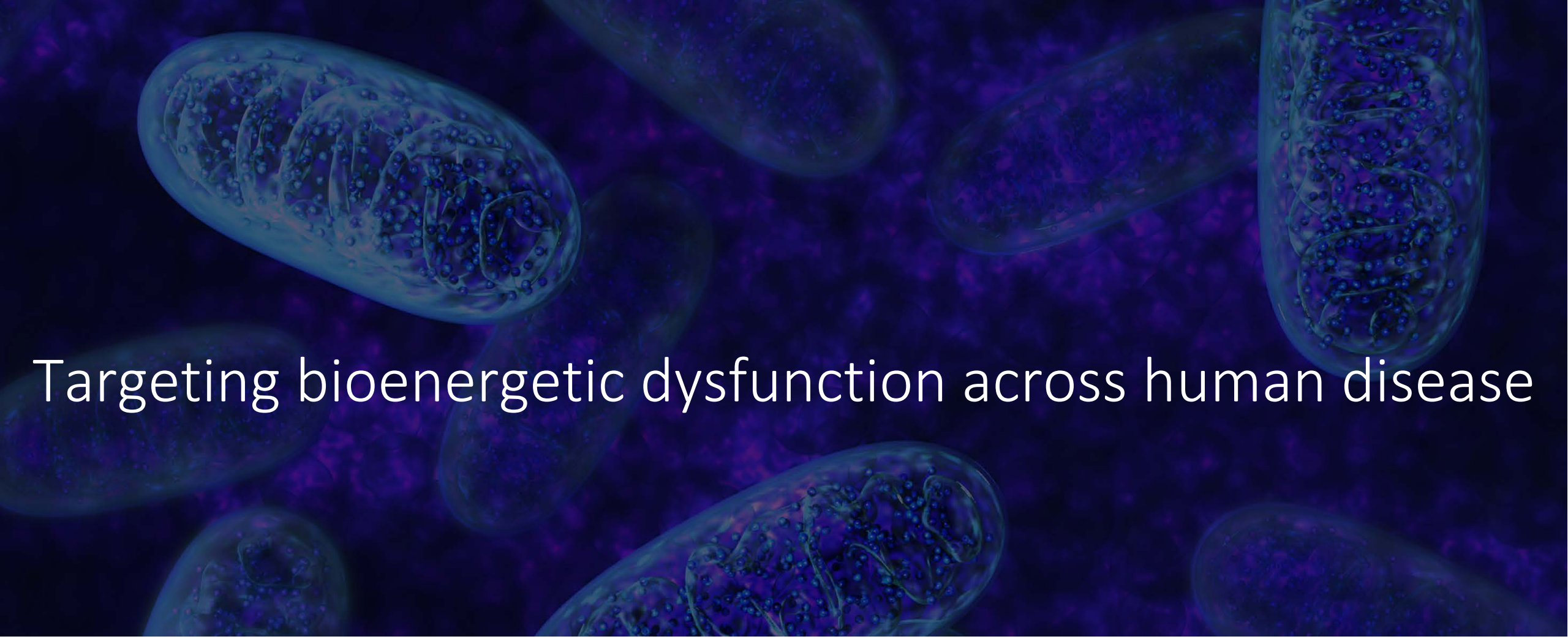


Targeting bioenergetic dysfunction across human disease

Stealth BIOTHERAPEUTICS

Leading Mitochondrial Medicine

August 2021

Our forward-looking statements and disclaimers

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 Stealth BioTherapeutics' plans, strategies and expectations for its preclinical and clinical advancement of its drug development programs, including its ongoing clinical trials of elamipretide and planned clinical trial of SBT-272; its plans for the potential submission of an NDA for Barth syndrome; its expectations regarding regulatory interactions, including its belief that the existing data may provide sufficient evidence to support NDA review; the potential benefits of Stealth BioTherapeutics' product candidates; its key milestones for 2021 and 2022; and its plans regarding future data presentations. Statements that are not historical facts, including statements about Stealth BioTherapeutics' 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. Stealth BioTherapeutics 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: Stealth BioTherapeutics' 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 Stealth BioTherapeutics' product candidates and future product candidates; the preclinical and clinical results for Stealth BioTherapeutics' product candidates, which may not support further development and marketing approval; the potential advantages of Stealth BioTherapeutics' 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 Stealth BioTherapeutics product candidates; the possibility that the FDA will not file the planned Barth NDA following the Company's anticipated submission of it; Stealth BioTherapeutics' ability to obtain and maintain requisite regulatory approvals and to enroll patients in its planned clinical trials; unplanned cash requirements and expenditures; competitive factors; Stealth BioTherapeutics' ability to obtain, maintain and enforce patent and other intellectual property protection for any product candidates it is developing; and general economic and market conditions. These and other risks are described in greater detail under the caption "Risk Factors" included in the Stealth BioTherapeutics' 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, Stealth BioTherapeutics does not undertake any obligation to update forward-looking statements made by us to reflect subsequent events or circumstances.

Pioneering mitochondrial medicine

Ophthalmology platform

- **Dry age-related macular degeneration** (dry AMD) P2b data H1 2022; intravitreal formulation development ongoing
- **Leber's hereditary optic neuropathy** (LHON) P3 initiation pending formulation decision

Neurology platform

- **nDNA-related primary mitochondrial disease** (nPMD) P3 initiation planned H2 2021
- **SBT-272** preclinical evidence of improved survival and neuronal health in **ALS** models; P1 trial initiation targeted H1 2022
- **SBT-550** series improved cell-survival in **Friedreich's ataxia** patient-derived fibroblasts

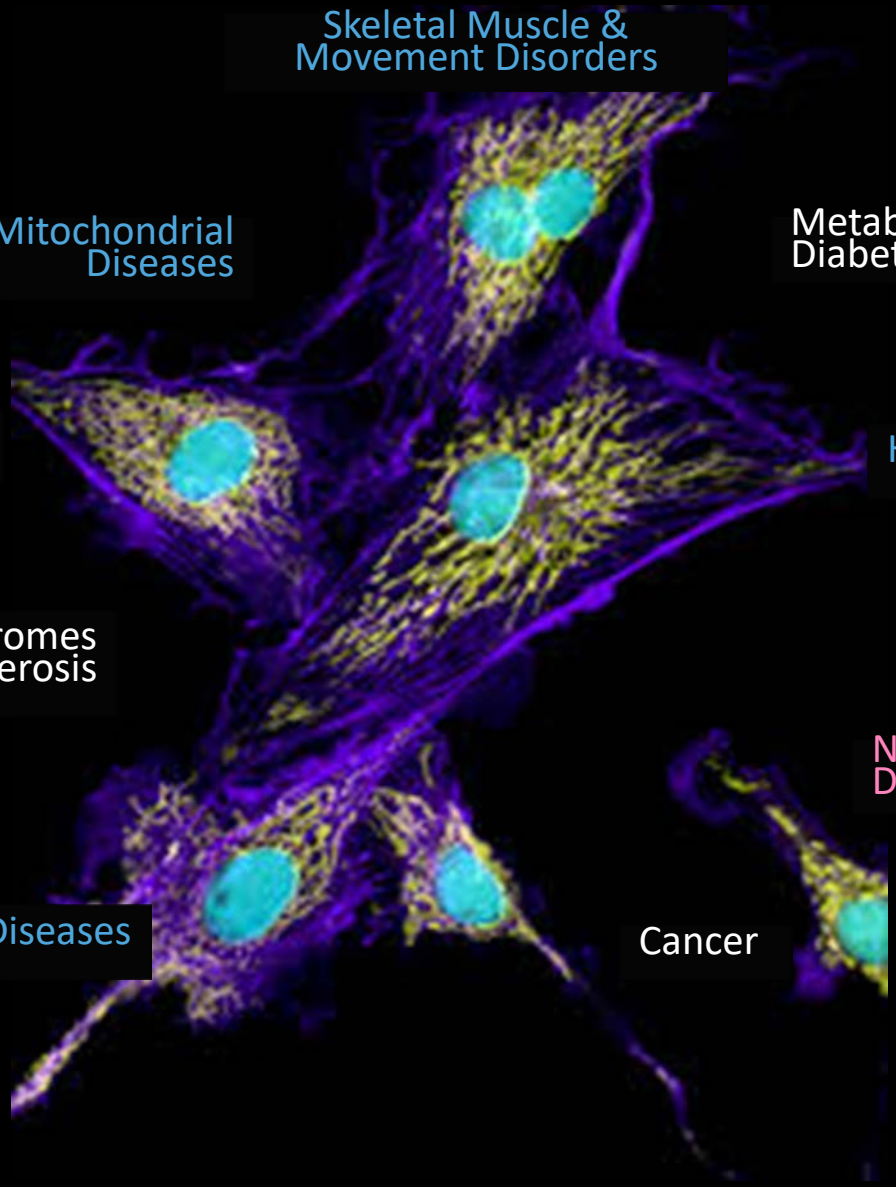
Cardiology platform

- **Barth** NDA expected to be submitted to FDA in August 2021
- **Friedreich's ataxia** P2a clinical trial commencing H2 2021 assessing visual function and cardiac endpoints
- **Duchenne cardiomyopathy** P2/3 initiation H1 2022 subject to discussions with FDA, planning efforts and financing plans

Our pipeline

	Indication	Drug	Discovery	Preclinical	Phase 1	Phase 2	Phase 3
Ophthalmology	Dry age-related macular degeneration (AMD)	Elam	→	→	→	→	*Data expected H1 2022*
	Leber's hereditary optic neuropathy (LHON)	Elam	→	→	→	→	*P3 initiation pending formulation decision*
Neurology	nDNA-related primary mitochondrial disease (PMD)	Elam	→	→	→	→	*Initiate P3 study H2 2021*
	Neuro (ALS, other)	SBT-272	→	→	→	*Toxicology studies ongoing; P1 initiation targeted H1 2022*	
	Other neuro	SBT-550	→	*Evaluating for Friedreich's ataxia, Leigh's syndrome*			
Cardiology	Barth Syndrome	Elam	→	→	→	→	→
	Duchenne cardiomyopathy	Elam	→	→	→	*P2/3 initiation H1 2022, subject to planning, FDA feedback, finances*	
	Friedreich's ataxia (FRDA)	Elam	→	→	→	*Initiate P2a study 2021*	

Mitochondrial dysfunction and human disease



- Mitochondria produce ~90% of the energy utilized by mammalian cells through a highly dynamic mitochondrial network
- Mitochondrial oxidative stress is implicated across many rare and common diseases, typically involving organ systems with high energy demands (heart, eye, brain, skeletal muscle)
- SBT's first-in-class lead compound, elamipretide, has shown clinical benefit in cardiac, ophthalmic and skeletal muscle diseases, and its pipeline compounds SBT-272 and first-in-class SBT-550 series are being developed for neurodegenerative diseases.

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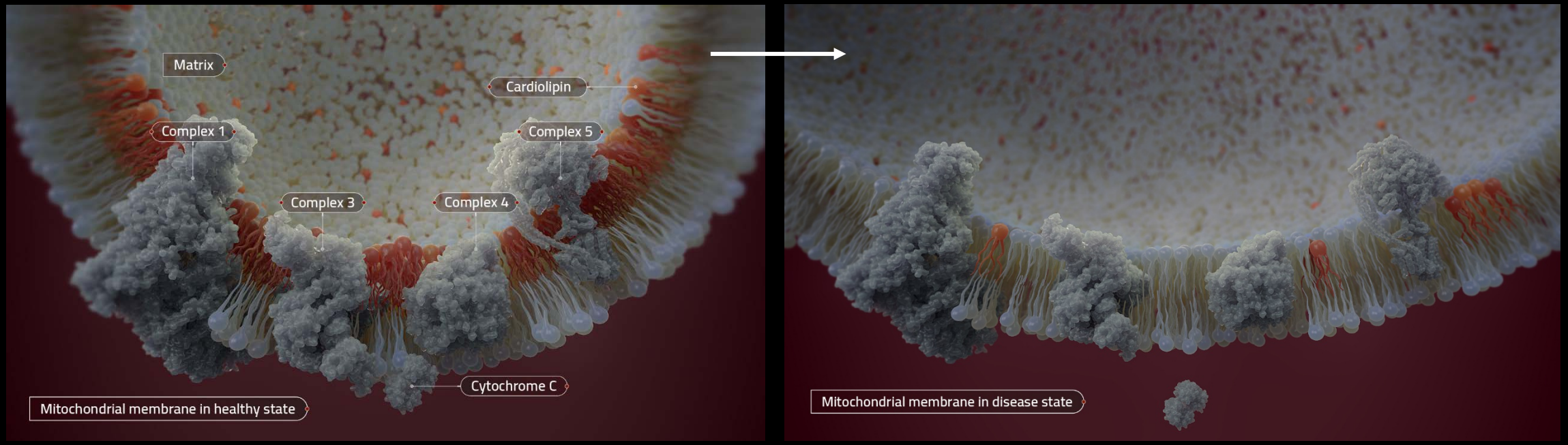
Mitochondrial inner membrane is disrupted in disease

In healthy states, cardiolipin promotes inner mitochondrial membrane curvature to organize respiratory complexes

ROS-mediated damage of cardiolipin disrupts cristae curvature and organization of respiratory complexes



