Third Quarter 2021 Financial Results Earnings Call

Stealth BIOTHERAPEUTICS

Leading Mitochondrial Medicine

November 11, 2021

Third Quarter 2021 Earnings Call

Forward Looking Statements

▪ **HENRY HESS,** *Chief Legal Counsel*

Introduction and Business Highlights

▪ **REENIE MCCARTHY,** *Chief Executive Officer*

Update on Pipeline Programs

▪ **JIM CARR,** *Chief Clin Dev Officer* ▪ **BRIAN BLAKEY,** *Chief Bus Officer* ▪ **BRIAN HOTCHKISS**, *VP Bus Dev & Strategy* ▪ **MARTY REDMON,** *Chief R & D Officer*

Financial Results Q3 2021

▪ **ROB WEISKOPF,** *Chief Financial Officer*

Questions & Answers

Forward-looking Statements

This presentation and various remarks we make during this presentation contain forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Such forward-looking statements include those regarding our plans, strategies and expectations for our preclinical and clinical advancement of our drug development programs, including our ongoing clinical trials of elamipretide and planned clinical trial of SBT-272; our expectations regarding regulatory interactions; the potential benefits of our product candidates; our key milestones for the remainder of 2021 and 2022; our plans regarding future data presentations; and our financial guidance regarding the period in which we will have capital available to fund our operations. Statements that are not historical facts, including statements about our beliefs, plans and expectations, are forward-looking statements. The words "anticipate," "expect," "hope," "plan," "potential," "possible," "will," "believe," "estimate," "intend," "may," "predict," "project," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We may not actually achieve the plans, intentions or expectations disclosed in these forward-looking statements, and you should not place undue reliance on these forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements as a result of known and unknown risks, uncertainties and other important factors, including: our ability to obtain additional funding and to continue as a going concern; the impact of the COVID-19 pandemic; the ability to successfully demonstrate the efficacy and safety of our product candidates and future product candidates; the preclinical and clinical results for our product candidates, which may not support further development and marketing approval; the potential advantages of our product candidates; the content and timing of decisions made by the FDA, the EMA or other regulatory authorities, investigational review boards at clinical trial sites and publication review bodies, which may affect the initiation, timing and progress of preclinical studies and clinical trials of our product candidates; our ability to obtain and maintain requisite regulatory approvals and to enroll patients in our planned clinical trials; unplanned cash requirements and expenditures; competitive factors; our ability to obtain, maintain and enforce patent and other intellectual property protection for any product candidates we are developing; and general economic and market conditions. These and other risks are described in greater detail under the caption "Risk Factors" included in our most recent Annual Report on Form 20-F filed with the Securities and Exchange Commission ("SEC"), as well as in any future filings with the SEC. Forward-looking statements represent management's current expectations and are inherently uncertain. Except as required by law, we do not undertake any obligation to update forward-looking statements made by us to reflect subsequent events or circumstances.

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STRATEGY

OPHTHALMOLOGY PLATFORM
Improving vision in blinding diseases

CARDIOLOGY PLATFORM
Reverse remodeling the failing heart

NEUROLOGY PLATFORM
Evidence of peripheral improvements; early signs of neuronal protection

2021 KEY MILESTONES

PHASE 2 GA RESULTS EXPECTED IN H1 2022
assessing whether elamipretide ameliorates progressive visual loss and growth of GA in patients with extra foveal lesions. IVT development ongoing to support potential partnering initiatives post-data.

BARTH, DMD, FRDA *Barth Type A scheduled for later this quarter to discuss FDA refusal to file and align on next steps. DMD pre-IND meeting granted to discuss development plan. FRDA Phase 2a trial initiation expected early 2022.*

NuPOWER PHASE 3 TRIAL INITIATION *expected by year-end.* **SBT-272** *Phase 1 SAD/MAD initiation expected Q1 2022, with indication selection ongoing based on promising preclinical data in ALS, cerebral ischemia reperfusion, Huntington's, alpha-synucleinopathy and frontotemporal dementia models.*

