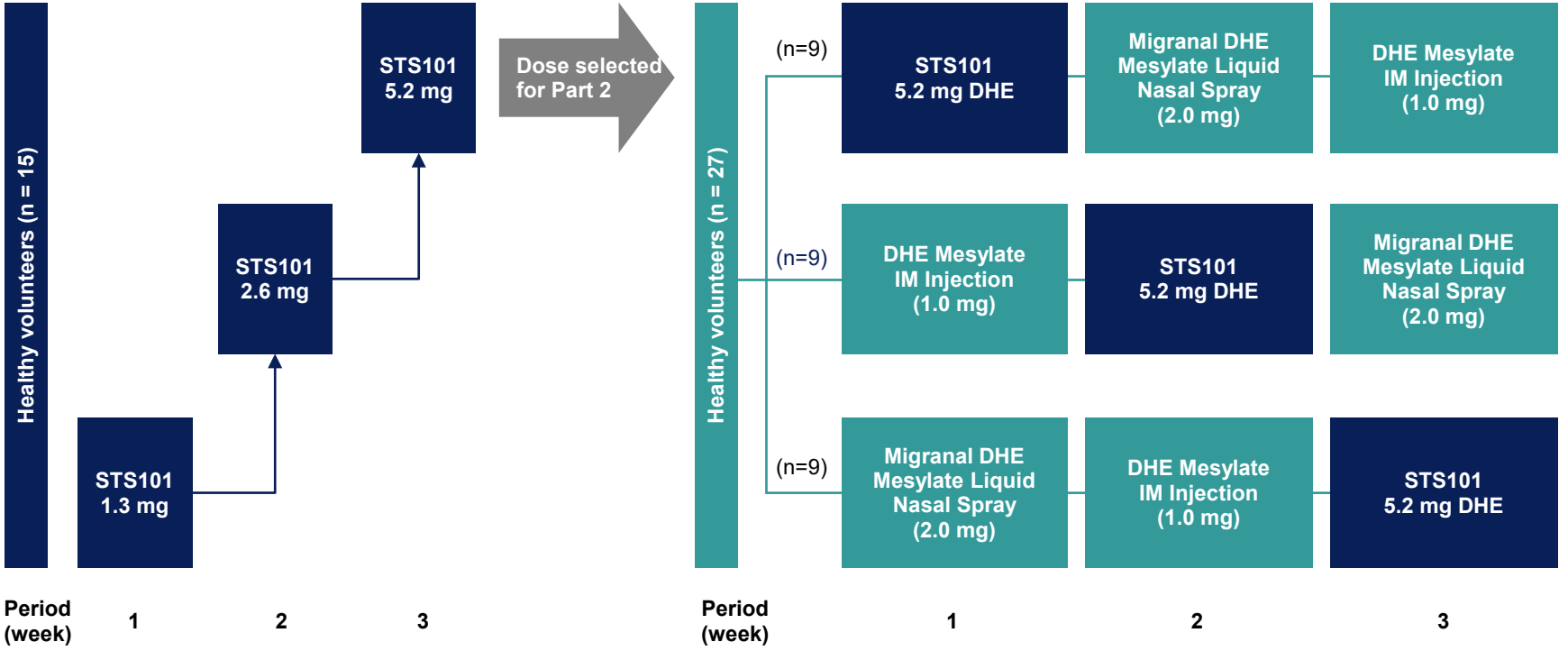
STS101 Phase 1 PK trial design (42 healthy volunteers)

Part 1: Dose relationship assessment

Each subject was administered three single doses of STS101 in an ascending-dose, 3-period, crossover manner