Dr. Dylan Burnette (@mag2art), Vanderbilt Univ; Wang et al., PNAS 2019

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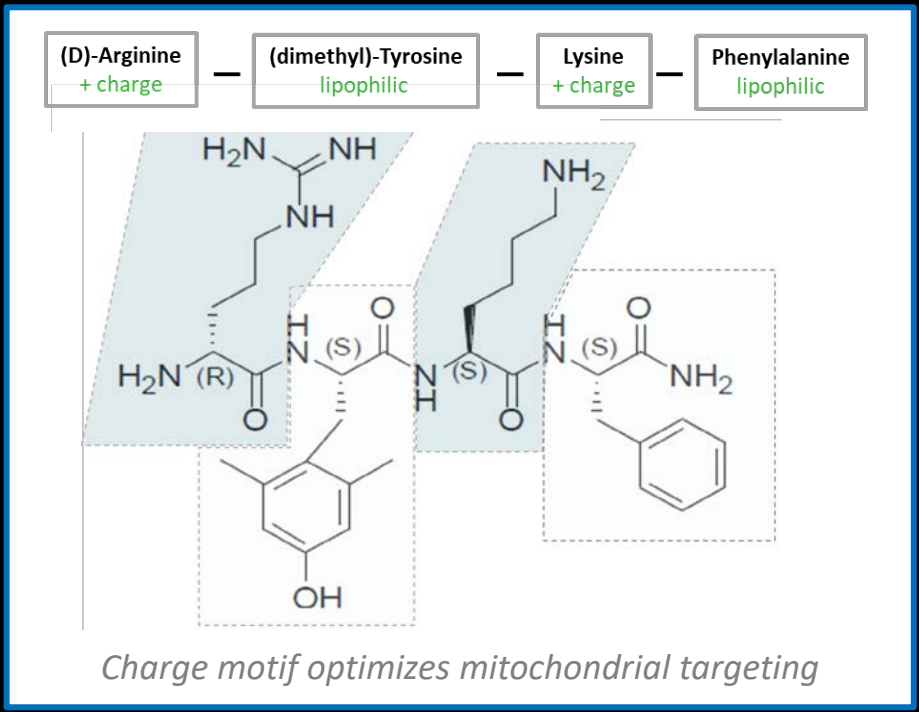
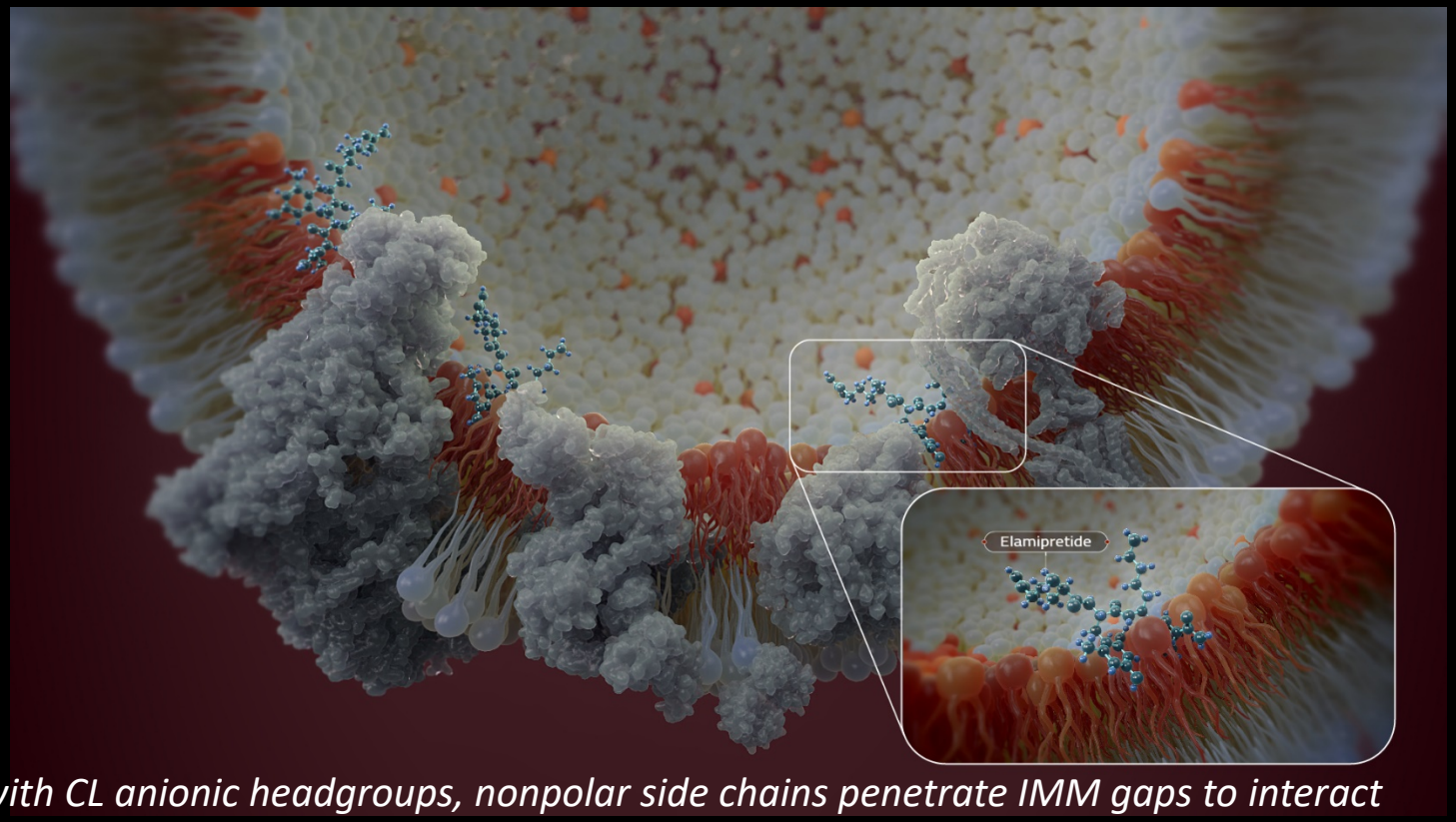
Elamipretide targets cardiolipin; improves IMM structure

Elamipretide modulates IMM dynamics which are disrupted in diseases entailing mitochondrial dysfunction



Charge motif optimizes mitochondrial targeting



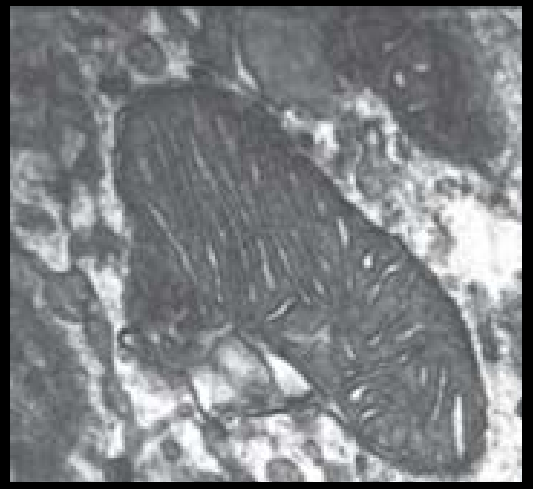
Positively charged residues interact electrostatically with CL anionic headgroups, nonpolar side chains penetrate IMM gaps to interact hydrophobically with CL acyl chains, improving lipid packing, cristae morphology and IMM surface area[1]

IMM = inner mitochondrial membrane; CL = cardiolipin

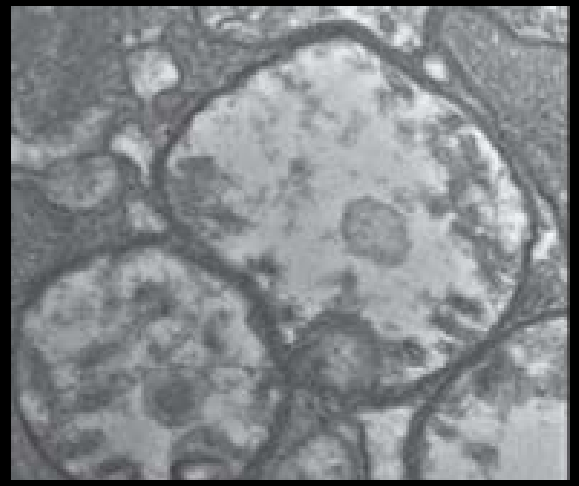
[1] Mitchell, Wayne et al. "The mitochondria-targeted peptide SS-31 binds lipid bilayers and modulates surface electrostatics as a key component of its mechanism of action." The Journal of biological chemistry vol. 295,21 (2020): 7452-7469. doi:10.1074/jbc.RA119.012094

Elamipretide normalizes morphology, networking

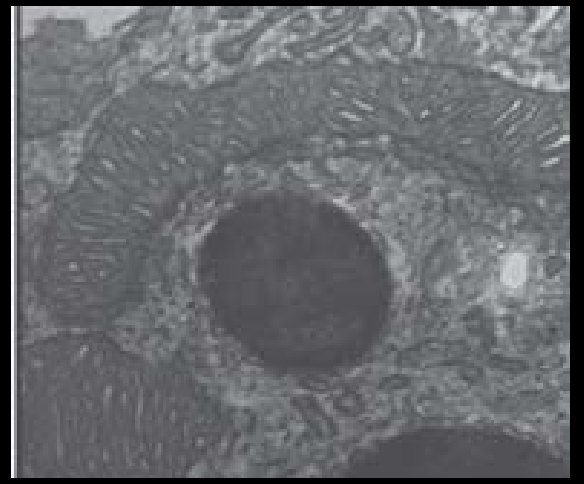
Improved morphology in mouse model of diabetic retinopathy



Normal mouse

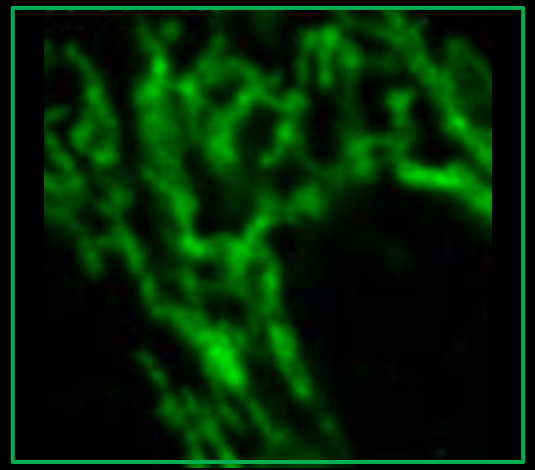


Placebo-treated diabetic mouse

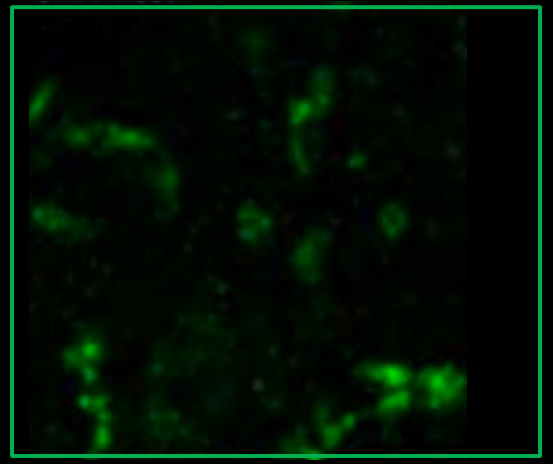


Elamipretide-treated diabetic mouse

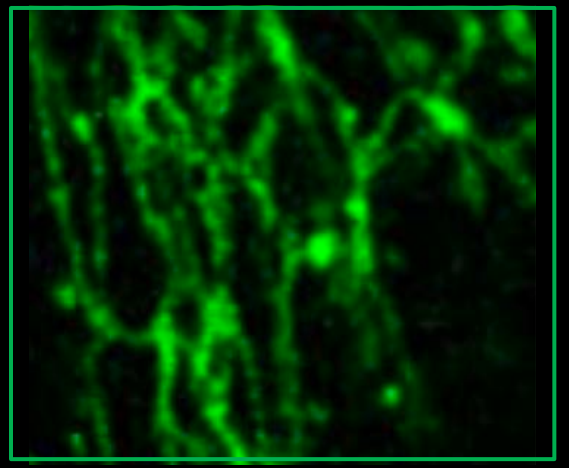
Improved networking in DCMA patient derived cells



Normal



Cardiomyopathy



Cardiomyopathy + elamipretide

Szeto, Birk, Am J Physiol 2014 Szeto HH, Birk AV. Clin Pharmacol Ther. 2014

Wang et al., PNAS 2019

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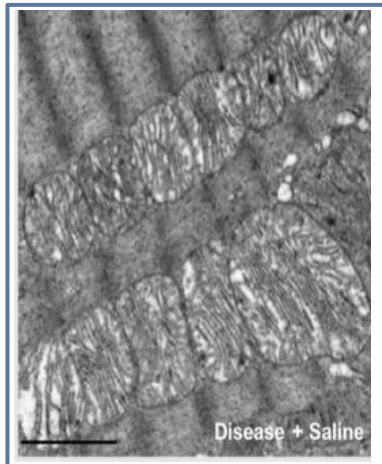
Time course to improvements

TAZPOWER P2/3 Clinical Trial and Open-label Extension & associated preclinical data



Improved mitochondrial function

Hours/Days

Restoration of healthy gene expression

Days

Cardiac/mitochondrial protein turnover

Weeks

Improved cardiac substrate metabolism

Weeks/Months

Myocardial remodeling

Months/Year

Elamipretide Improves Mitochondrial Respiration in the Failing Human Heart
Stauffer, *ESC HF*, 2017, Chatfield, *JACC Basic Translational Sc*, 2019

Elamipretide remediates respiratory chain and mitochondrial quality control abnormalities caused by cardiolipin deficiency
Anzmann et al; J Biol Chem. 2021

Elamipretide improves plasma medium chain acylcarnitines in Barth syndrome Oates et al; medRxiv 2020.11.20.20235580

Elamipretide improves cardiac parameters in Barth syndrome
Thompson, et al., Genet Med 23, 471–478 (2021)

Ophthalmology

*Dry AMD ~1 million**

Friedreich's ataxia
1:40,000

Leber's hereditary optic neuropathy
*~7,000**

The visual system is one of the most energetically demanding systems in the brain.