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OPHTHALMOLOGY PLATFORM

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Consistent baseline demographics for extrafoveal GA subjects

ReCLAIM-2 baseline characteristics are consistent with ReCLAIM-1

	ReClaim-2 (All subjects)*	N	Vs RECLAIM-1
Age, years • Mean (SD) • Median • Min, max	 76.1 (8.5) 76.0 56, 98	176	 76.0 (8.2) 74.7 64, 96
Sex, n (%) • Male • Female	 69 (39.2%) 107 (60.8%)	176	 8 (42%) 11 (58%)
Best-corrected visual acuity (letters), mean (SD)	76.05 (8.6)	176	73.68 (9.5), N=19
Low-luminance visual acuity (letters), mean (SD)	55.32 (14.6)	176	43.95 (19.8), N=19
Geographic atrophy area on FAF (mm^2), mean (SD)	2.59 (2.36)	173	3.74 (3.40), N=13
Geographic atrophy area on OCT (mm^2), mean (SD)	2.57 (2.33)	168	3.89 (4.36), N=18

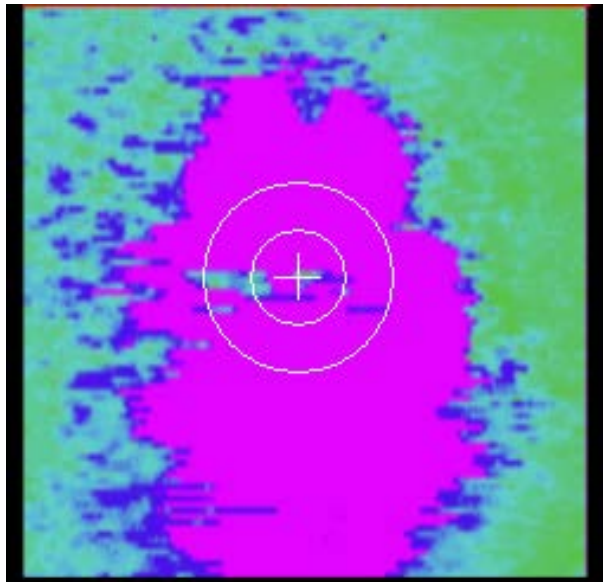
* ReCLAIM-2 has 2:1 randomization

Ellipsoid zone may predict visual improvement

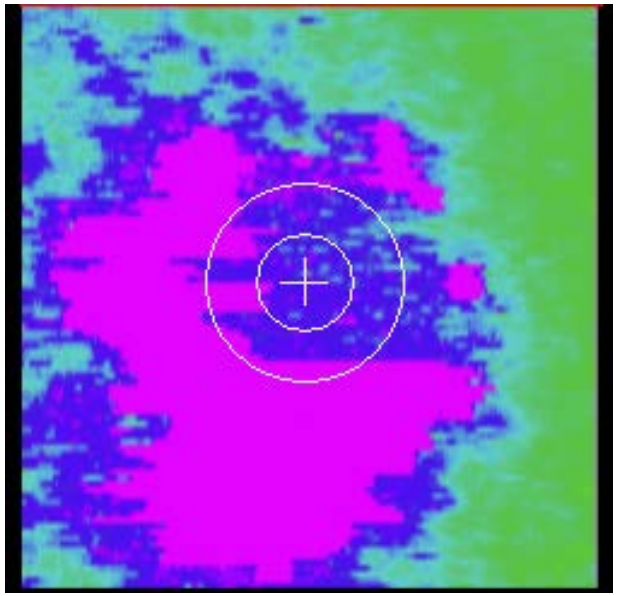
- The ellipsoid zone (EZ) is an area of the retina comprised mostly of mitochondria which supports photoreceptor function and is known to be attenuated in dry AMD
- In a post hoc ReCLAIM analysis, ~50% of GA patients gained ≥5 letters in LLVA; with response correlated with baseline macular percentage of total EZ attenuation (r = -0.72; *P* = 0.002). This analysis is prespecified in ReCLAIM-2.