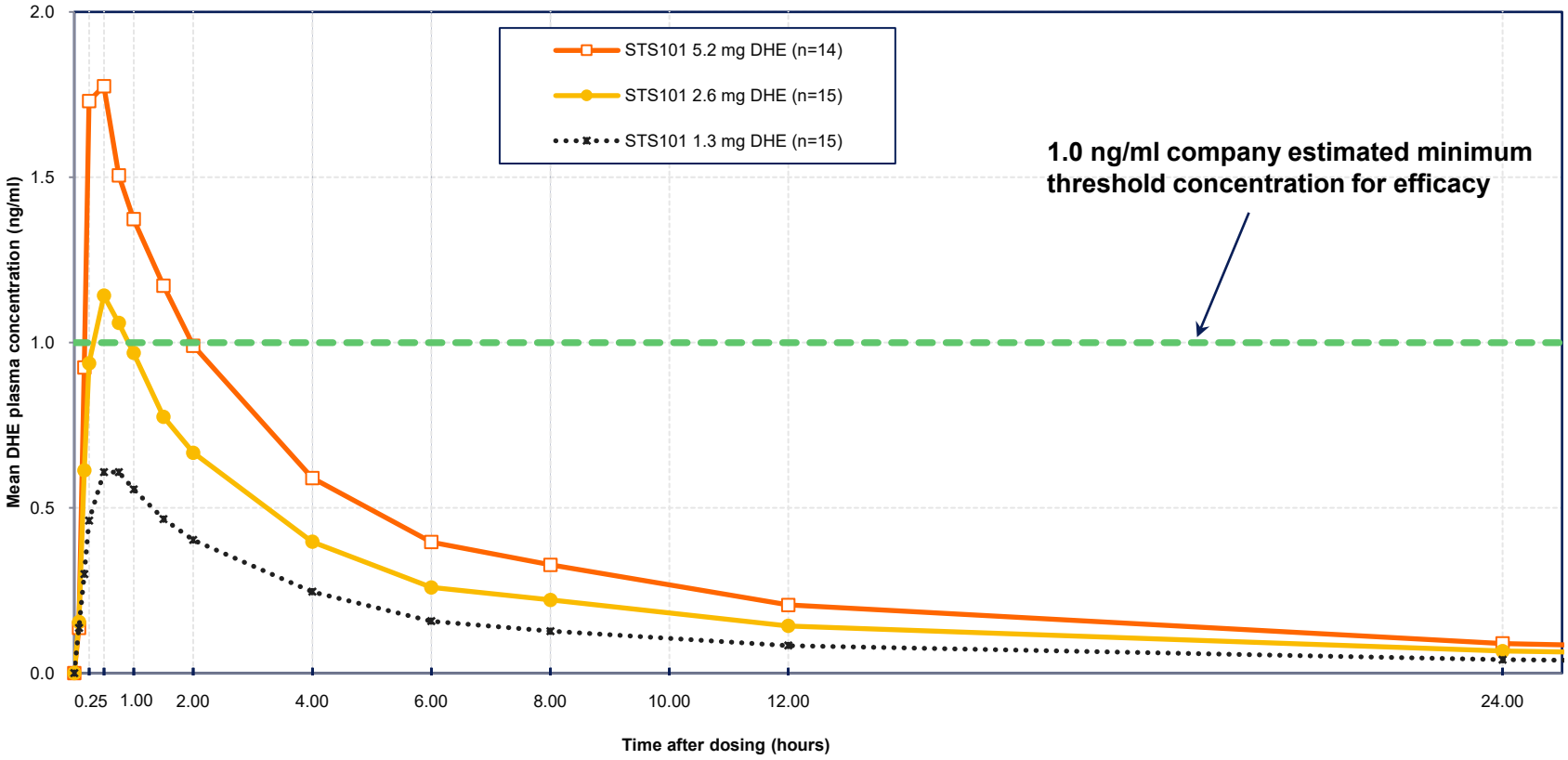
Part 2: Comparative assessment of DHE products

Each subject was administered three single-dose DHE products in a randomized, 3-period, crossover manner



Part 1 data led to selection of 5.2 mg dose for Part 2

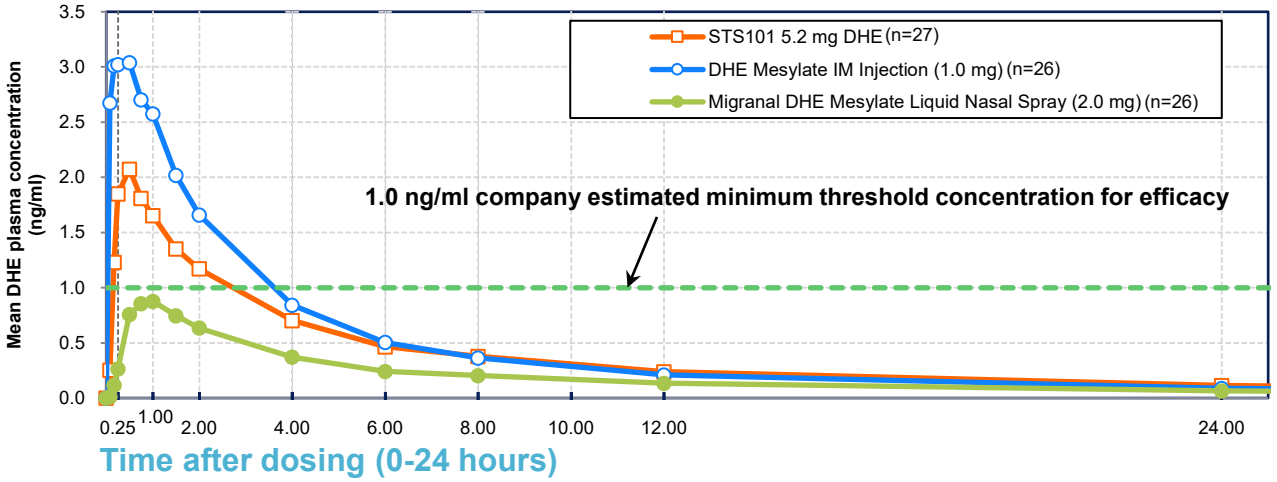
Phase 1, Part 1: Mean DHE plasma concentrations in healthy subjects