The visual system is particularly vulnerable to functional deficits induced by deficiencies in energy metabolism.

Defects in energy metabolism often lead to visual deficits and even blindness in diseases such as age-related macular degeneration (AMD), glaucoma and diabetic retinopathy, as well as genetic diseases such as LHON and FRDA. In addition, visual deficits and defective energy metabolism are implicated in diseases of aging such as Alzheimer's, Huntington's and Parkinson's diseases.

Wong-Riley, Eye Brain, 2010.

Preclinical efforts in glaucoma underway

* All estimates are of US patients affected

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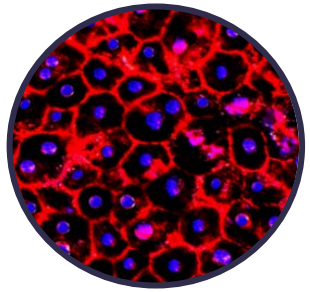
AMD at a glance

Preclinical models



Improved mitochondrial function and vision in animal models.

Cousins, *Retina Today*, 2016, *Angiogenesis*, 2017, Kapphahn, *ARVO*, 2017

Natural history

High risk drusen + intermediate geographic atrophy (GA) patients lose up to 6 letters of visual acuity every 12 months.

Holkamp, *Angiogenesis*, 2018; Ladd, data on file.

Clinical data

ReCLAIM P1 trial (6 mos. duration; drusen + GA) showed improved visual function + apparent slowing of GA progression.

Angiogenesis, 2019, *ARVO*, 2019, *ASRS* 2019

Current & next steps

ReCLAIM-2 Phase 2b trial in patients with GA fully enrolled; data H1 2022. IVT development ongoing.

ReCLAIM Phase 1 trial

Screening		BL	W1	W4	W8	W12	W16	W20	W24	W28: Washout
High-risk drusen	>5 letters low luminance deficit									
BCVA ≥ 55 letters	n=21									
Noncentral GA	>5 letters low luminance deficit									
BCVA ≥ 55 letters	n=19									

Elamipretide 40 mg (s.c.)

Once daily

No placebo control

Endpoints

Primary Endpoint: Safety

Adverse event attributed to drug

Exploratory Endpoints: Efficacy

Low luminance visual acuity (LLVA)

Best corrected visual acuity (BCVA)

Low luminance reading acuity (LLRA)

Low Luminance Questionnaire (LLQ)

NEI Visual Function Questionnaire (VFQ)

Dark adaptation (DA)

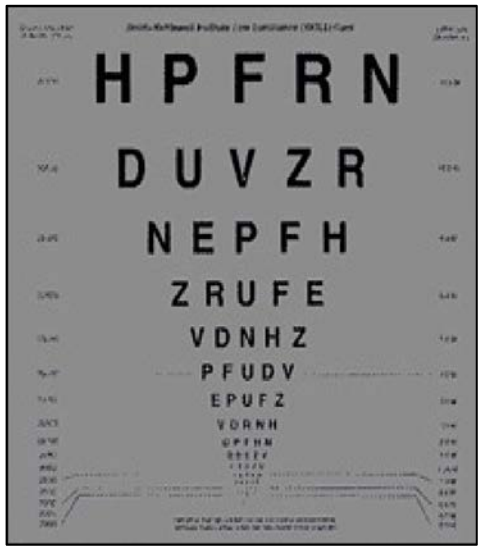
Drusen volume

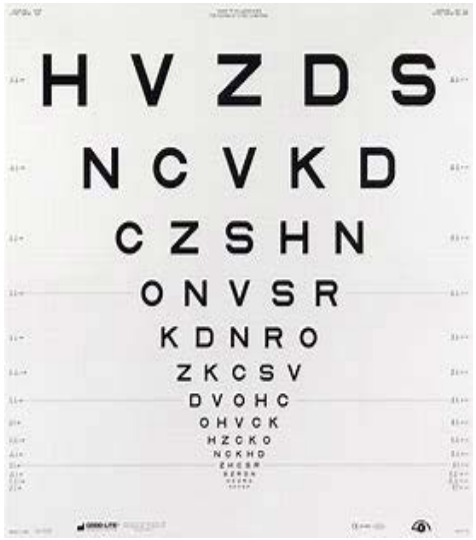
Fundus hyperautofluorescence

Cone light sensitivity (microperimetry)

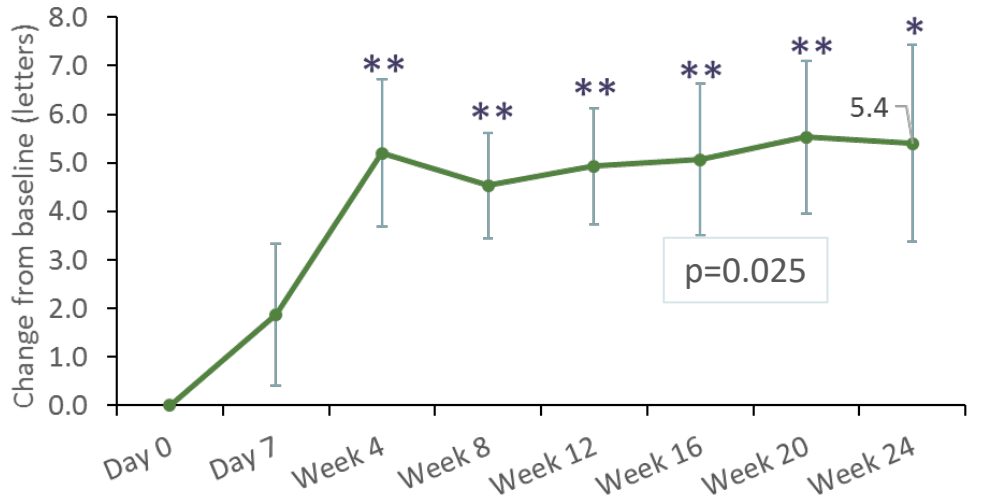
Stealth Biotherapeutics [data on file].