EZ-zone mapping from illustrative GA patients, w/ indicating attenuation and indicating healthy EZ

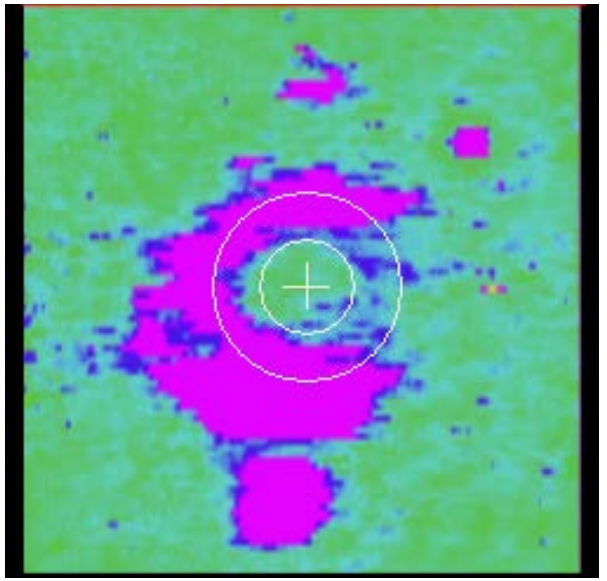
2-letter gain



4-letter gain

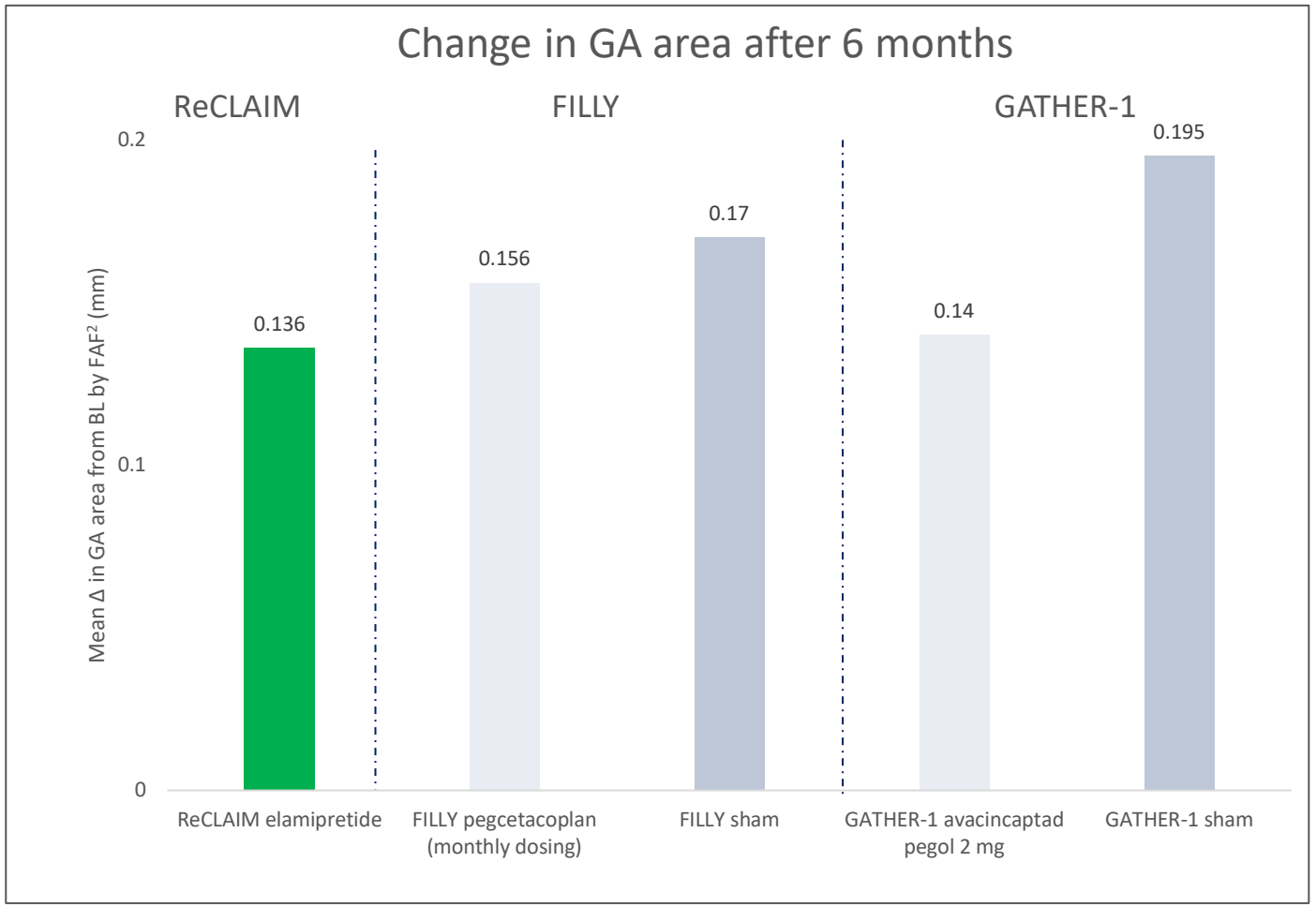


18-letter gain



ReCLAIM GA growth lower than predicted by the natural history

Reduced GA growth at 6 months relative to other agents in development[1]



[1]Liao et al., Ophthalmology 2020; Jaffe et al., Ophthalmology 2020; FILLY and Gather-1 patient populations differ from ReCLAIM; FAF²=fundus autofluorescence, square root; LLVA=low light visual acuity; Δ=change; BL= baseline

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CARDIOLOGY PLATFORM

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Barth Syndrome Type A Meeting Scheduled

To inquire why SPIBA-001, the Company's positive Phase 3 retrospective natural history control trial, did not support NDA filing and review.

SPIBA-001 Summary of Efficacy				