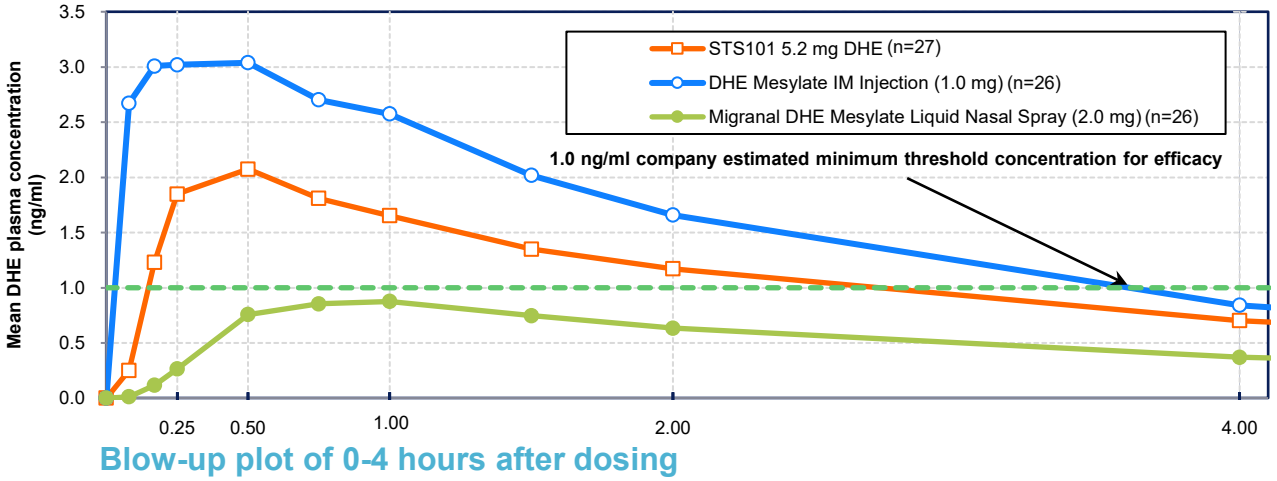


Source: STS101-001 Phase 1 Study Clinical Study Report, May 2019.

STS101 achieved desired results in Phase 1 study

Phase 1, Part 2: Mean DHE plasma concentration in healthy subjects





Source: STS101-001 Phase 1 Study Clinical Study Report, May 2019.

Achieved and sustained target plasma concentrations

- ✓ Company estimated threshold for efficacy (1 ng/ml) achieved within 10 minutes of dosing
- ✓ Rapidly achieved and sustained high drug exposure levels (AUC)
- ✓ Low variability

PK comparable to IM DHE and better than Migranal

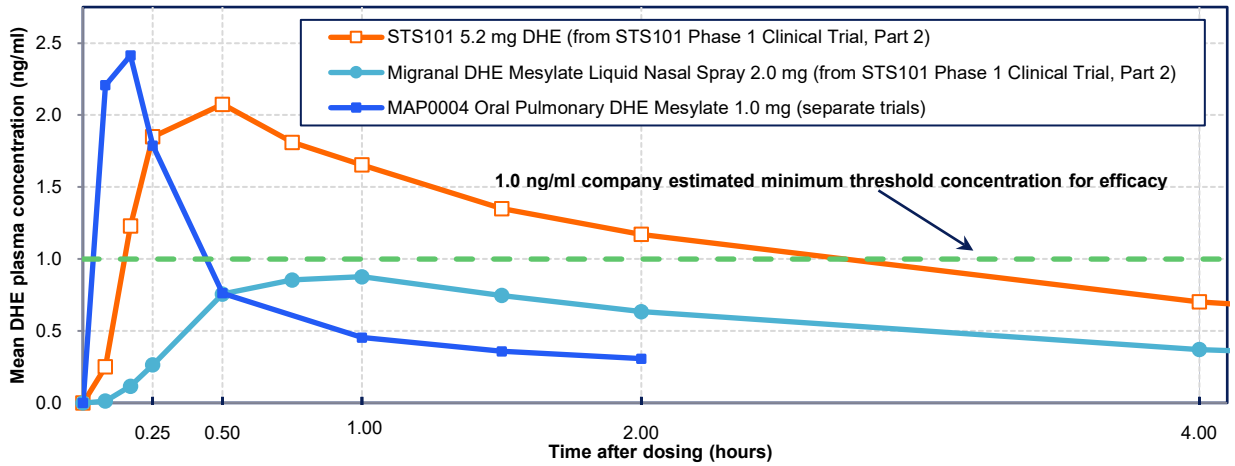
- ✓ STS101 5.2 mg achieved 83% of total drug exposure ($AUC_{0\text{-}inf}$) of IM DHE
- ✓ Approximately 2.0x total drug exposure ($AUC_{0\text{-}inf}$) vs. Migranal (Migranal PK consistent with historical studies)

