

Building the World's Leading Muscle Disease Company



Jordan, living with DMD

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Life-transforming therapies

for patients with serious muscle diseases



OUR MISSION

Dyne: Building the Leading Muscle Disease Company

Proprietary FORCE Platform



- Modern oligo therapeutics for muscle diseases
- Overcoming challenge of muscle delivery
- Plug-and-play therapeutics for multiple targets in skeletal, cardiac and smooth muscle diseases

Rare Muscle Disease Focus

Delivering for Patients



Exceptional Team



- Robust pipeline: DM1, DMD, and FSHD
 - Set standard for evaluating PD in DM1 disease model
 - Significant exon skipping & dystrophin expression in DMD
 - Significant market opportunities

- Developing multiple first-in-class or bestin-class therapies
- Two clinical-stage programs in DM1 and DMD, advancing FSHD to the clinic
- Clinical data in DM1 and DMD expected in H2 2023

- Deep knowledge of muscle diseases and novel therapeutic modalities
- World-class scientific advisory board
- Supported by leading healthcare investors



Dyne FORCE[™] Platform: Modern Oligo Therapeutics for Muscle Diseases



PAYLOAD

Modularity enables rational selection of payload to target the genetic basis of disease





Nuclear localization Cytoplasmic localization

FORCE Platform Harnesses Cell Biology to Modify Disease



- Harnesses natural mechanism of TfR1 receptormediated delivery to transport therapeutics across the cell membrane
- Achieves endosomal escape without any membrane-destabilizing agents
- Distinctive pharmacokinetic profile creates opportunity for durable target engagement and wide therapeutic index

Rationally Select Payload to Target Genetic Basis of Disease

Subcellular distribution of ASO and siRNA



ASO

Nuclear localization



Cytoplasmic localization





FORCE delivers ASO payload for nuclear targets, siRNA payload for cytoplasmic targets

Exogenous dsRNA **Cell Membrane** Dice complex siRNA Duplex 3..... RISC **Nucleus** Messenger **RNA Cleavage** Cytoplasm

siRNA acts in the cytoplasm

Double-Stranded Antisense (siRNA)

Splice-modulating ASO

ASO acts in the



FORCE Platform Designed to Deliver Significant Advantages

Stop or Reverse Disease Progression

/ Targeted Muscle Delivery

Leverages TfR1 expression on skeletal, cardiac and smooth muscle

Targets Genetic Basis of Disease

Rationally select payloads to match target biology

Redosable Administration

Potential for individualized patient titration and longer-term efficacy

Enhanced Tolerability

Targeted delivery limits systemic drug exposure

Extended Durability

Potential for prolonged disease-modifying effects, enabling less frequent dosing

Reduced Development and Manufacturing Costs

A single Fab and linker utilized across all programs



FORCE's Targeted Delivery Brings the Power of Modern Oligo Therapeutics to Patients Living with Serious Muscle Diseases



Ratio of DYNE-251/Naked ASO

FORCE Platform Delivered Comprehensive & Validating Data Across Three Programs – Poised to Execute in the Clinic

DMD	DM1	FSHD
In vitro:	<i>In vitro:</i> <i>DMPK</i> KD, reduction in nuclear foci, splicing correction	In vitro: Reduced expression of key DUX4 biomarkers
V In vivo:	V In vivo:	V In vivo:
Robust, durable exon skipping and dystrophin expression in	Correction of splicing & reversal of myotonia in HSA ^{LR} model	Enhanced tissue distribution in NHP
Transformative exon skipping in NHP cardiac and skeletal muscles	Robust knockdown of toxic nuclear <i>DMPK</i> in hTfR1/DMSXL model, foci reduction & correction of splicing	
NHP GLP tox results support favorable safety profile	NHP GLP tox results support favorable safety profile	

Robust Portfolio Focused on Muscle Diseases



Pipeline Expansion Opportunities

Rare Skeletal

Cardiac

Metabolic

Driving Toward Meaningful Clinical Data in DM1 & DMD in H2 2023





Global, Randomized Placebo-Controlled Trials Designed to Be Registrational Dosing Patients at Predicted Pharmacologically Active Doses Significant Unmet Patient Need Provides Confidence in Ability to Enroll Rapidly

Safety, Tolerability & Splicing Data Expected in H2 2023 Safety, Tolerability & Dystrophin Data Expected in H2 2023