Efficacy Assessment / Units (LS Mean Δ from Baseline)[1]	**Timepoint**	**Elamipretide-treated (n=8)[2]**	**NH (n=19)[3]**	**p-value[6]**
6-minute walk test (6MWT) / Meters Improvement = ↑	Week 64	80.299	0.596	**0.0004**
	Week 76	91.858	0.886	**0.0005**
	Week 100[4]	116.921	1.730	**0.0003**
Handheld Dynamometry (HDD) / Newtons Improvement = ↑	Week 64	41.789	1.035	**0.0002**
	Week 76	48.667	1.970	**0.0005**
	Week 100[4]	62.070	3.885	**0.0002**
5 time Sit-to-Stand (5XSST) / Seconds Improvement = ↓	Week 64	-2.361	-0.002	**0.04**
	Week 76	-2.829	-0.003	**0.03**
	Week 100[4]	-3.603	-0.366	**0.008**
SWAY Balance Score Improvement = ↑	Week 64	7.398	0.862	0.13
	Week 76	8.806	1.084	0.12
	Week 100[4]	12.162	0.243	**0.03**
MDRI Improvement = ↑	Week 64	3.013	0.634	**0.0001**
	Week 76	3.119	0.709	**0.0001**
	Week 100[4]	3.218	0.750	**0.0006**
Indexed[5] LV SV Mean (SD)	Slope of Δ[4]	3.44 (5.258)	-0.26 (2.661)	T-test **0.04**
Indexed LV SV	MMRM[4]	1.92	-4.80	**0.002**