Favorable safety & tolerability

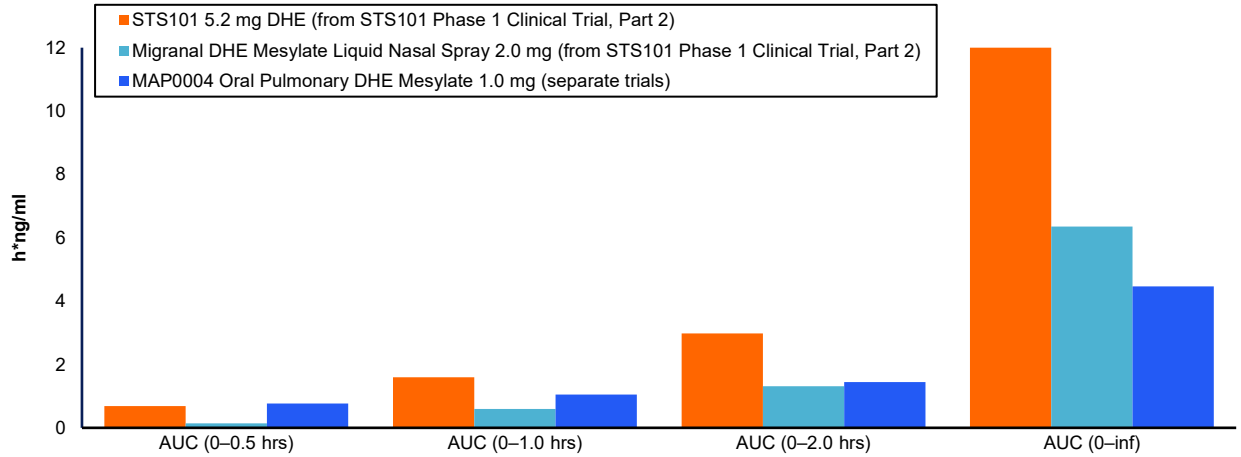
- ✓ All AEs mild, transient, and not clinically relevant
- ✓ No nausea, vomiting, or CV AEs

STS101 PK data compares favorably to MAP0004 in cross-trial comparison

Mean DHE plasma concentration of STS101 vs. other non-injectable DHE products



Drug exposure over time (AUC) of STS101 vs. other non-injectable DHE products



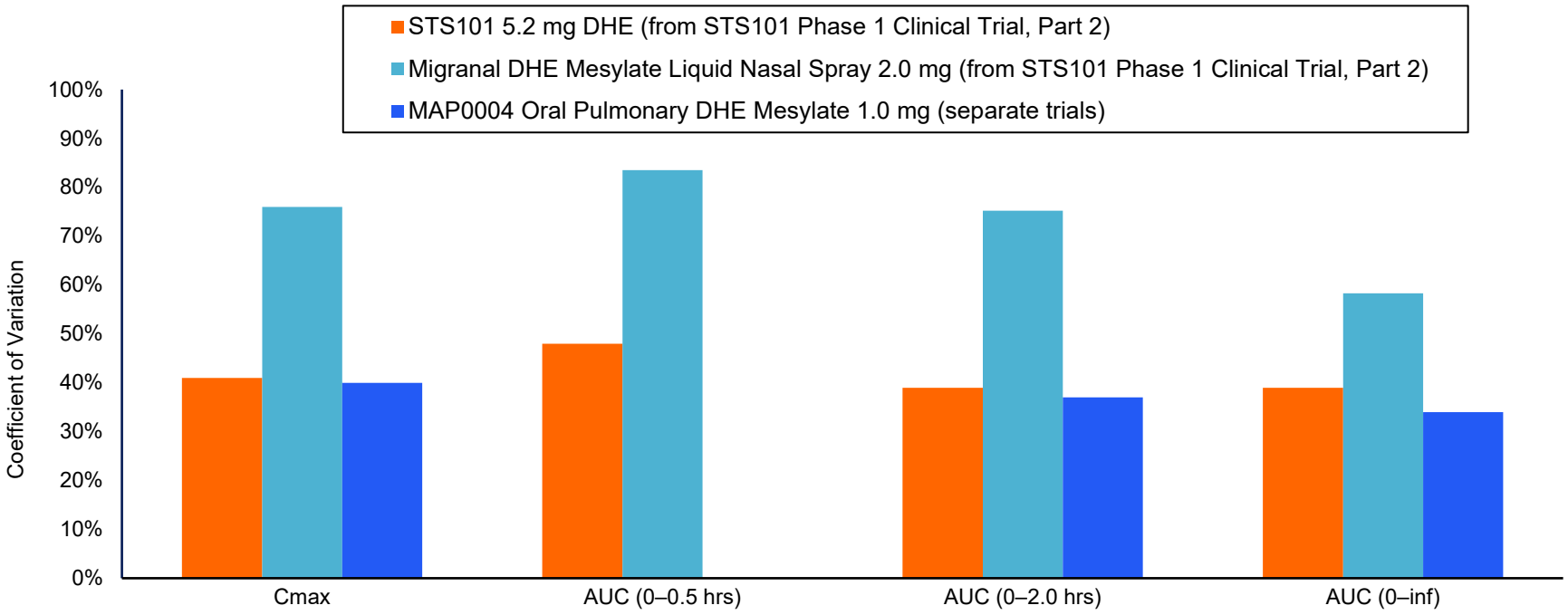
Source: Kellerman et al., J Aerosol Pulm Drug Deliv 2013; STS101-001 Phase 1 Study Clinical Study Report, May 2019.