Cash Runway Expected Through 2024



Experienced, Successful Team Committed to Our Shared Vision



Joshua Brumm President & CEO

 Kaleido
 PROTEOLIX

 Opharmacyclics
 ZELTIQ



Jonathan McNeill SVP, Business Development





Luebirdbio Alnylam



Debra Feldman SVP, Head of Regulatory Affairs





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SANOFI GENZYME 🌍



Ashish Dugar Chief Medical Affairs Officer





John Najim Chief Technical Officer

PROTEON



Amy Reilly SVP, Head of Corporate Communications & IR





Jason Rhodes Chairman, Founder

SATLAS VENTURE



Rare Disease Drug Development Manufacture & Commercialization of Novel Therapeutics



Developing Transformative Therapies for People Living with DM1



Overview

- Mutation in the DMPK gene
- Onset at any point, depending on DM1 phenotype
- Life expectancy of 45 60 years

Clinical Presentation

- Myotonia
- Muscle weakness
- Cardiac arrhythmia
- Pulmonary abnormalities



- >40,000 (US)
- >74,000 (Europe)

OUR APPROACH

Disease-Modifying Nuclear DMPK Knockdown

Targeting toxic gain of function *DMPK* RNA to potentially **stop or reverse** disease progression

NO approved therapies



FORCE Targets the Genetic Basis of DM1 to Correct Splicing



FORCE Targets Toxic Nuclear DMPK RNA





Robust Preclinical Data Supporting the Potential of DYNE-101 to Drive Disease Modification in the Clinic



DYNE-101 Demonstrated Robust Dose-Dependent DMPK KD, Foci **Reduction, and Splicing Correction**



380 CTG Repeats DM1 Myotubes

DMPK foci reduction by FISH



BIN1 mis-splicing correction by qPCR



1.3-ທ 1.0 ຍິດ ۷S. 0.8 DMPK 0.5-

PBS

0.3-

0.0

DMPK mRNA KD by qPCR



DYNE-101

150nM ASO



2,600 CTG Repeats DM1 Myotubes

DMPK foci reduction by FISH

Nucleus PBS **DYNE-101**

BIN1 mis-splicing correction by qPCR



Note: Data are mean \pm SD, n=4. Foci reduction based on foci area corrected for nuclear area.

FORCE Dose-Dependently Corrected Splicing and Reversed Myotonia in the HSA^{LR} DM1 Mouse Model



Splicing Correction in Multiple Muscles



Near Complete Myotonia Reversal Within 14 Days After a Single Low Dose





Note: HSA^{LR} mice, single dose 14-day study. Overall splicing derangement indexed to WT level of 0.00. EMG myotonic discharges were graded by a blinded examiner on a 4-point scale: 0, no myotonia; 1, occasional myotonic discharge in less than 50% of needle insertions; 2, myotonic discharge in greater than 50% of needle insertions; 3, myotonic discharge with nearly every insertion.

Robust Nuclear Knockdown by FORCE Drives Dose-Dependent Splicing Correction Across Full Panel of Genes in HSA^{LR} DM1 Mouse Model



hTfR1/DMSXL: Innovative Model Developed by Dyne to Evaluate PD By Measuring Toxic Human Nuclear *DMPK* KD





- Expresses human TfR1 receptor, enabling use of human TfR1-targeting Fab
- Underestimates potency, expressing >10 times less human toxic DMPK vs. mouse DMPK

Note: hTfR1/DMSXL homozygous model. 2 x 10 mg/kg on d0 and d7, analyzed d28. Composite splicing index includes changes in Ldb3 exon (E) 11, Mbnl2 E6, and Nfix E7. Data are mean \pm SD, n = 6 - 7.; * p < 0.05; **** p < 0.0001.

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DYNE-101 Demonstrated Toxic DMPK KD, Foci Reduction and Splicing Correction in Heart of hTfR1/DMSXL Homozygous Model

Toxic Human DMPK RNA KD

Toxic Human DMPK Foci Reduction

DMPK Foci Nuclei Myofibers

PBS

DYNE-101 reduces foci area by 49%*



DYNE-101

Splicing Correction





DYNE-101 Demonstrated Toxic *DMPK* KD and Splicing Correction in Muscle of hTfR1/DMSXL Homozygous Model



Note: hTfR1/DMSXL homozygous model. 2 x 10 mg/kg on d0 and d7, analyzed d28. Composite splicing indices include *Bin1* E11, *Insr* E11, *Ldb3* E11, *Mbnl2* E6, *Nfix* E7, and *Ttn* E313 mis-splicing measured by qRT-PCR. Data are means ± SD; n = 4–7; **** p < 0.0001 by *t*-test.