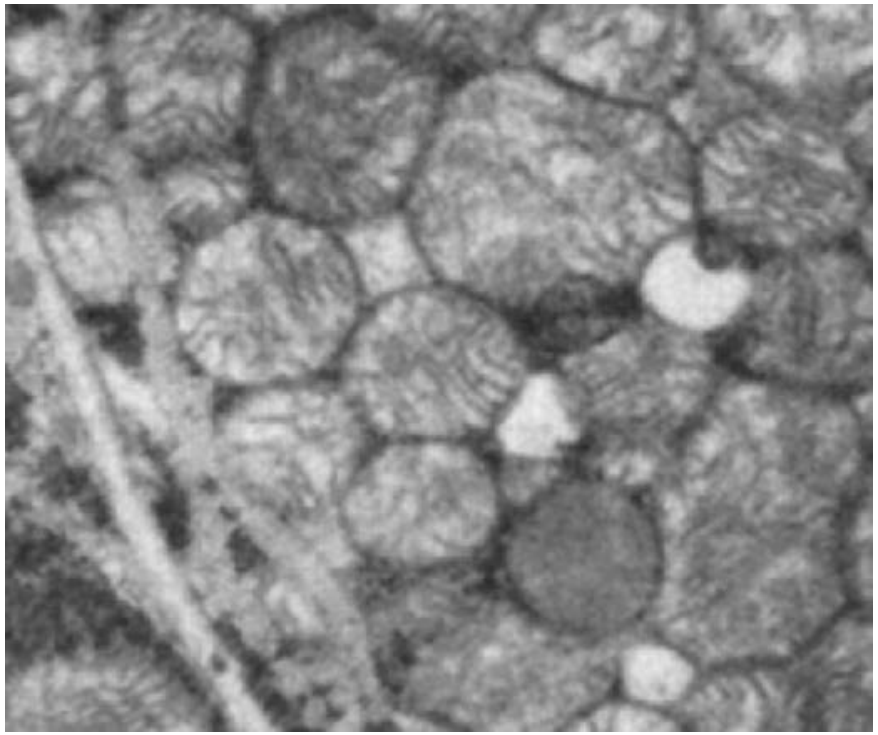
[1] Except as indicated for LV slope of Δ (change); [2] Except for LV volumes n=12; [3] Except n=12 for MDRI, LV volumes, SWAY balance, n=15 5XSST Wk 64, Wk 76, n=14 5XSST Wk 100; [4] Post hoc sensitivity analysis; in all cases through the week indicated; [5] indexed in all cases to baseline BSA; [6] not adjusted for multiplicity; use of Bonferroni would result in significant observations for 6MWT, Muscle Strength and MDRI at the prespecified time points of interest (Weeks 64 and 76).

To discuss a feasible path forward to generate additional evidence of efficacy.

- Confidence in positive clinical signal which was durable over 4-years in almost all patients treated
- Strong patient community support and interest in participating in future studies
- Rare pediatric designation
- Significant unmet medical need, with 61% of pediatric cardiologists surveyed (n=200) having treated a Barth patient