ReCLAIM: improved visual acuity in low and regular light

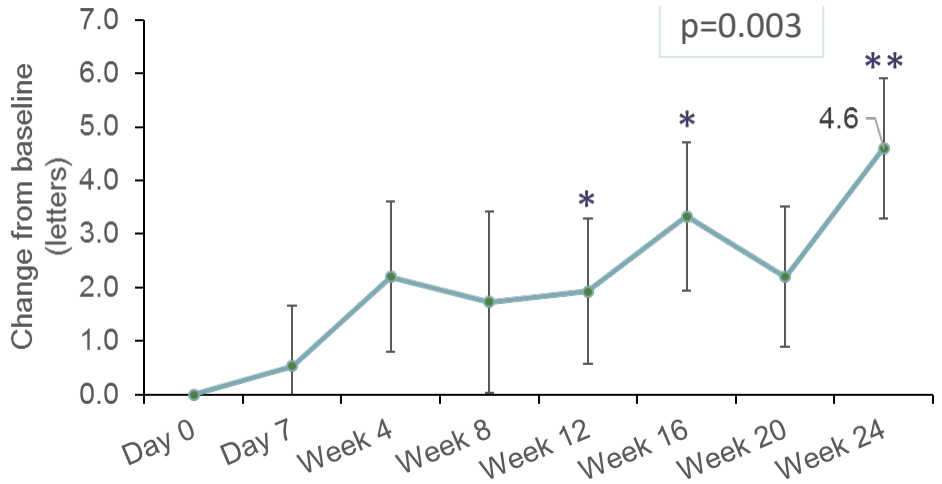




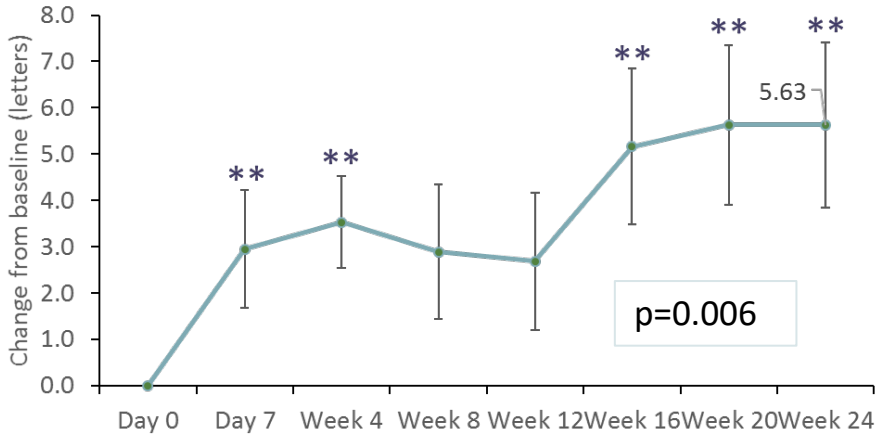
GA: Mean Change in LLVA n=15



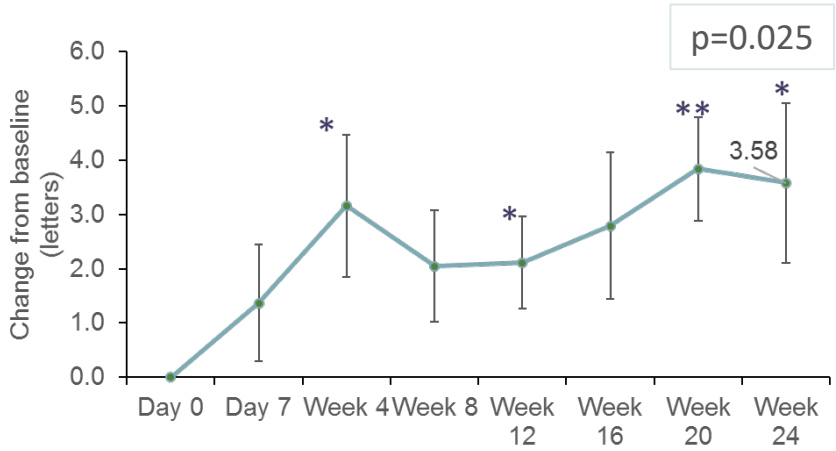
GA: Mean Change in BCVA n=15



Drusen: Mean Change in LLVA n=19

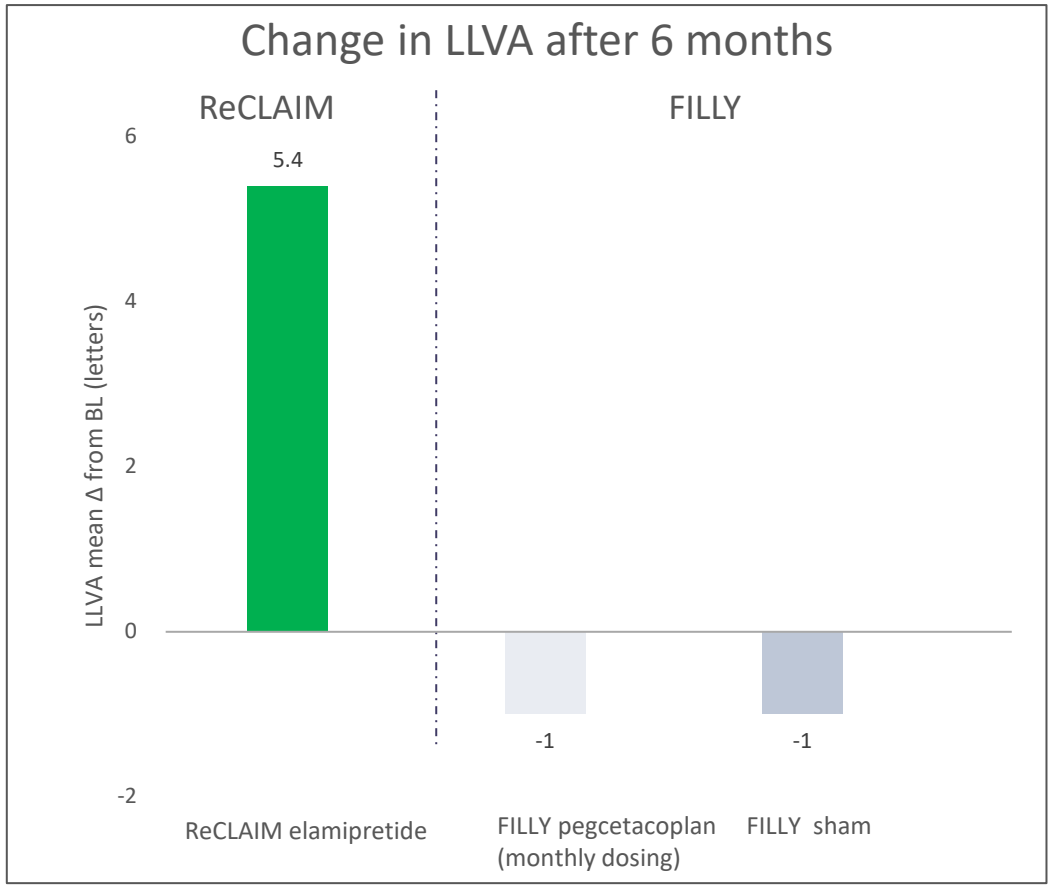


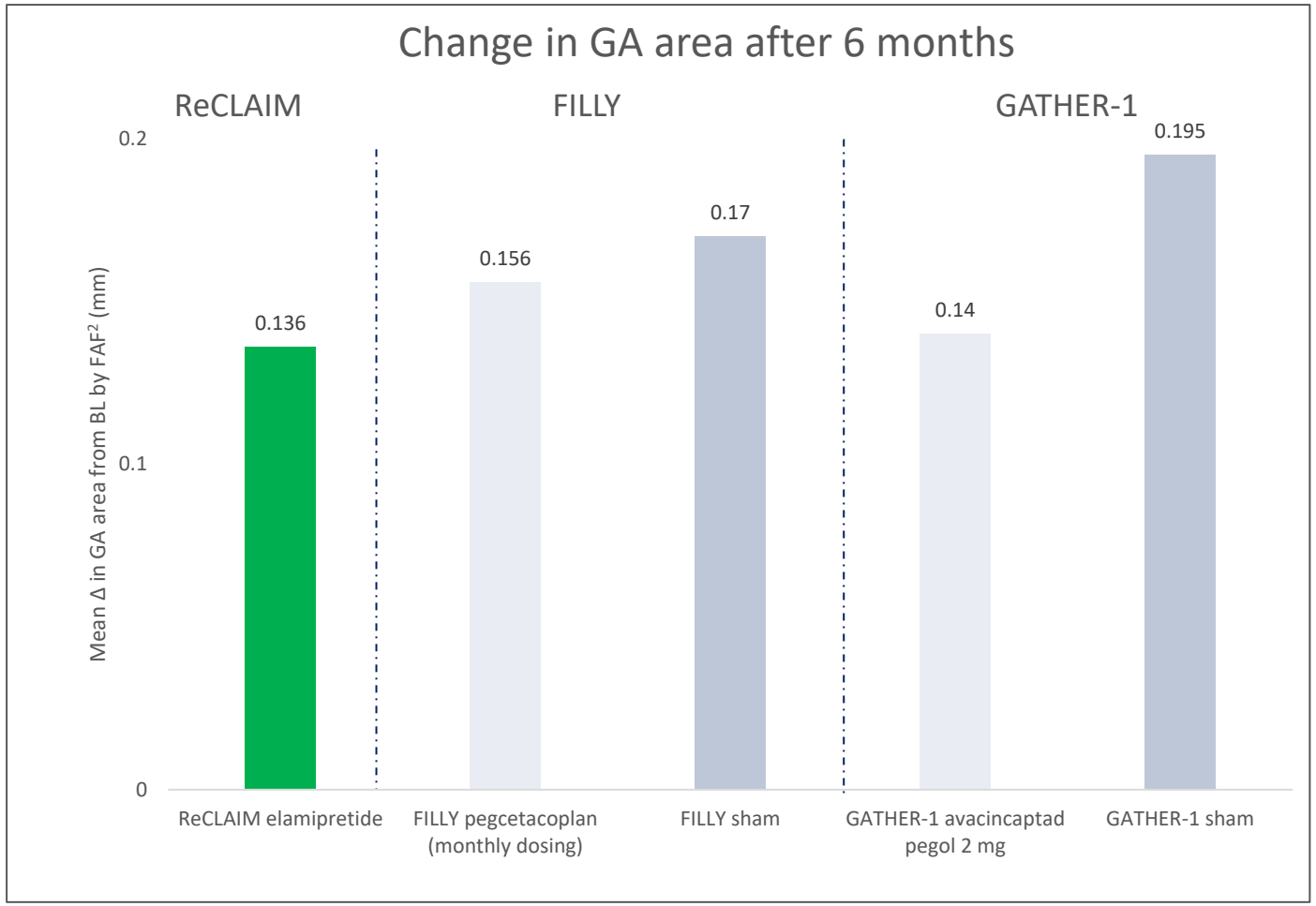
Drusen: Mean Change in BCVA n=19



Slowed GA growth relative to other agents in development

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





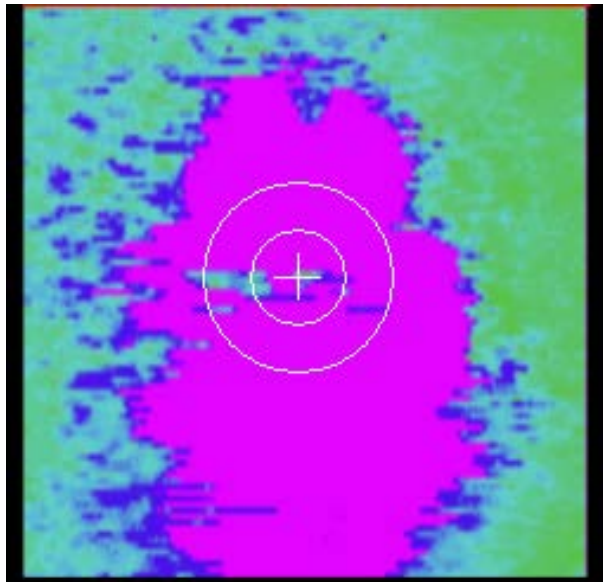
[1]Liao et al., Ophthalmology 2020; Jaffe et al., Ophthalmology 2020, with 6-month LLVA extrapolated from graphic representation; FILLY and Gather-1 patient populations differ from ReCLAIM; FAF²=fundus autofluorescence, square root; LLVA=low light visual acuity; Δ=change; BL= baseline

Improved vision correlated with ellipsoid zone health

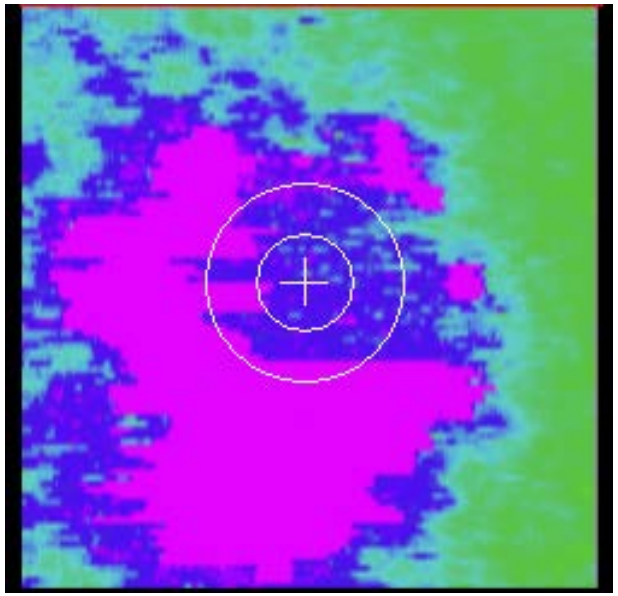
- The ellipsoid zone (EZ) is an area of the retina comprised mostly of mitochondria which supports photoreceptor function and is known to be attenuated in dry AMD
- In a post hoc analysis, ~50% of GA patients gained ≥5 letters in LLVA; with response correlated with baseline macular percentage of total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

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

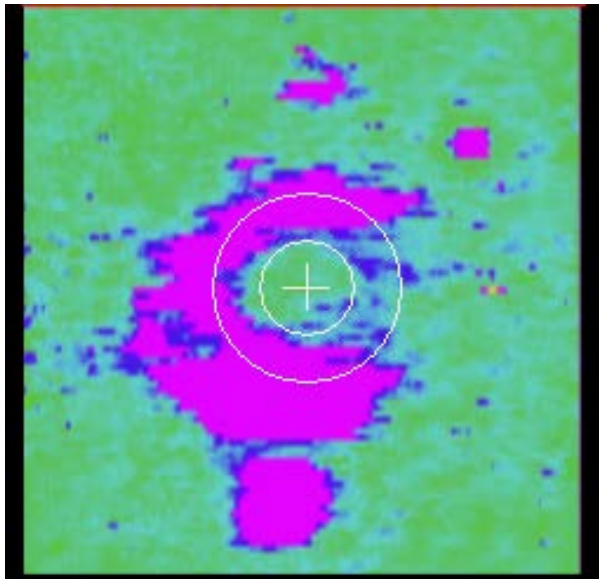
2-letter gain



4-letter gain



18-letter gain



ReCLAIM-2

Fully enrolled

Screening	BL	W4	W8	W12	W24	W36	W48	W52: Washout

GA area ≥0.05mm^2/ <10.16 mm^2

BCVA ≥ 55 letters

>5 letters low luminance deficit

n=176

Inclusion criteria mimic Phase 1 ReCLAIM GA cohort (BCVA ≥ 55 letters, >5 letters low luminance deficit)

Elamipretide 40 mg SC or placebo once daily, 2:1 randomization

Efficacy endpoints

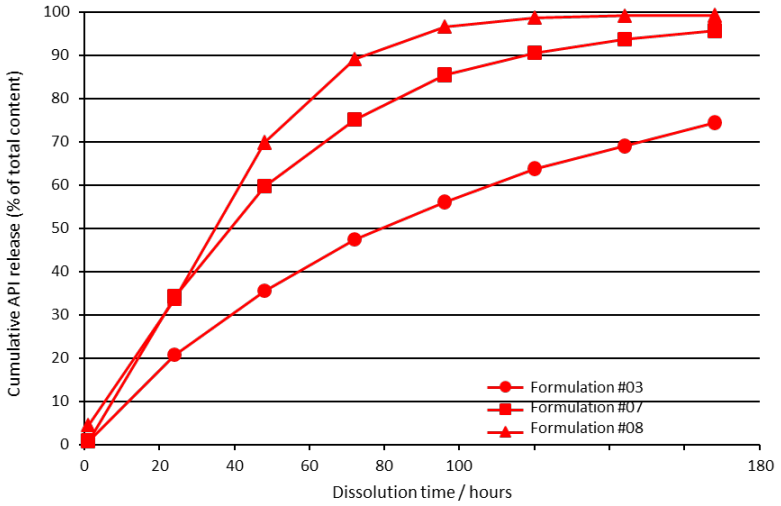
Low luminance visual acuity (LLVA)
Low luminance reading acuity (LLRA)
Best corrected visual acuity (BCVA)
Geographic atrophy by fundus autofluorescence (FA)
Geographic atrophy by optical coherence tomography (OCT)
NEI Visual Function Questionnaire (VFQ)
Low Luminance Questionnaire (LLQ)
Conversion to choroidal neovascularization (wet AMD)

IVT development ongoing

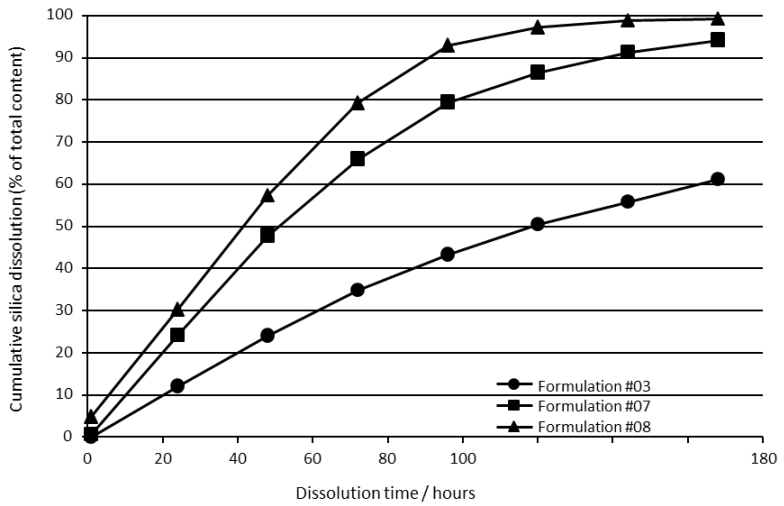
Objective is to design a matrix to release elamipretide slowly into the retina, allowing dosing every 3- to 4-months

Feasibility Stage

Drug release mimics matrix dissolution, anticipated 4–10-month release.