DYNE-101 Achieved DMPK Knockdown & Well Tolerated in NHPs



Robust WT DMPK KD Achieved in Skeletal, Cardiac and Smooth Muscles

• Up to 70% *DMPK* KD at 2 months with low monthly dosing

13-Week GLP Toxicology Study¹

- No dose limiting toxicity observed up to a maximally feasible dose²
- No changes in cardiac, respiratory, neurologic or ophthalmic endpoints
- No effect on kidney function
- No effect on liver function
- No effect on coagulation
- NOAEL was identified at the highest dose tested



ACHIEVE Trial Informed by Input from Multiple Stakeholders

Global, Multi-disciplinary KOL and Regulatory Input

Overall design for the MAD portion in patients ages 18 to 49

Splicing, myotonia, measures of strength & function, key safety considerations

Natural history data to contextualize clinical trial data for patients and families, clinicians, payers, regulators

Global Advocacy Leaders, Patient and Caregiver Input



Considerations for trial selection

Clinical trial protocol and visit schedule

Minimizing patient burden during trial conduct

Ensuring support and education to patients and families



Phase 1/2 Clinical Trial to Evaluate DYNE-101 in Patients with DM1



Safety and tolerability

Population

- Adult patients living with DM1
- Ages 18 to 49 years
- ~72 adult participants

Initial Safety, Tolerability & Splicing Data Expected in H2 2023

Primary Endpoints Key Secondary Endpoints

- Pharmacokinetics
- Change from baseline of:
 - Splicing
 - *DMPK* RNA expression
 - Multiple assessments of muscle strength and function

Stages of ACHIEVE

- Multiple Ascending Dose (MAD): 24 weeks
- Open-Label Extension (OLE): 24 weeks
- Long-Term Extension (LTE): 96 weeks





Global, Randomized, Placebo-Controlled Stage Evaluating Once Monthly or Less Frequent Administration of DYNE-101 in ~72 Adult Patients Living with DM1



MAD Study Details

- IV administration of DYNE-101 or placebo every 4 weeks or every 8 weeks
- Muscle biopsies: Baseline, 12 weeks, 24 weeks
- Patients in MAD study escalated to highest tolerable dose in OLE and LTE

Global Strategy & Adaptive Trial Design Enable Rapid Achievement of Potentially Registrational Clinical Data



DM1 Program Summary

Validating Data

- **Targeted** toxic *DMPK* in the nucleus in patient cells
- Robust and durable toxic human DMPK KD in novel hTfR1/DMSXL model
- Reduced nuclear foci in vitro & in vivo
 - **Corrected splicing** changes *in vitro* & *in vivo*
 - **Reversed myotonia** in HSA^{LR} model
- Delivered DMPK targeting ASO to mouse and NHP muscle tissues
- Favorable safety profile in NHP GLP tox study

Potential Advantages

- Tractable development with rapid path to human PoC
- Efficient commercial model, addressable with focused sales force

Initial Safety, Tolerability & Splicing Data Expected in H2 2023



Building a Global DMD Franchise of Transformative Therapies



Overview

- Mutation in the *DMD* gene that encodes for dystrophin
- Onset in first few years of life
- Life expectancy ~30 years

Clinical Presentation

- Muscle weakness
- Progressive loss of function
- Loss of ambulation
- Respiratory/cardiac failure



- ~12,000 15,000 (US)
- ~ 25,000 (Europe)

OUR APPROACH

Best-in-class Targeted Exon Skipping

Increase dystrophin expression and enable less frequent dosing to potentially stop or reverse disease progression

Current Approved Exon 51 Therapies Only Increased Dystrophin Production <1%

Targeting the Genetic Basis of DMD with a Proven Mechanism



Optimized with FORCE Platform

FORCE Achieved Robust and Durable Dystrophin Expression and Sarcolemma Localization in Muscle





Y Dyne

Note: Single IV 30 mg/kg dose of FORCE-M23D in mdx mouse model on day 0; analysis on week 4 for all muscles. N= 3 - 5 per cohort.

FORCE Achieved Durable Dystrophin Localization to Sarcolemma in Quadriceps





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FORCE's Distinctive Pharmacokinetic Profile Delivered Substantial and Durable Dystrophin Expression with a Single Dose



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DYNE-251 Demonstrated Robust Exon Skipping & Favorable Safety Profile in NHPs



High Level of Exon 51 Skipping Achieved in Key Muscles at 2 Months¹

43% in heart

52% in diaphragm

18% in quadriceps

GLP Toxicology Studies: 5-Week & 13-Week²

- No dose limiting toxicity observed up to a maximally feasible dose
- No changes in cardiac, respiratory, neurologic or ophthalmic endpoints
- No effect on kidney function
- No effect on liver function
- No effect on coagulation
- NOAEL was identified at the highest dose tested