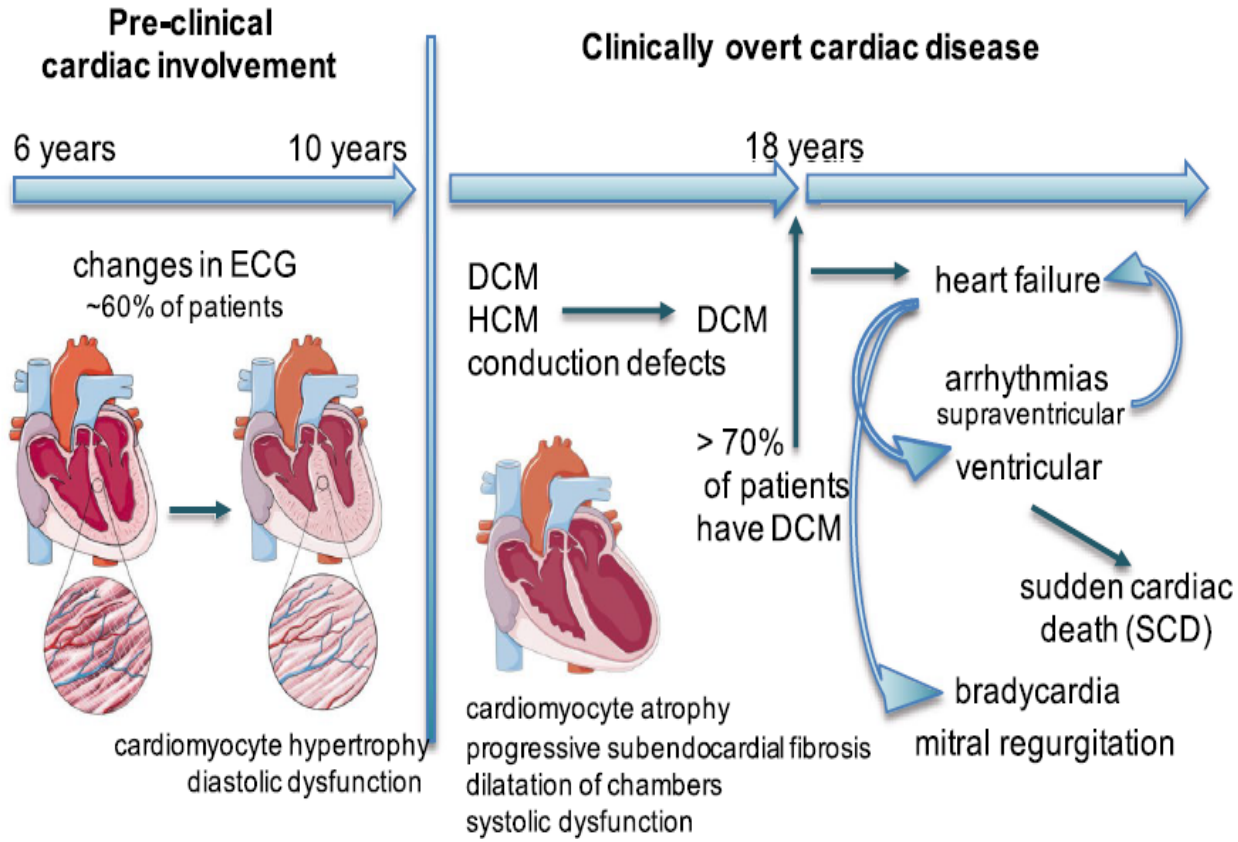
Duchenne muscular dystrophy pre-IND meeting scheduled

Mitochondrial Dysfunction Precedes Cardiac and Skeletal Muscle Dysfunction in DMD



Electron microscopy of biopsied cardiac muscle from 6-year-old DMD patient

Cardiac Involvement Observed as Early as 6-years-old; Clinically Overt Cardiomyopathy Emerges in Teenage Years and is Leading Cause of Early Mortality



Wakai et al., 1988; Florcyzk-Soluch et al; Cellular and Molecular Life Sciences, 2021.

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NEUROLOGY PLATFORM

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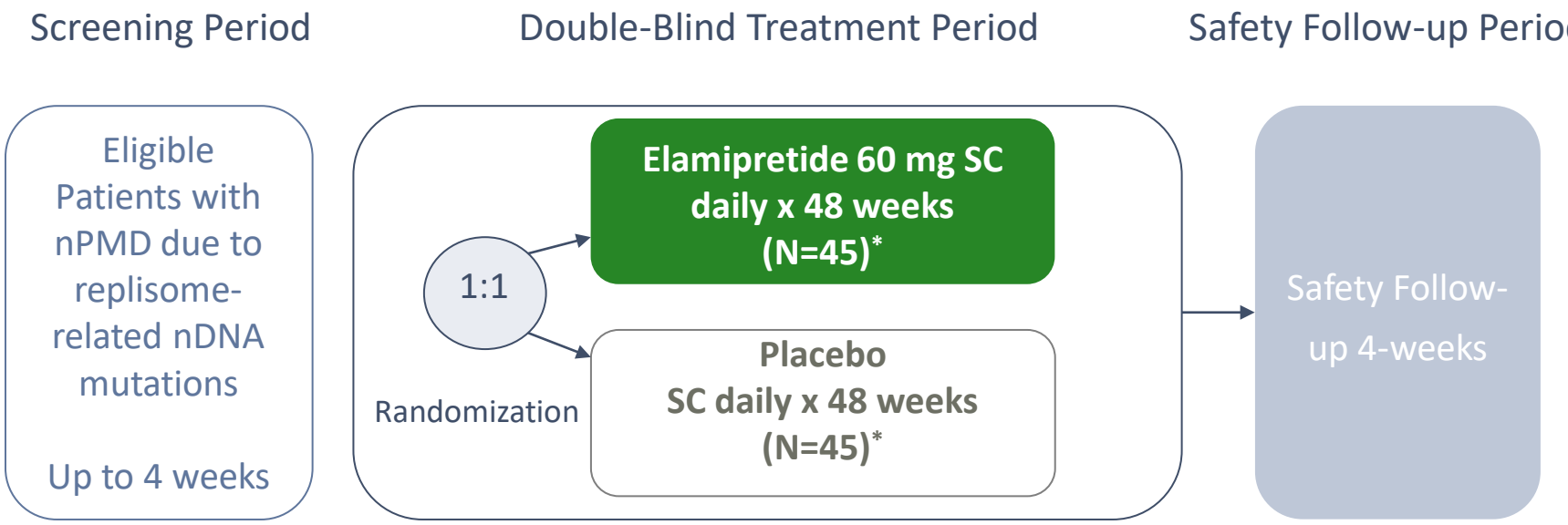
NuPOWER Phase 3 Initiation On-track