Note: As the data presented above is based on a cross-trial comparison and not a head-to-head clinical trial, such data may not be directly comparable due to differences in study protocols, conditions and patient populations. Accordingly, cross-trial comparisons may not be reliable predictors of the relative efficacy or other benefits of STS101 compared to other product candidates that may be approved or that are or were in development for the acute treatment of migraine.

- ✓ STS101 achieved approximately 2.5-3.0x total drug exposure ($AUC_{0\text{-}inf}$) vs. MAP0004
- ✓ Higher cumulative drug exposure with STS101 than either Migranal or MAP0004 by ~30 minutes and all time points thereafter
- ✓ We believe that the PK profile of STS101 may lead to strong clinical performance (i.e. rapid onset and robust efficacy at 2 hours and later time points)

STS101 PK variability lower than Migranal and comparable to MAP0004 in cross-trial comparison

PK variability of STS101 versus other non-injectable DHE Products



We believe that low variability may lead to more consistent and reliable clinical performance

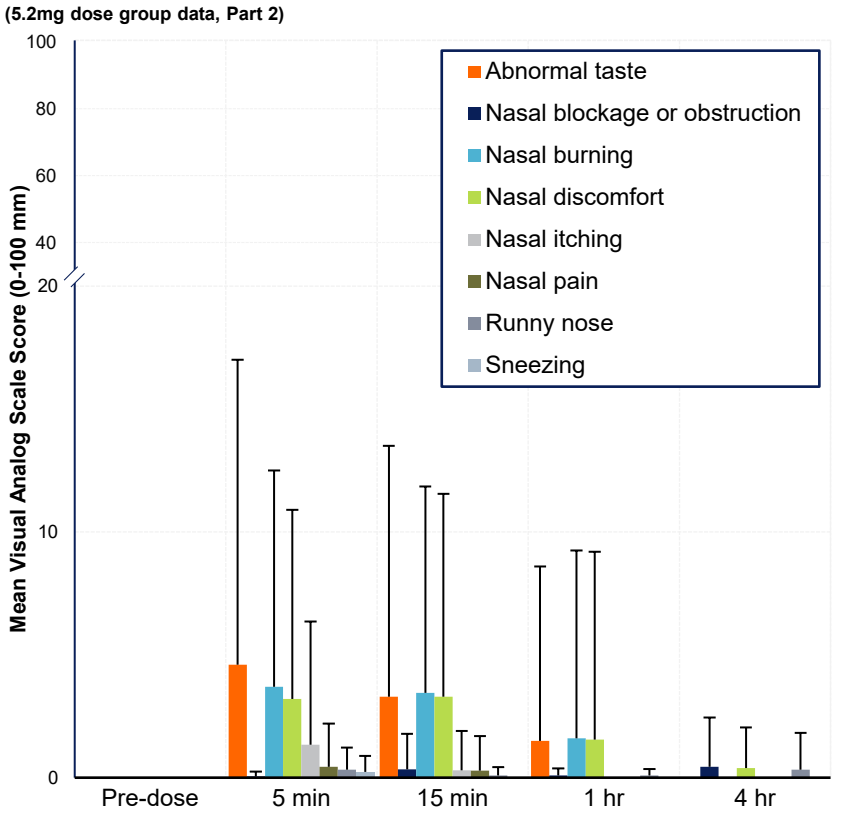
Source: STS101-001 Phase 1 Study Clinical Study Report, May 2019; Noveck et al., Drug Design Dev & Therapy 2013; Kellerman et al., J Aerosol Pulm Drug Deliv 2013.
Note: MAP0004 data not available at 0.5 hrs time point.
As the data presented above is based on a cross-trial comparison and not a head-to-head clinical trial, such data may not be directly comparable due to differences in study protocols, conditions and patient populations. Accordingly, cross-trial comparisons may not be reliable predictors of the relative efficacy or other benefits of STS101 compared to other product candidates that may be approved or that are or were in development for the acute treatment of migraine.