DELIVER Trial Informed by Input from Multiple Stakeholders

Global, Multi-disciplinary KOL and Regulatory Input

- Overall design for the MAD portion in patients with DMD amenable to exon 51 skipping
- Patient population, biomarker and functional endpoints, and key safety considerations
- V
- Natural history data to contextualize clinical trial data for patients and families, clinicians, payers, regulators

Global Advocacy Leaders, Patient and Caregiver Input



Considerations for trial selection

Clinical trial protocol and visit schedule

Minimizing patient burden during trial conduct

Ensuring support and education to patients and families



Phase 1/2 Clinical Trial to Evaluate DYNE-251 in Patients with DMD

ELIVER

Population

- Patients with DMD with mutations amenable to exon 51 skipping therapy
- Ages 4 to 16 years
- ~48 male participants
- Ambulant and nonambulant

Primary Endpoints

- Safety and tolerability
- Change from baseline in dystrophin protein levels by Western Blot

Key Secondary Endpoints

- Pharmacokinetics
- Change from baseline of:
 - Exon 51 skipping levels
 - Muscle tissue PDPF
 - Multiple assessments of muscle function, including NSAA score and certain timed functional tests

Stages of DELIVER

- Multiple Ascending Dose (MAD): 24 weeks
- Open-Label Extension (OLE): 24 weeks
- Long-Term Extension (LTE): 96 weeks

Initial Safety, Tolerability & Dystrophin Data Expected in H2 2023

ELIVER

Global, Randomized, Placebo-Controlled Stage Evaluating Once Monthly Administration of DYNE-251 in ~48 Ambulant and Non-Ambulant Male DMD Patients with Mutations Amenable to Exon 51 Skipping Therapy



MAD Study Details

- IV administration of DYNE-251 or placebo every 4 weeks
- Muscle biopsies: Baseline and 24 weeks in 2.8 mg/kg and higher cohorts
- Patients in MAD study escalated to highest tolerable dose in OLE and LTE

Global Trial Designed to be Registrational and Enable Rapid Achievement of Predicted Pharmacologically Active Dose Levels



Patient cohorts will be dosed from 0.7 mg/kg to 40 mg/kg in the U.S. Outside the U.S., patient cohorts will be dosed from 5 mg/kg to 40 mg/kg. Doses provided refer to PMO component of DYNE-251. * Muscle biopsies taken at baseline and 24 weeks in 2.8 mg/kg and higher cohorts; biopsies not taken in 0.7 mg/kg and 1.4 mg/kg cohorts.

Dyne is Committed to Developing Global DMD Franchise

Approximately 80% of patients

have genotypes amenable to exon skipping







DMD Program Summary

Validating Data

mdx Model

(

Achieved robust and durable exon skipping in skeletal and cardiac muscle



Dose-dependently increased dystrophin expression up to 90% of WT based on western blot and ~80% dystrophin-positive fibers

Reduced serum CK levels



Demonstrated functional benefit in multiple standardized assessments

DYNE-251







Favorable safety profile in NHP GLP tox studies

Potential Advantages

- Established clinical and regulatory path
- FDA granted Fast Track designation for DYNE-251
- Opportunity to accelerate DMD franchise expansion (exon 53, exon 45, exon 44) to reach additional patient populations

Safety, Tolerability & Dystrophin Data Expected in H2 2023

FSHD Program



- Aberrant expression of DUX4
- Onset in teen years or young adulthood
- Normal life expectancy

Clinical Presentation

- Progressive wasting and skeletal muscle loss
- Significant physical limitations

Population

- ~16,000 38,000 (US)
- ~35,000 (Europe)

OUR APPROACH

Disease-Modifying DUX4 Knockdown

Targeting toxic *DUX4* mRNA expression to potentially **stop or reverse disease progression**

NO approved therapies



FORCE Targets the Genetic Basis of FSHD





DYNE-301 Highly Potent and Suppressed Expression of Key DUX4 Biomarkers in FSHD Patient Myotubes



FSHD patient cells were treated with either 8 nM of naked FM10 PMO or FORCE-FM10 (DYNE-301)

DUX4 Transcriptome Marker	IC ₅₀
MBD3L2	0.2 nM
TRIM43	0.05 nM
ZSCAN4	0.2 nM



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Validating Data

- **Reduced** toxic gain-of-function *DUX4* mRNA
- Superior suppression of DUX4 biomarkers observed over naked ASO
- **Enhanced** muscle distribution



Translatability to primates expected; based on platform data in multiple NHP studies

Potential Advantages

- **Exclusive license** to potent *DUX4* targeting payloads
- Tractable development with rapid path to human PoC





Building the World's Leading Muscle Disease Company



Win in DM1, DMD, FSHD





Dynamo Culture

Own Muscle Delivery & Leverage FORCE