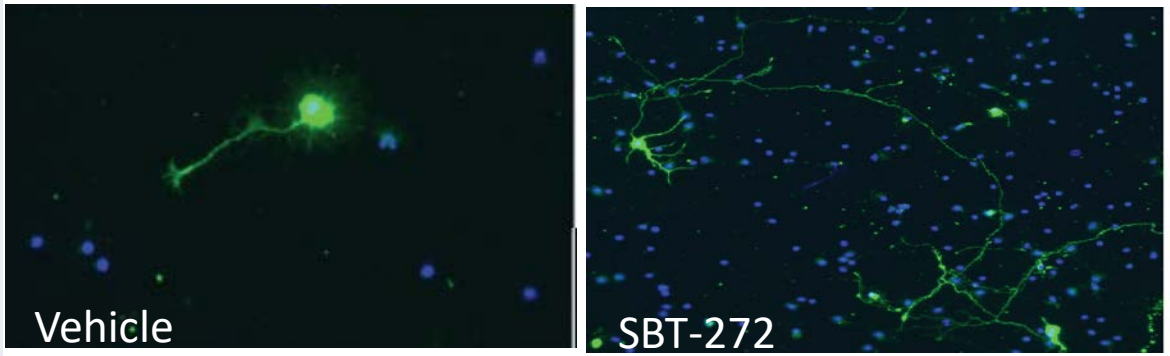
* Up to 40 additional patients with non-replisome nDNA mutations

- Primary efficacy analysis in patients with POLG and other replisome-related mutations (n=90)
- 60 mg SC once-daily
- 6MWT primary endpoint; 5XSST, 3TUG, PROs secondary endpoints
- 1-year duration

SBT-272 Illustrative Data

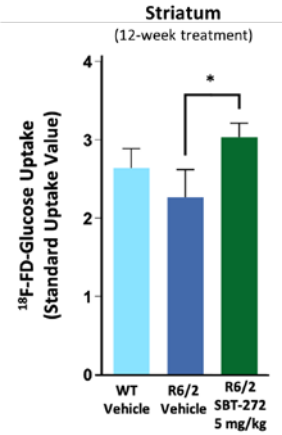
Neuroprotection

SBT-272 Improved Neuronal Branching (TDP-43)



Brain metabolism

SBT-272 Improved Brain Metabolism (HD)