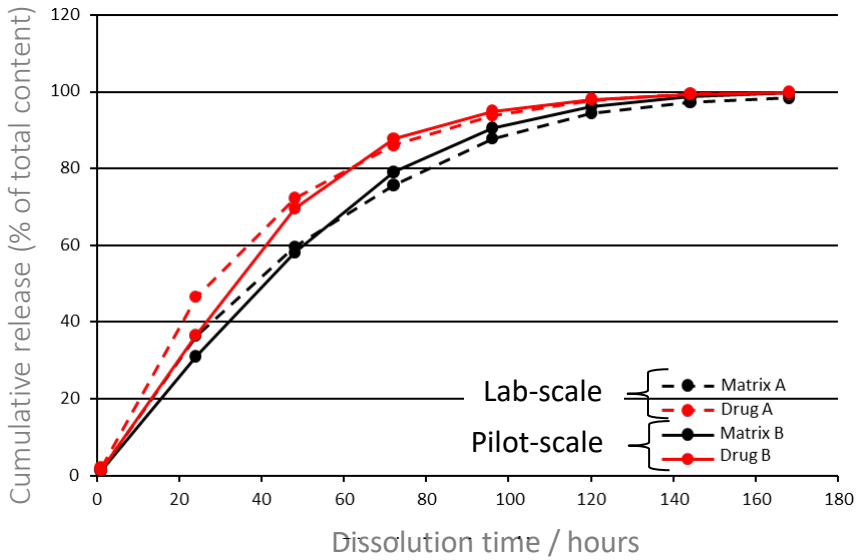
Drug release



Matrix dissolution

In Vitro Release Testing

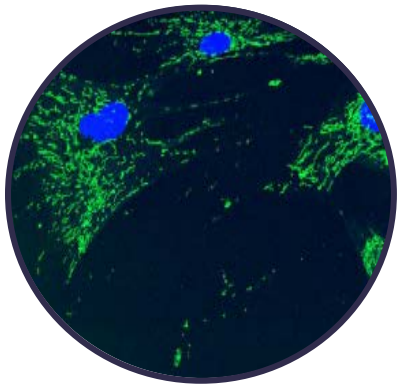
Drug release mimics matrix dissolution



Planning to complete *in vitro* efficacy + retinal PK and IVT drug product ready for GLP tox testing commensurate w/P2b data read-out

Friedreich's ataxia at a glance

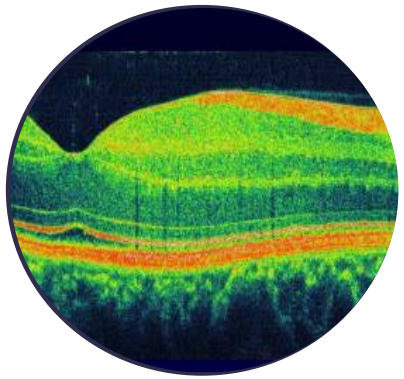
Nonclinical Data



Elamipretide improves frataxin expression and mitochondrial function in Friedreich's ataxia patient-derived lymphoblasts (GM15850)

Zhao, et al., Scientific Reports, 2017.

Natural history



Friedreich's Ataxia Collaborative Clinical Research Network has assessed visual acuity in >500 patients longitudinally over 5+ years. Cardiac natural history is also well-established.

Balcer, Visual Function in FRDA; Pousset et al., JAMA Neurol. 2015

Clinical plan

Planning Phase 2a 52-week clinical study to assess safety and efficacy of 2 doses of elamipretide (30 mg SC and 60 mg SC) and inform Phase 2/3 endpoint selection. Interim data analysis planned at 36-weeks to inform extension to 104-weeks.

Phase 2a study commencing H2 2021

Screening	BL W1 W4 W16 W36 W52	Optional 52-week extension

Genetically confirmed FRDA	n=16
Primarily visually compromised: Visual acuity worse than 20/40 Impaired contrast: • high contrast visual acuity of 20/50-20/800, or • hand motion vision	Primarily affected by cardiac dysfunction: • Ejection fraction <50% and • Visual acuity of 20/25-20/40

8 = Elamipretide 30 mg (s.c.)

Compared to

8 = Elamipretide 60 mg (s.c.)

Once daily

May be extended to 2-year duration to assess durability of any observed response

Safety Endpoints
Adverse event attributed to drug

Ophthalmic Efficacy Endpoints
High contrast visual acuity or low vision alternative
Low contrast visual acuity
Low luminance visual acuity (LLVA)
Optical coherence tomography
Visual function questionnaire

Cardiac Efficacy Endpoints
Ejection fraction by cardiac MRI
Left ventricular volume index
Stroke volume
Fibrosis
Strain

Exploratory Efficacy Endpoints
MFARS, FA ADL, FA functional disability scale
REDENLAB speech assessments
PGIC/CGIC

* Protocol subject to IRB approval

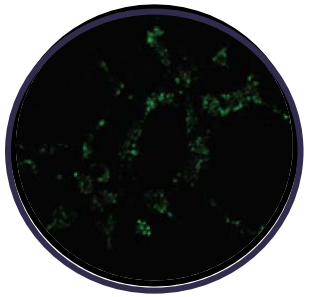
Leber's hereditary optic neuropathy at a glance

Route of administration

1.0% topical ophthalmic drops reach the retina in therapeutic concentrations + demonstrate efficacy. Higher concentrations reach retina via SC delivery.

Stealth, data on file; Alam, *Dis. Mod. Mech.* 2015

Preclinical Models



Improved mitochondrial function in murine-derived retinal ganglion cell (RGC) line. Improved RGC survival + visual outcomes in murine acute traumatic optic neuropathy model.

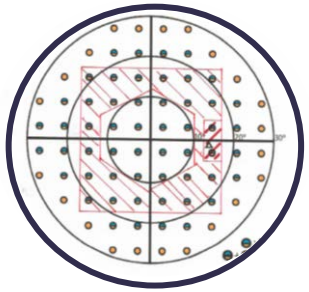
Chen 2017; Pelaez, Tse (ongoing)

Natural history

For patients >12 mos. post vision-loss, visual field and acuity are not expected to improve over 2 yr. period.

Lam, *JAMA Ophthamology*, 2014

Clinical data



ReSIGHT Phase 2 did not show improvement in BCVA after 48-weeks of elamipretide 0.1% topical ophthalmic drops. Improved visual field and visual quality of life.

ARVO, 2019, EUNOS, 2019, UMDF, 2019.

Open-label data

Improvements from P2 baseline in visual acuity, visual field, color, contrast + visual quality of life observed at week 28.

ARVO, 2019, EUNOS, 2019, UMDF 2019

Current & next steps

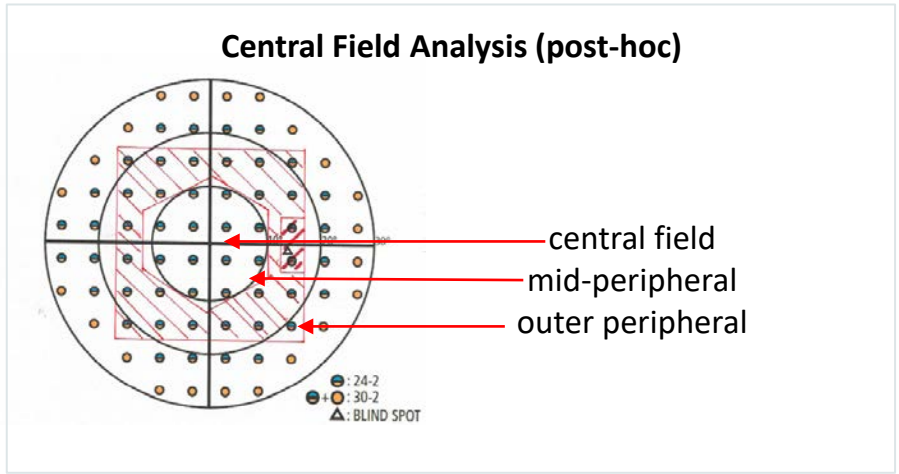
IVT formulation work ongoing to inform P3 dosage.

Leber's hereditary optic neuropathy

P2 early improvement in central visual field; long-term improvement across endpoints. Formulation work ongoing to support P3.

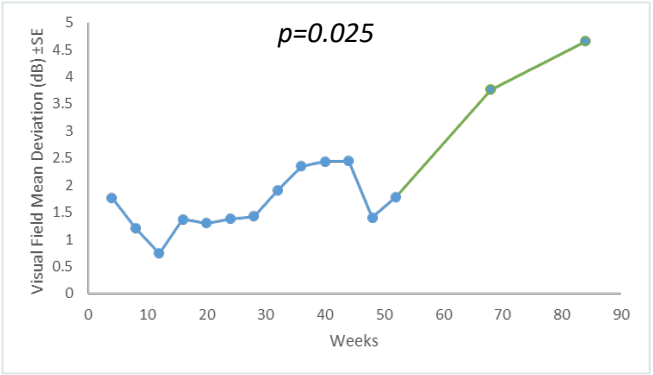
Double-masked, fellow-eye control trial

In double-masked, fellow-eye control trial, improvements observed in Humphrey's visual field ($p<0.02$), particularly in the central visual field ($p<0.0001$) which is most impaired in LHON

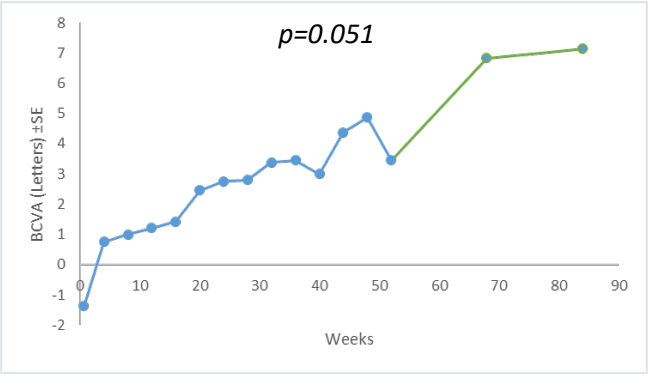


Open-label extension (at 6 months)

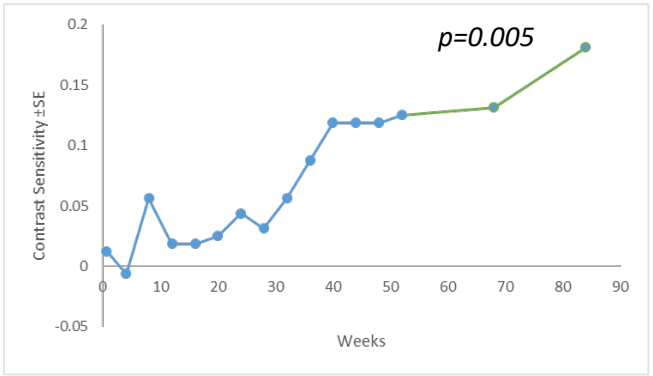
Visual Field OLE



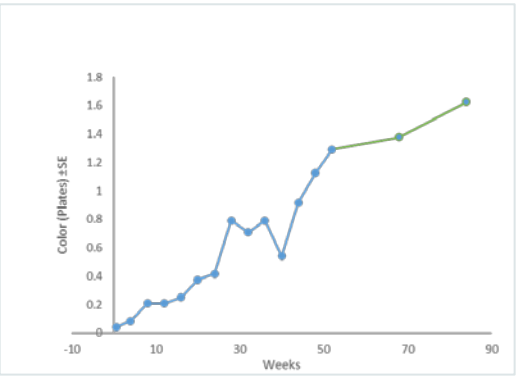
BCVA OLE



Contrast OLE



Color OLE



Raw values averaged between eyes; blue = double masked portion of trial, green = OLE; n=12

Neurology

Elamipretide

nuclear Primary Mitochondrial Disease (nPMD) ~7,000*

SBT-272 and pipeline

ALS, MSA and other indications being explored preclinically

The brain accounts for about 2% of our body weight and consumes about 20% of our total oxygen and about 25% of our total energy supply.

100s-1,000s of mitochondria are contained in a single neuron.

Neurons depend almost entirely on mitochondrial oxidative phosphorylation for their energy supply.

Mitochondrial dysfunction has been implicated in diseases such as Parkinson's, Alzheimer's and Huntington's diseases and amyotrophic lateral sclerosis (ALS) as well as in genetic mitochondrial diseases.

Wong-Riley, Eye Brain, 2010; Rango, et. al., Genes, 2018..

* All estimates are of US patients affected

nPMD at a glance

Clinical

nPMD patient subgroup improved on 6MWT during MMPOWER Phase 3 trial; data showed significant exposure response relationship.

Enrichment

Primary efficacy analysis to enrich for mitochondrial replisome-related mutations and myopathic phenotype.