STS101 had a favorable safety and tolerability profile in Phase 1 trial

Incidence of AEs occurring in at least 2 participants

Treatment Emergent AE	STS101 1.3 mg (n=15)	STS101 2.6 mg (n=15)	STS101 5.2 mg (n=41)	Migranal Nasal spray (n=27)	IM DHE (n=26)
Any treatment emergent AEs	**9 (60.0%)**	**5 (33.3%)**	**16 (39.0%)**	**5 (18.5%)**	**4 (15.4%)**
Eye disorders					
Lacrimation increased			3 (7.3%)		
Gastrointestinal disorders					
Abdominal pain			2 (4.9%)		
General disorders and administration site conditions					
Vessel puncture/injection site reactions	3 (20.0%)	3 (20.0%)			1 (3.8%)
Nervous system disorders					
Dysgeusia	1 (6.7%)	1 (6.7%)	9 (22.0%)	2 (7.4%)	
Headache	2 (13.3%)	1 (3.8%)		1 (3.7%)	1 (3.8%)
Respiratory, thoracic and mediastinal disorders					
Nasal congestion	2 (13.3%)		5 (12.2%)		
Nasal discomfort	4 (26.7%)	3 (20.0%)	14 (34.1%)	2 (7.4%)	
Nasal pruritus			3 (7.3%)		
Rhinalgia			5 (12.2%)	1 (3.7%)	
Rhinorrhea	1 (6.7%)	1 (6.7%)	6 (14.6%)		
Sneezing			2 (4.9%)		

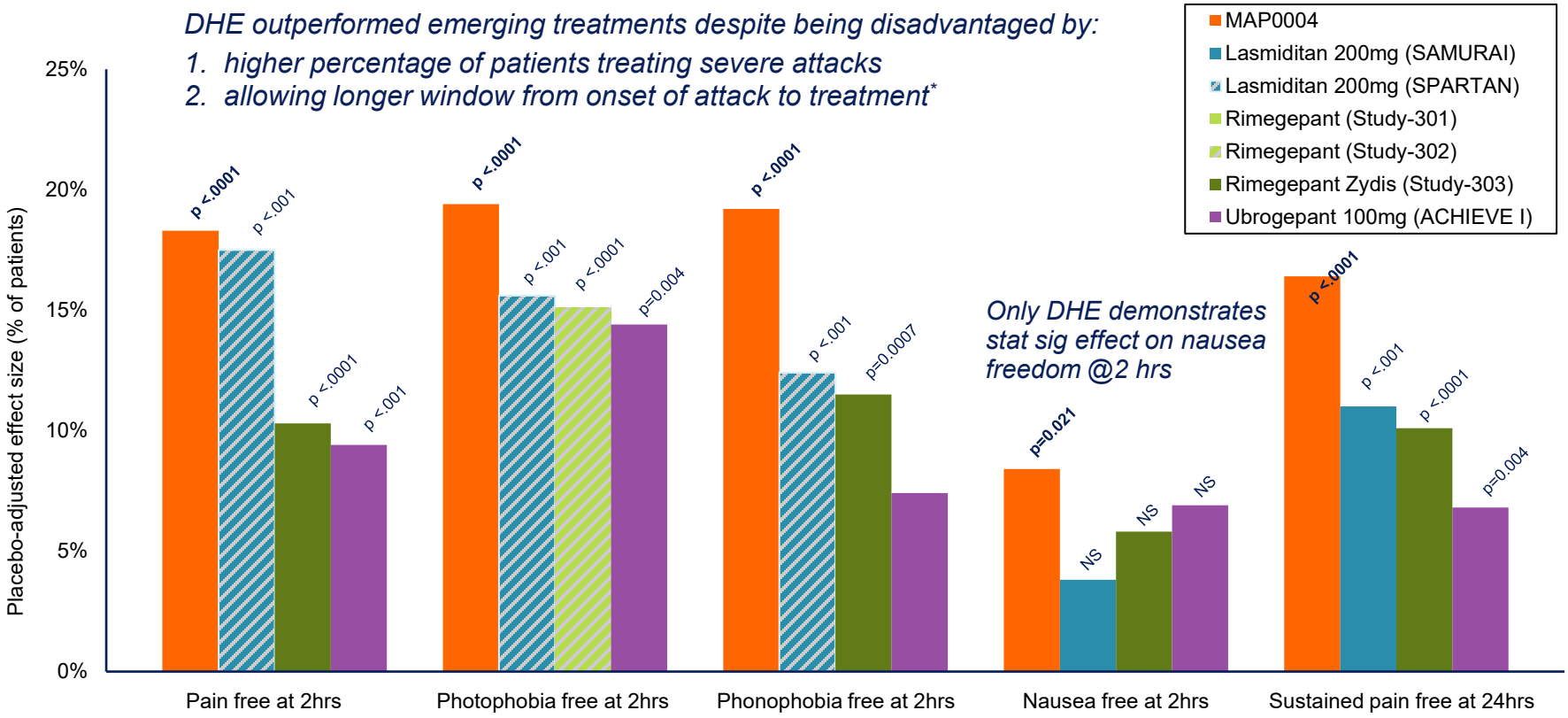
Subjective nasal irritation visual analogue scale data