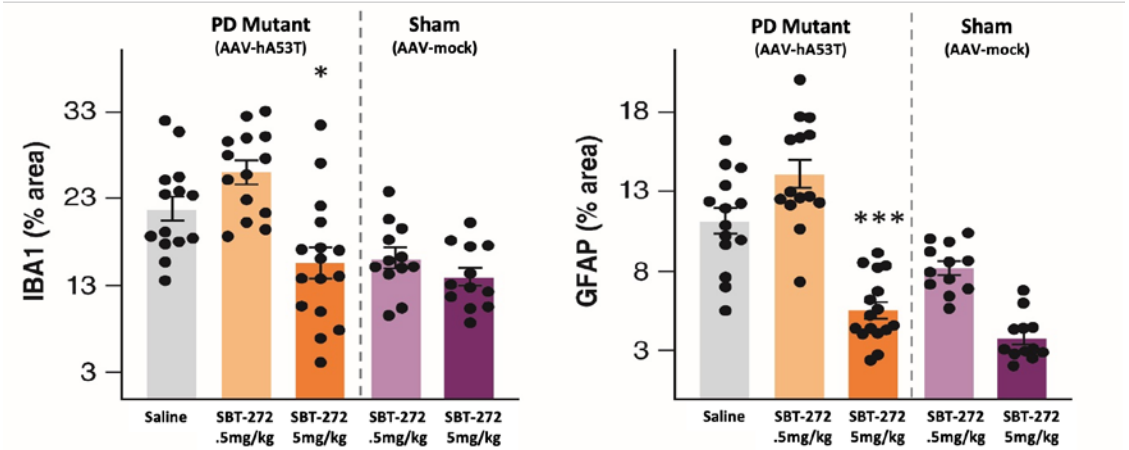


Structure	5mg/kg vs Veh p value
Amygdala (L)	0.1507
Amygdala (R)	0.0821
Basal Forebrain Septum	0.0438
Brain Stem	0.0706
Central Grey	0.0295
Cerebellum	0.2036
Cortex	0.0174
Hippocampus (L)	0.0313
Hippocmapus (R)	0.0191
Hypothalamus	0.0392

Structure	5mg/kg vs Veh p value
Inferior Colliculi (L)	0.1046
Inferior Colliculi (R)	0.0316
Midbrain (L)	0.0246
Midbrain (R)	0.0206
Olfactory Bulb	0.0028
Striatum (L)	0.0238
Striatum (R)	0.0326
Superior Colliculi	0.0161
Thalamus	0.0112
Whole Brain	0.0313

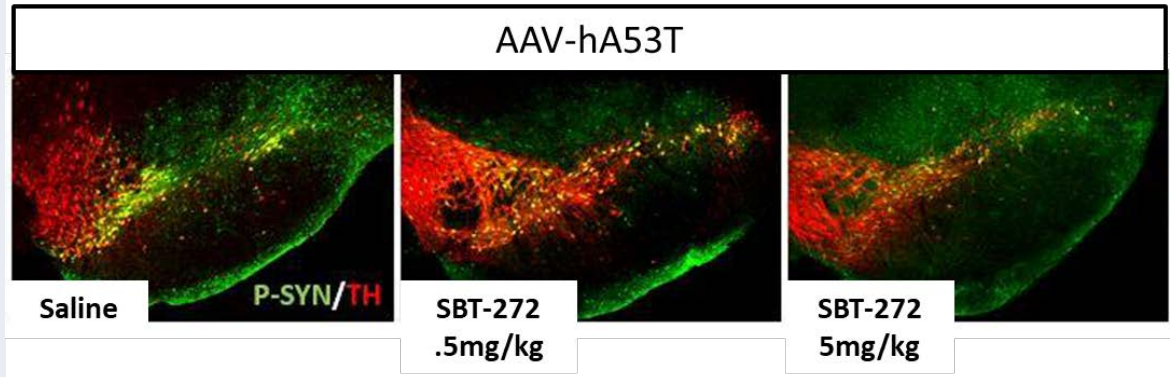
Neuroinflammation

SBT-272 Dose-Dependent Reduction of Inflammation (*α-Syn*)



Aggregation

SBT-272 Improved Clearance of *α-Syn* Protein Aggregates



Third Quarter 2021 Financial Results

(In Millions)	Three Months Ending September 30	
	2021	2020
Total Operating Expenses		
Research and Development	$ 6.7	$ 6.2
General and Administrative	$ 4.7	$ 4.7
Net Loss from Operations	$ 11.4	$ 10.9

We expect our cash and cash equivalents of $42.3 million as of September 30, 2021 and the $16.0 million of additional Development Agreement funding due in Q4 2021 to fund our operations into the third quarter of 2022.

Q & A