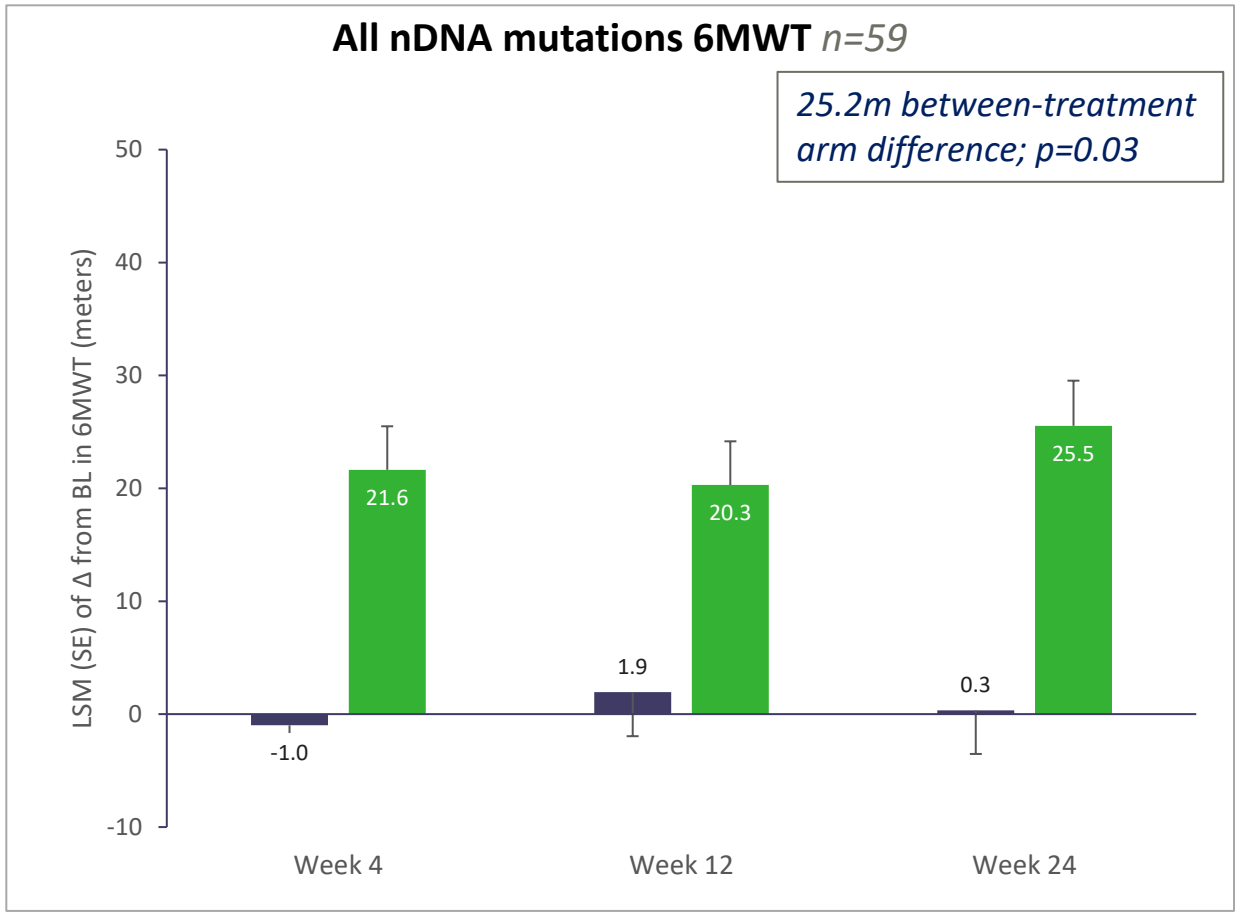
Current & next steps

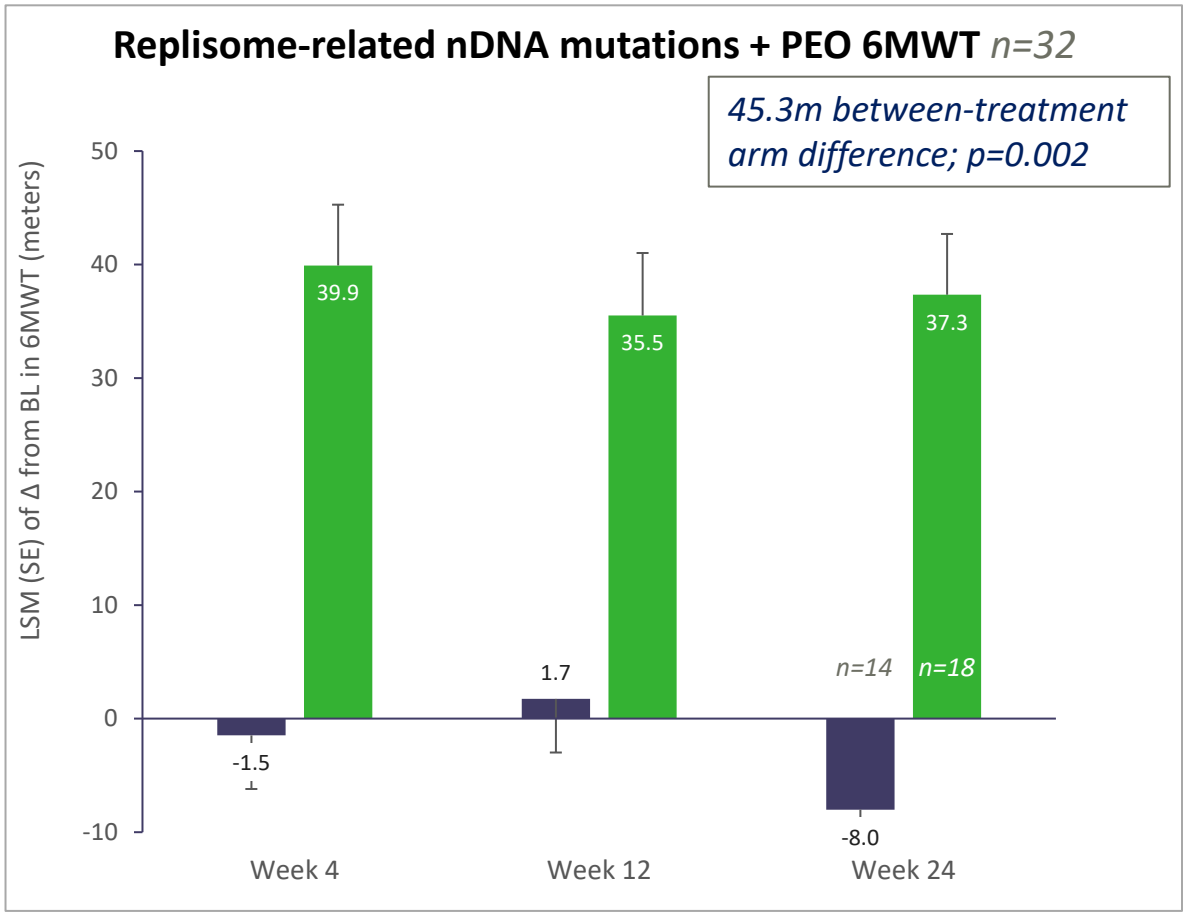
FDA aligned on Phase 3 trial design. Trial initiation planned H2 2021.

nPMD clinical data suggests P3 enrichment strategies

Post-hoc Analyses of 6MWT data in nPMD patients

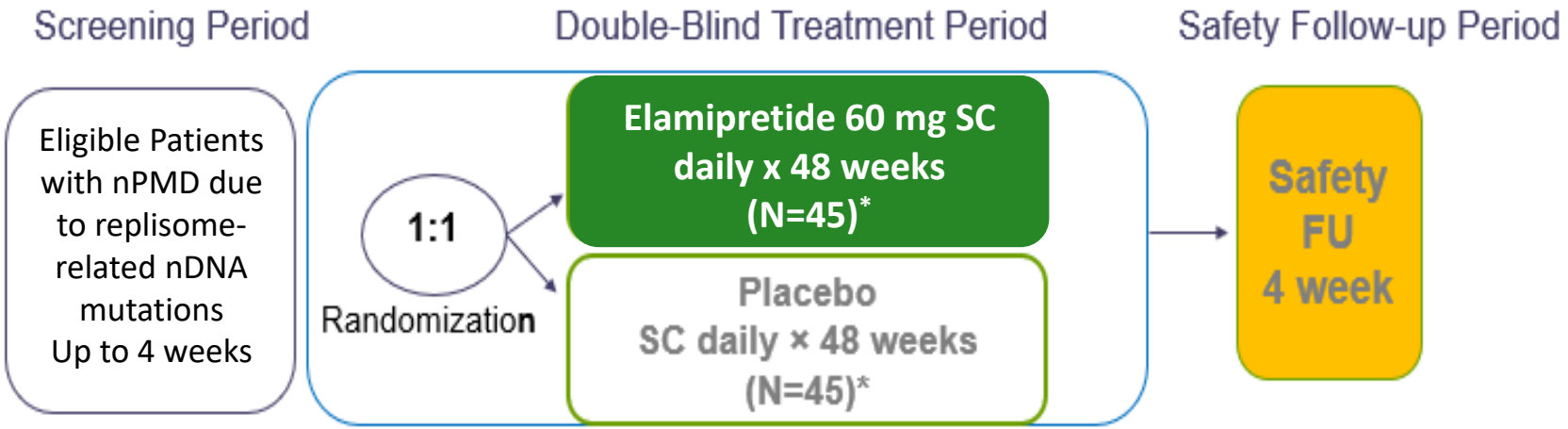
Enriching for replisome-related nDNA mutations + PEO co-morbidity ensures myopathic phenotype, predicts more robust response





Placebo Elamipretide 40 mg

Phase 3 trial design



* 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
- Initiation H2 2021

Pipeline at a glance

100+

proprietary differentiated compounds

multiple families

SBT-272

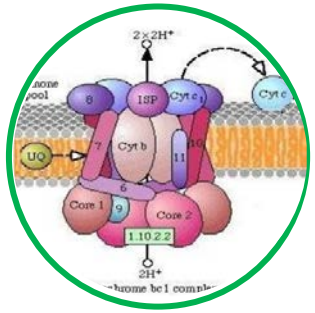
Clinical stage (Phase 1)

↑ mitochondrial uptake (>6X)^

Cmax (~3X), AUC (>25X) in rat brain^

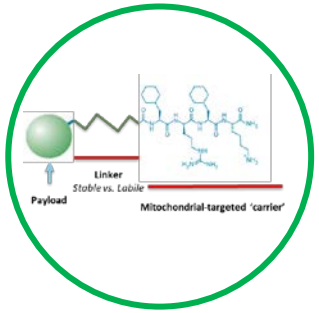
↑ survival in male cohort of ALS SOD-1 model; correlated NfL reduction

↑ neurite length, branching in TDP-43 upper motor neurons



SBT-550

SBT-550 series shows dose-dependent improvements in cell viability in Friedreich's ataxia patient-derived fibroblasts



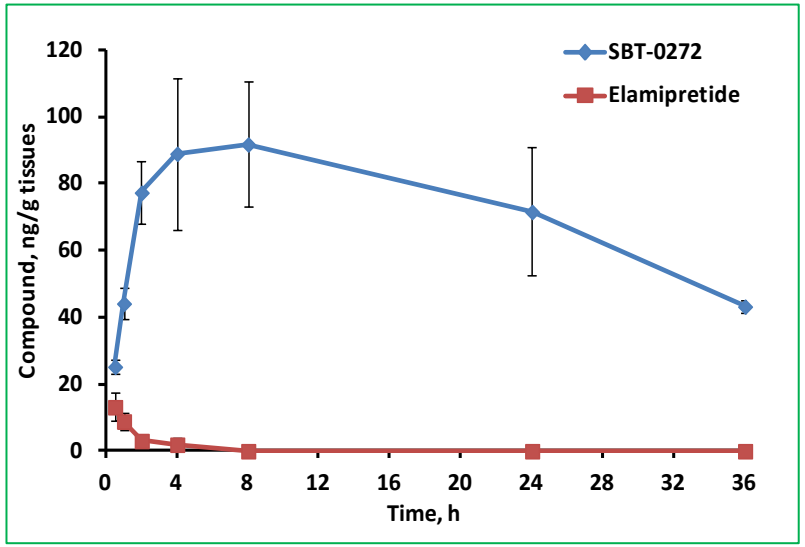
Delivery

Targeting small molecules to the mitochondria

^ in each case relative to elamipretide; Cmax = maximum concentration; AUC = area under the drug concentration-time curve; NfL = neurofilament light chain
Stealth BT data on file; Keefe et al., *NEALS* 2019; Gautam, et al., *NEALS* 2020; Wu, et.al., J Mol Neurosci., Oct 2018

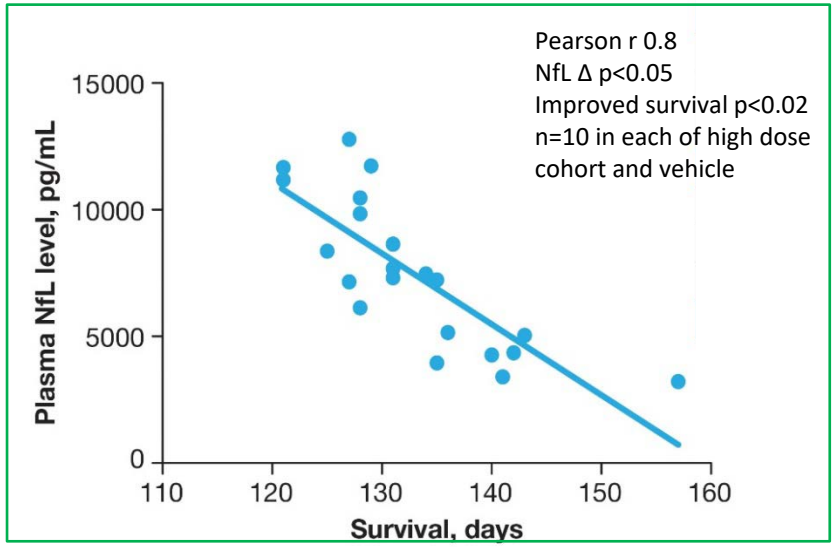
SBT-272 as potential neuronal protective agent

Improved blood-brain-barrier penetration



- Mitochondria-targeted small molecule
- >6X higher mitochondrial update relative to elamipretide
- ~3X higher Cmax and >25X higher AUC in brain relative to elamipretide
- Toxicology ongoing to support Phase 1 trial initiation early 2022

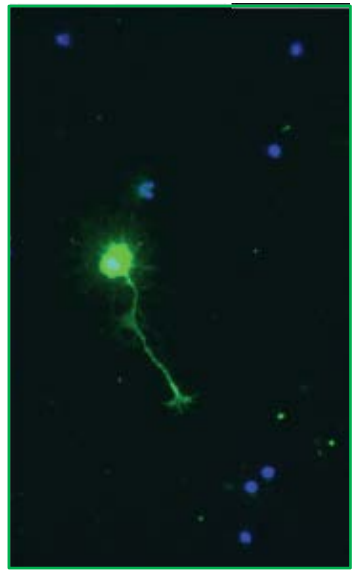
Improved survival, NfL in ALS SOD-1 model



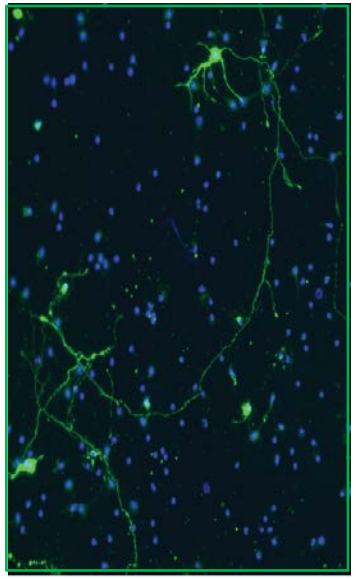
- Survival correlated with improvement in NfL, a biomarker of nerve damage.