STS101 was well tolerated. Nasal exams showed no clinically relevant findings. Minimal average scores in the subjective nasal irritation assessments further underscore the mild nature of adverse events

Source: STS101-001 Phase 1 Study Clinical Study Report, May 2019

Comparison of third-party Phase 3 efficacy data of DHE and emerging treatments



*See appendix slide for detail

Source: Aurora et al., Headache 2011; Goadsby et al., Brain 2019; Kuca et al., Neurology 2018; Biohaven and Allergan press releases and presentations; clinicaltrials.gov., Kellerman et al., J Aerosol Pulm Drug Deliv 2013.

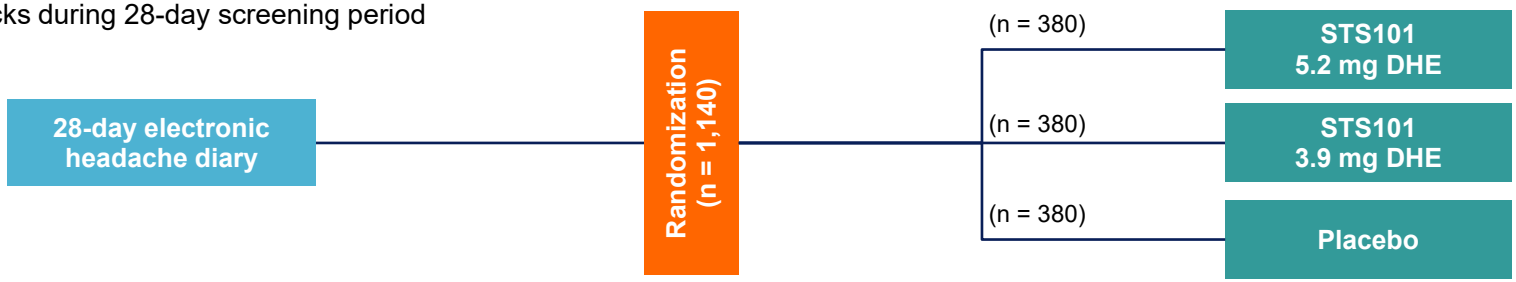
Note: The data presented in the chart represents data from the trial with the greatest placebo-adjusted effect size for each endpoint, where multiple trials have been conducted for a product candidate. Not all available trial data is presented. As the data presented above is based on a cross-trial comparison and not a head-to-head clinical trial, such data may not be directly comparable due to differences in study protocols, conditions and patient populations. Accordingly, cross-trial comparisons may not be reliable predictors of the relative efficacy or other benefits of product candidates that may be approved or that are or were in development for the acute treatment of migraine.

Phase 3 EMERGE study design intended to support NDA filing

Screening period

Confirm patient experiences at least 2 and no more than 8 migraine attacks during 28-day screening period

Treatment of single migraine attack



- Randomized, double-blind, placebo controlled study (n≈1,140)
- Designed per published FDA guidance for developing acute treatment of migraine drugs (Feb 2018)
- FDA agreed in principle with proposed study design of the Phase 3 efficacy trial, dose strengths, statistical analysis and that a single efficacy study could be sufficient to support an NDA

Endpoints

- Co-primary: **Freedom from pain** and **most-bothersome symptom** (photophobia, phonophobia, or nausea) at 2 hours post-treatment (>99% and >95% power, respectively)
- EMERGE includes multiple secondary endpoints and prospective analyses of subgroups to potentially enhance the differentiated clinical profile of STS101

EMERGE secondary endpoints	EMERGE patient subgroups
▪ Sustained pain freedom (at 24h and 48h)	▪ Late treatment (2-4h and >4h after onset)
▪ Rescue medication usage	▪ Migraine upon awakening
▪ Pain relief	▪ Migraine with allodynia
▪ Avoidance of relapse	▪ Menstrually related migraine
▪ Functional and quality-of-life endpoints	▪ Severe migraine
▪ Patient global impression	

STS101 intellectual property estate provides significant long-term barriers to competitive entry / generics

- Patent portfolio covers formulations, dosages, devices, and methods of treatment and includes issued and pending U.S. and foreign patents
- Satsuma owns or has an exclusive worldwide license to 6 issued U.S. patents and 9 issued foreign patents
- Issued U.S. STS101 patents estimated to expire between 2029 and the end of 2033
- Pending U.S. STS101 patents, if issued, are estimated to expire between 2034 and 2039
- STS101 issued and pending patents in other jurisdictions expected to expire between 2025 and 2038
- In addition to patents, Satsuma, and its licensor, SNBL, have developed significant know-how and trade secrets related to the STS101 formulation, delivery device, and manufacturing processes
  - Nasal delivery technology incorporated in STS101 was developed over 15+ years
  - STS101 DHE nasal powder formulation underwent extensive development and optimization that involved PK testing in ~80 non-human primate studies
  - Historically, drug-device combinations are difficult to genericize

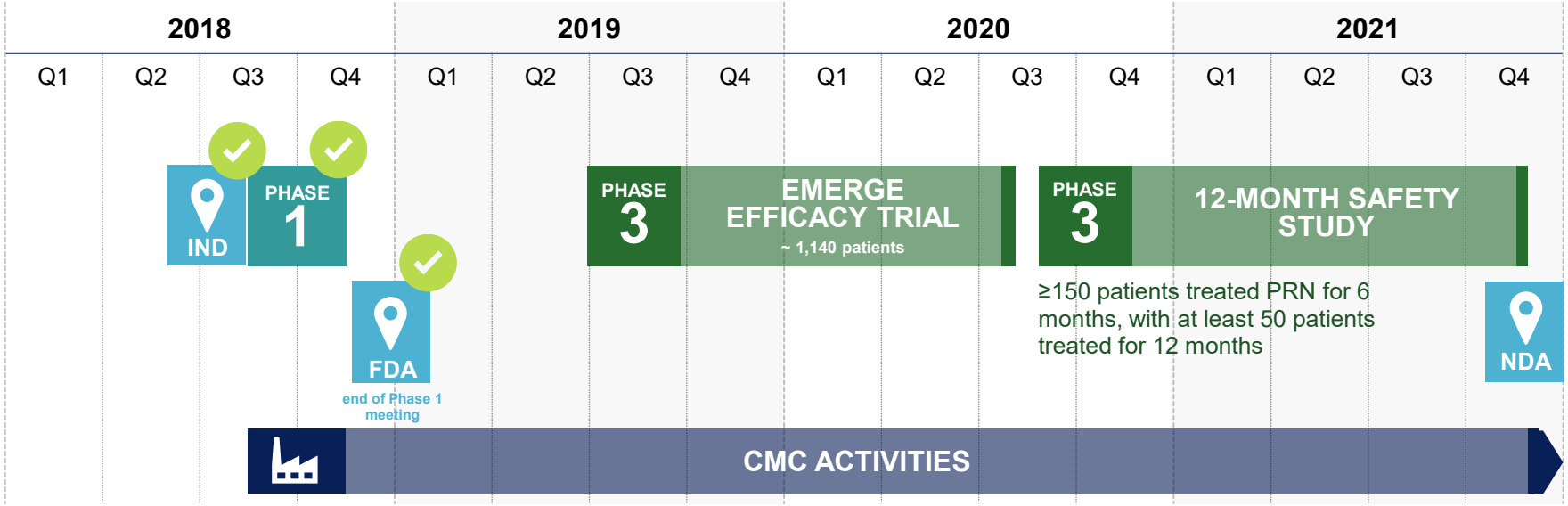
Our development plan for STS101

Recent accomplishments

- Submitted IND to FDA and completed Phase 1 PK study
- Written FDA meeting feedback confirms key elements of Phase 3 development program
- Initiated Phase 3 EMERGE efficacy trial of STS101

Development plan

- Report Phase 3 EMERGE efficacy trial topline data in H2 2020
- Initiate open-label 12-month safety trial in Q3 2020
- NDA filing with the FDA anticipated by end of 2021



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Financials

- Cash, cash equivalents and marketable securities as of 12/31/19: $117.9M
- Funds operations at least through NDA filing anticipated late 2021

- Debt as of December 31, 2019 : $4.9M
- Shares outstanding: 17.4M

Financial results	Q4 2019	YTD 2019
R&D	$9.2M	$24.2M
G&A	2.1M	4.7M
Net loss	$(10.8M)	$(28.2M)
Accumulated deficit at December 31, 2019		$43.0M

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