Neuroprotection in TDP-43 ALS model

Improved neurite length and branching in mutant TDP43 primary upper motor neurons



Disease – short axon; large growth cones with disintegrating axons



SBT-272 100nM – shift in CSMN morphology and health, very long axons, networking with branch points and arborizations

Stealth BT data on file; showing brain accumulation in Sprague Dawley after 5mg/kg SBT-272 or elamipretide (n=4 per time-point).

Cardiology

Barth <200

Friedreich's ataxia
1:40,000

Duchenne muscular dystrophy
1:3,500 - 5,000

Mitochondria in the healthy heart produce 95% of the approximately 6 kg of adenosine triphosphate (ATP) utilized daily to pump blood through the body.

Mitochondria comprise ~35% of the volume of cardiomyocytes, the primary contractile cells in the myocardium.

Decrements in mitochondrial energy homeostasis trigger numerous responses in gene expression, lead to vicious cycles of damage-mediated signaling, and promote overall remodeling of the heart (dilation, hypertrophy) over time.

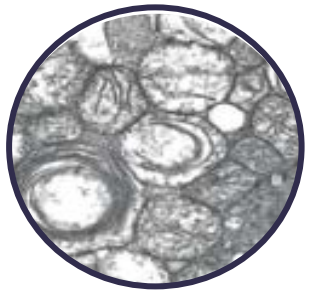
Dudek and Maack, 2016; Martinez et al. 2017; Sabbah, 2020.

All estimates are of US patients affected; BSF Voice of the Patient Report, 2019; Hanson, et.al., World J Cardiol., Jan. 2019; Payne, R.M., Prog. Pediatr. Cardiol., 2011; Giugliano, GR et al., Tex Heart Inst J, 2007; Machiraju et al., Front Cardiovasc Med 2019; Vasan et al., JACC: Cardiovascular Imaging 2018; Sabbah HN. Heart Fail Rev. 2020 Oct 1.

Barth at a glance

Our Barth development initiative was prompted by requests from advocacy (Barth Syndrome Foundation) and KOLs.

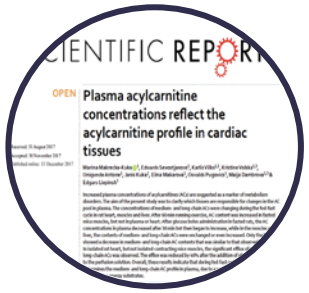
Preclinical models



BTHS derived cardiomyocytes + lymphoblastoid cells; TAZ KD mouse model; lipid bi-layer modeling systems; DCMA fibroblasts

Pu, BSF, 2016; Vernon, ongoing; Mitchell, 2019; Allen, 2019, pub. pend., Machiraju, 2019

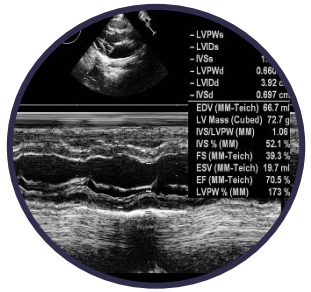
Clinical data



No changes in 6MWT or BTHSA-Total Fatigue during 12-week treatment in *TAZ*POWER Phase 2/3 crossover trial. Responders observed in pre-specified sub-group. Improvements in metabolic biomarkers; trends toward improved cardiac function.

MDA, 2019, UMDF, 2019

Open-label data



Improvement from Phase 2/3 baseline on multiple pre-specified endpoints (cardiac function, 6MWT, BTHSA-Total Fatigue, Muscle Strength, PGI Symptoms) in 8 patients at week 36 of OLE.

MDA, 2019, UMDF 2019

Natural history comparative control

SPIBA-001 observational study established the effectiveness of elamipretide compared to natural history control with statistically significant improvement on 6MWT (p=0.0005) primary endpoint and other secondary endpoints.

Current & next steps

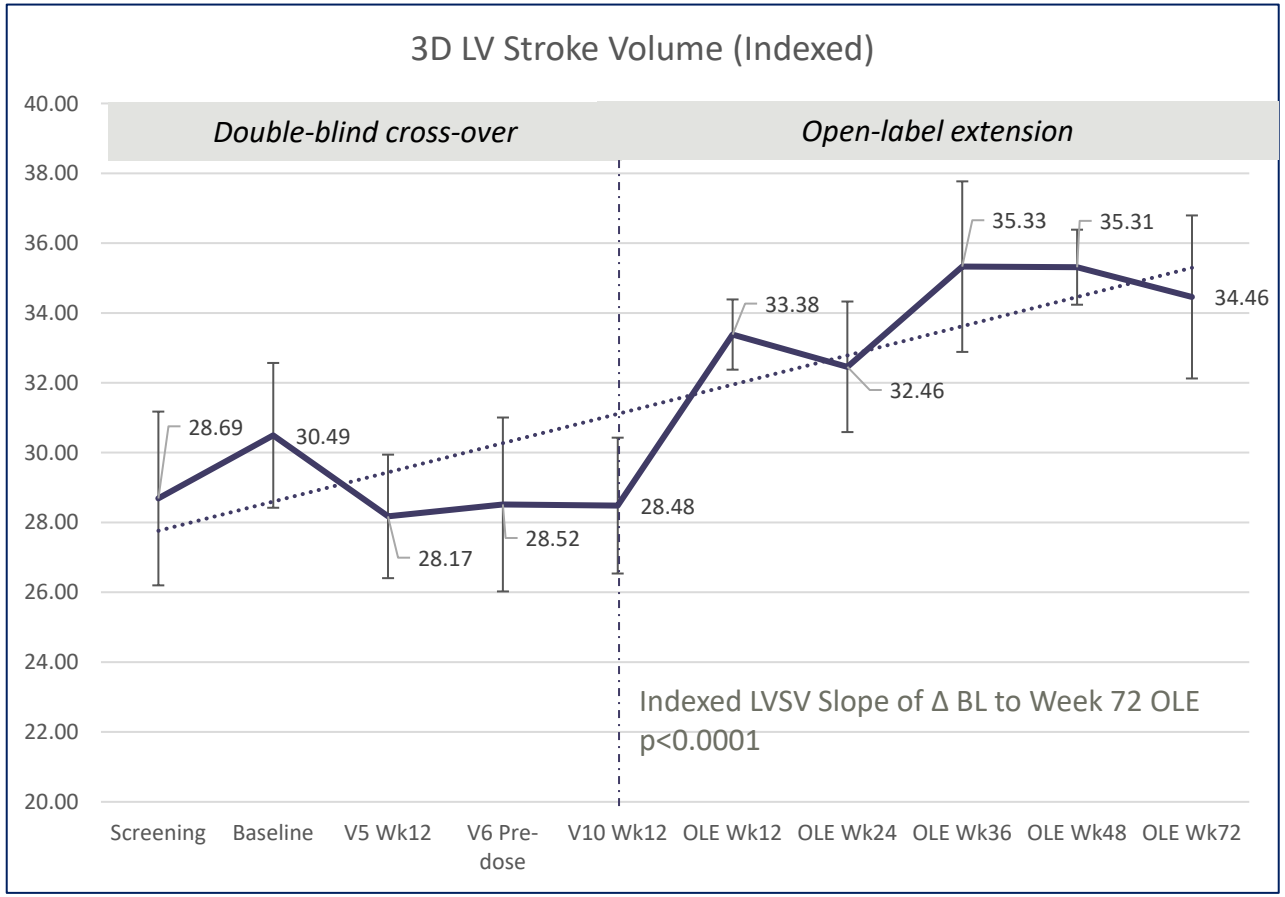
Rare pediatric, orphan drug and fast track designation.

FDA requested additional data to support NDA review, but feasible trial design could not be identified.

NDA submission planned during August 2021, but no assurance FDA will file.

Long term data suggests reversal of disease pathology

- **All TAZPOWER patients** had impaired left ventricular function at baseline, with low left ventricular end diastolic, end systolic, and stroke volume.
- **Stroke volume**, the amount of blood pumped by the heart's left ventricle per contraction, is one of the primary determinants of cardiac output, or the volume of blood pumped by the heart, and an important indicator of how efficiently the heart can meet the body's demand for perfusion to various organs.
- **Correlations between improvements in stroke volume and functional endpoints** (6MWT) strengthening with long-term OLE therapy (OLE Week 72 r=0.52).
- Changes in cardiac function and structure may suggest **durable reversal of disease pathology**.

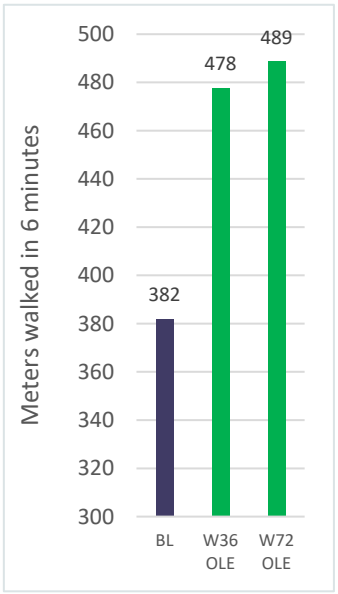


Indexed LVEDV slope of Δ BL to Week 72 OLE p<0.0001
Indexed LVESV slope of Δ BL to Week 72 OLE p=0.0002

Long term efficacy during OLE

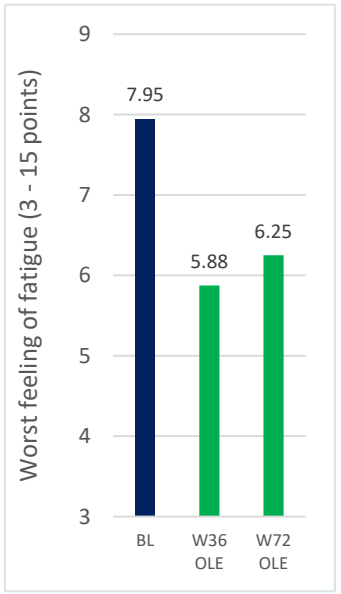
>100-meter improvement in 6MWT, durable >2 years, exceeds reported effects of other drugs in HF trials.[1]

6MWT (n=8)



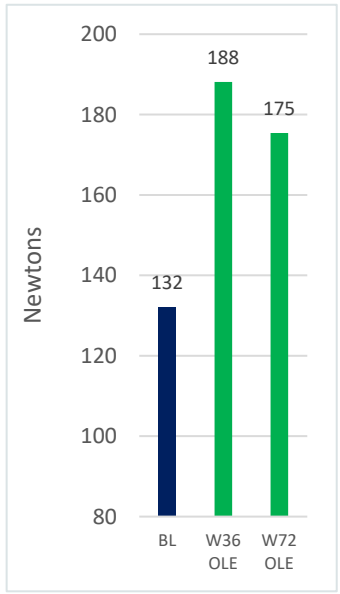
Wk 36 OLE p=0.02
Wk 72 OLE p=0.01

BTHS-SA fatigue (n=8)



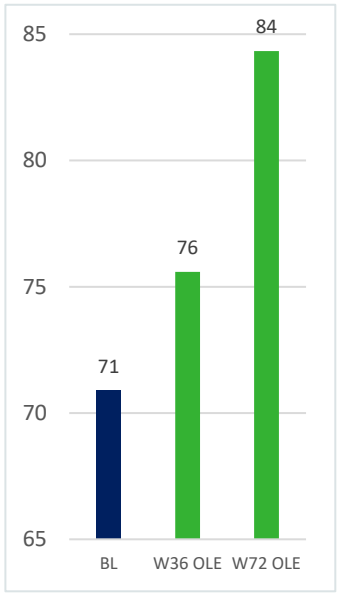
Wk 36 OLE p=0.03
Wk 72 OLE p=0.07

Muscle strength (n=8)



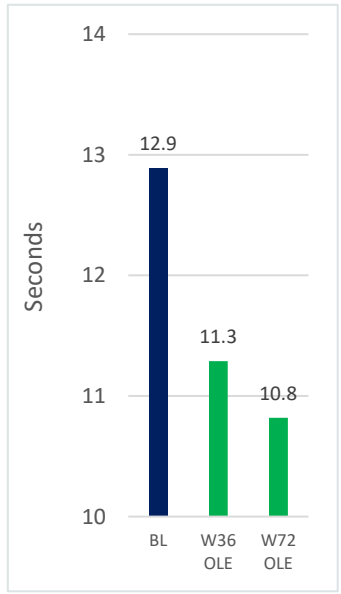
Wk 36 OLE p=0.02
Wk 72 OLE p=0.008

SWAY balance (n=8)



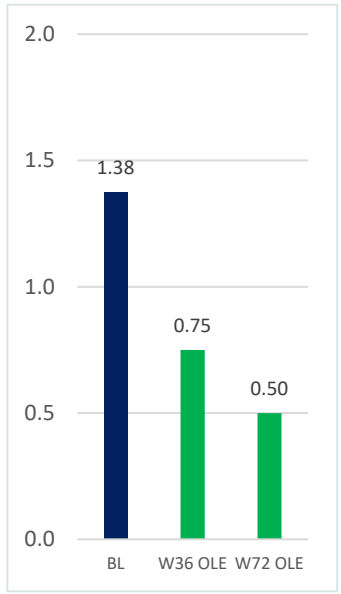
Wk 36 OLE p=0.20
Wk 72 OLE p=0.01

5X SST (n=8)



Wk 36 OLE p=0.22
Wk 72 OLE p=0.10

CGI Symptoms (n=8)



Wk 36 OLE p=0.10
Wk 72 OLE p=0.0006

- **Borg scale:** no observed increase in effort from Part 1 baseline through OLE Week 72, suggesting that improvement was not due to expectational bias.

[1] Olsson, Lars et al., European Heart Journal (2005) 26, 778–793 doi:10.1093/eurheartj/ehi162

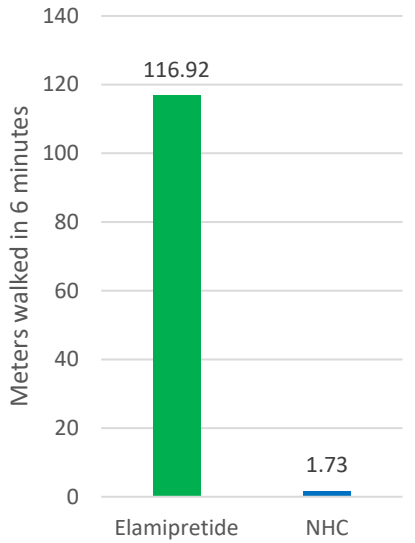
Stealth BIOTHERAPEUTICS

SPIBA-001 Phase 3 met primary endpoint

*TAZ*POWER Week 72 OLE compared to prognostically matched natural history controls (NHC)*

Primary endpoint

6MWT Δ from baseline

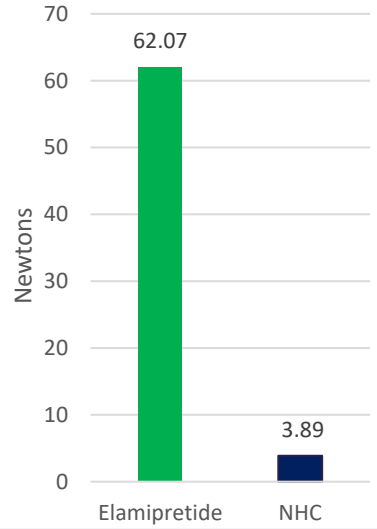


Week 72 OLE: p=0.0003

Week 36 OLE: Elam 80.30, NHC 0.60, p=0.0004
Week 48 OLE: Elam 91.86, NHC 0.89, p=0.0005

Secondary endpoints

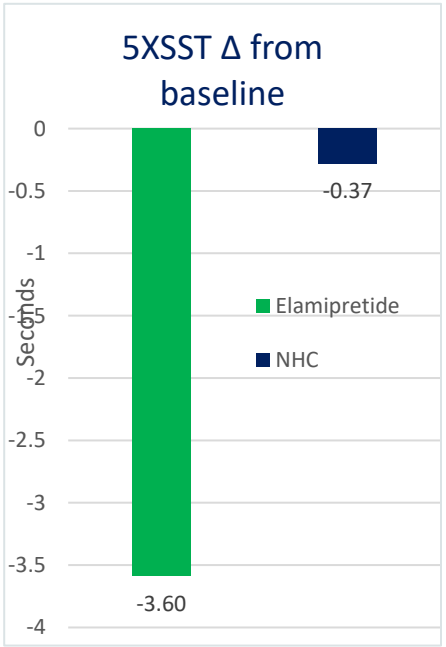
Muscle strength by HHD Δ from baseline



Week 72 OLE: p=0.0002

Week 36 OLE: Elam 41.79, NHC 1.04, p=0.0002
Week 48 OLE: Elam Δ 48.67, NHC Δ 1.97, p=0.0005

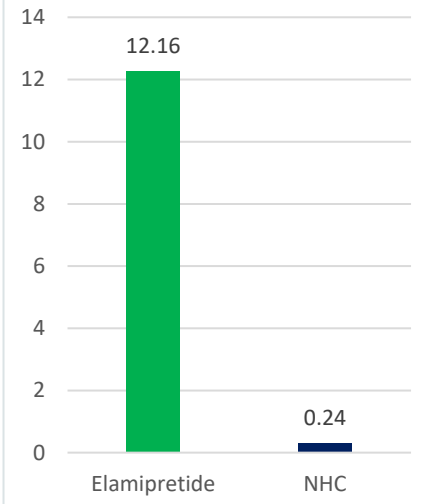
5XSST Δ from baseline



Week 72 OLE: p=0.008

Week 36 OLE: Elam -2.36, NHC -0.002, p=0.042
Week 48 OLE: Elam Δ -2.83, NHC Δ -0.003, p=0.034

SWAY balance Δ from baseline

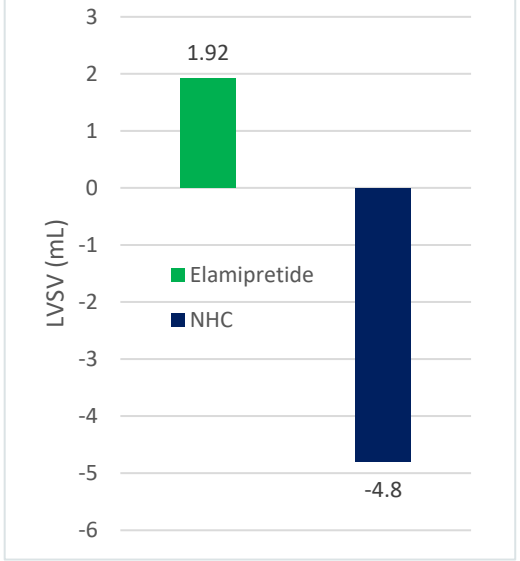


Week 72 OLE: p=0.03

Week 36 OLE: Elam 7.40, NHC 0.86, p=0.13
Week 48 OLE: Elam 8.81, NHC 1.08, p=0.12

Cardiac function

LVSV Δ from BL

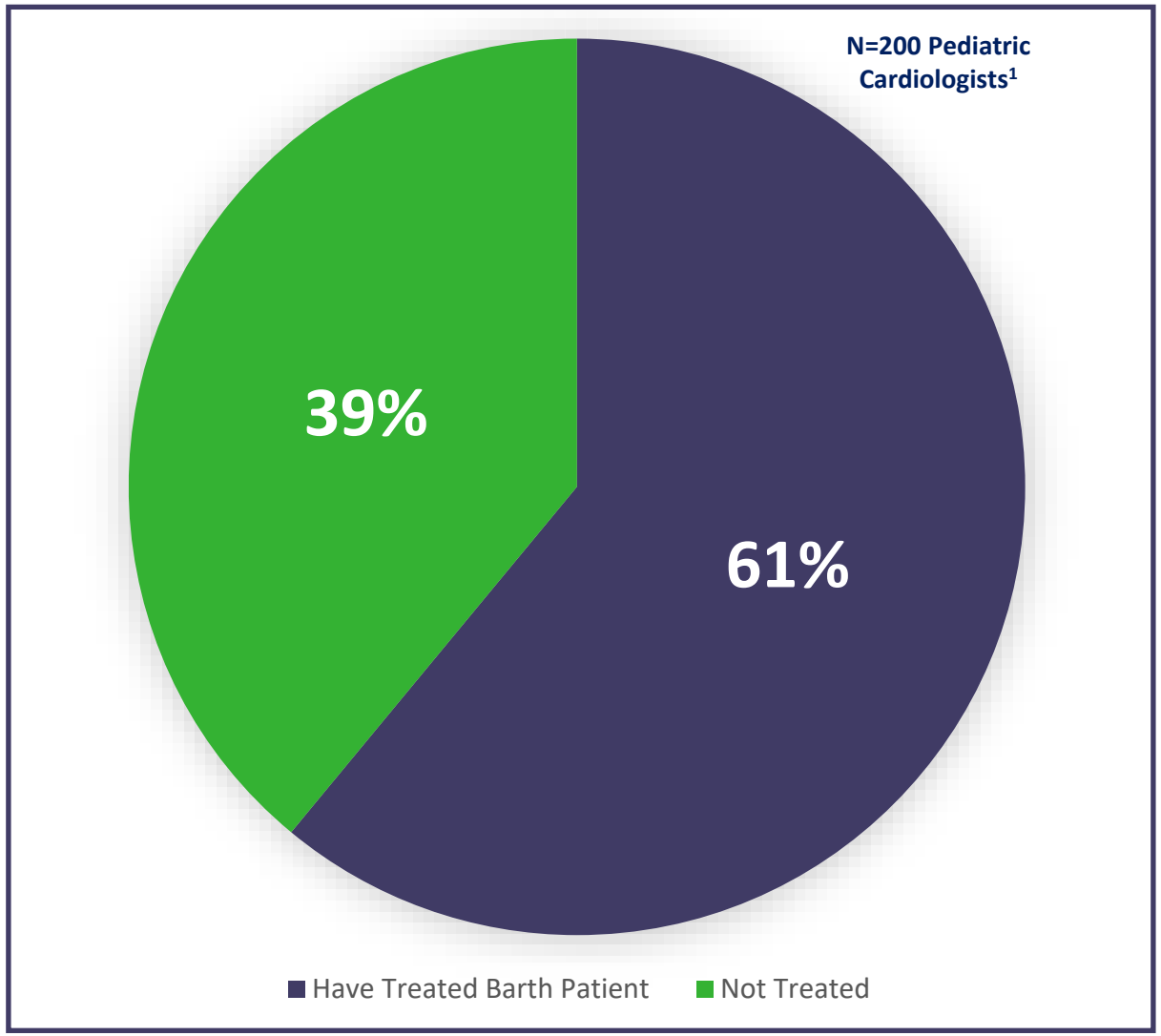


Week 72 OLE: LSM 6.72, p=0.002

*Week 72 analysis conducted post-hoc at FDA request

Thompson WR, et al., *J Cardiac Failure*. October 1, 2020; 26(10);S67. Abstract # 187; Thompson, R., et al, Genet Med. 2020 Oct 20. .

Broadening Awareness of Unmet Need in Barth



[1] Bruno and Ridgway Research Associated, April 2021, Survey of 200 Pediatric Cardiologists

Publications and Presentations Support the Potential of Elamipretide as the First Treatment for Barth

nature genetics

A phase 2/3 randomized clinical trial followed by an open-label extension to evaluate the effectiveness of elamipretide in Barth syndrome, a genetic disorder of mitochondrial cardiolipin metabolism

ASHG American Society of Human Genetics

Elamipretide Significantly Improves Disease Symptomatology versus Natural History Controls in Barth Syndrome

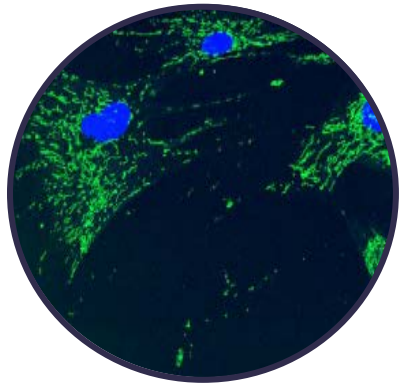
AMERICAN COLLEGE of CARDIOLOGY

Elamipretide Improves Functional Assessments when Compared to the Natural History Progression of Cardiomyopathy-related Disease Symptomology in Patients with Barth Syndrome

Stealth BIOTHERAPEUTICS

Duchenne cardiomyopathy at a glance

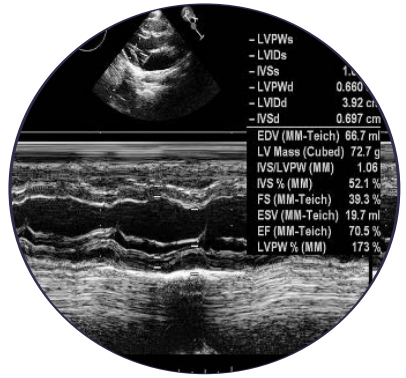
Nonclinical Data



ELAM improves mitochondrial respiration in explanted cardiac tissue from Becker MD patient. SBT-20 (sister compound) improves mitochondrial bioenergetics, ultrastructure, and quality control and reduces fibrosis in DMD mouse.

Stauffer, unpublished, 2020; Hughes, 2019, https://core.ac.uk/download/pdf/240129932.pdf.

Natural history



CINRG Duchenne Natural History Study (DNHS): longitudinal (2005-2016) study of >400 Duchenne patients assessing strength and mobility, heart and lung function, clinical care, behavior, community participation and quality of life.

Clinical plan

Expect to meet with FDA H2 2021 to discuss Phase 2/3 trial design followed by trial initiation.

Our company at a glance

Leading mitochondrial medicine

Orphan diseases:
Barth (clinical), LHON (clinical), FRDA (pending), Duchenne (planning), nPMM (clinical), ALS (preclinical)
Age-related diseases:
dry AMD (clinical), glaucoma (preclinical)

Significant unmet need

Visual impairment:
~1m US AMD + ~10k LHON patients
Orphan neurology
Life-limiting cardiomyopathy:
<200 US Barth patients; potential for Duchenne, Friedreich's ataxia

First in class therapies

Fast track:
Barth, LHON, AMD w/GA
Orphan drug:
Barth, LHON
Rare pediatric designation:
Barth
No US approved therapies

Multi-asset platform

Pipeline-in-a-product
100+ pipeline compounds
Mito targeting platform
>600 patents issued + pending

Experienced team

>10 decades drug development experience
Dedicated to improving the lives of patients