Intellia THERAPEUTICS

Q1 2019 Earnings

May 2, 2019

Intellia Therapeutics' Legal Disclaimer

This presentation contains "forward-looking statements" of Intellia Therapeutics, Inc. ("Intellia") within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements include, but are not limited to, express or implied statements regarding Intellia's ability to advance and expand the CRISPR/Cas9 technology to develop human therapeutic products, as well as our CRISPR/Cas9 intellectual property portfolio; our ability to achieve stable or effective genome editing; our ability to effectively administer one dose or multiple doses of our CRISPR/Cas9 product candidates; the potential timing and advancement of our preclinical studies, including continuing non-human primate studies for our Transthyretin Amyloidosis ("ATTR") program and other studies for our other programs (such as, alpha-1 antitrypsin deficiency ("AATD")), and human clinical trials; the timing and potential achievement of milestones to advance our pipeline including initiation of investigational new drug ("IND")-enabling studies and filing INDs; our ability to replicate results achieved in our preclinical studies, including those in our ATTR, AATD, primary hyperoxaluria type 1 ("PH1") and Wilms' Tumor 1 ("WT1")/acute myeloid leukemia programs, as well as central nervous system-related efforts, in any future studies, including human clinical trials; our ability to generate data and replicate results relating to enhancements to our proprietary lipid nanoparticle ("LNP") technology, including its formulation and components, in preclinical or clinical studies, or that any enhancements will result in an improved product candidate profile; the potential development of our proprietary LNP- adeno-associated virus ("AAV") hybrid delivery system to advance our complex genome editing capabilities; the potential development of other *in vivo* or *ex vivo* cell therapeutics of all types, and those targeting WT1 in particular, using CRISPR/Cas9 technology; our ability to conduct successful IND-enabling studies of a lead ATTR development candidate and subsequently submitting an IND application that will be accepted by the regulatory agencies; our intent to generate and present additional data for organs beyond the liver, additional insertion/repair data, and preclinical data in support of our first *ex vivo* programs on immuno-oncology during 2019 or thereafter; the intellectual property position and strategy of Intellia's licensors or other parties from which it derives rights, as well as third-parties and competitors; actions by government agencies; our growth as a company and the anticipated contribution of the members of our board of directors and our executives to our operations and progress; the impact of our collaborations on our research and development programs; the potential timing of regulatory filings regarding our development programs; the potential commercialization opportunities, including value and market, for our product candidates; our expectations regarding our uses of capital, expenses, future accumulated deficit and other 2019 financial results; and our ability to fund operations into 2021.

Any forward-looking statements in this presentation are based on management's current expectations and beliefs of future events, and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in or implied by such forward-looking statements. These risks and uncertainties include, but are not limited to: uncertainties related to the initiation and conduct of studies and other development requirements for our product candidates; the risk that any one or more of Intellia's product candidates will not be successfully developed and commercialized; the risk that the results of preclinical studies will not be predictive of future results in connection with future studies; and the risk that Intellia's collaborations with Novartis or Regeneron or its other *ex vivo* collaborations will not continue or will not be successful; and risks related to Intellia's ability to protect and maintain our intellectual property position; risks related to the ability of our licensors to protect and maintain their intellectual property position. For a discussion of these and other risks and uncertainties, and other important factors, any of which could cause Intellia's actual results to differ from those contained in the forward-looking statements, see the section entitled "Risk Factors" in Intellia's most recent annual report on Form 10-K and quarterly reports on Form 10-Q filed with the Securities and Exchange Commission, as well as discussions of potential risks, uncertainties, and other important factors in Intellia's other filings with the Securities and Exchange Commission. All information in this presentation is as of the date of the release, and Intellia Therapeutics undertakes no duty to update this information unless required by law.

Intellia Conference Call Participants

Introduction

Lina Li, Senior Manager, Investor Relations

Company update

John Leonard, M.D., President and Chief Executive Officer

Financial results

Glenn Goddard, Executive Vice President, Chief Financial Officer

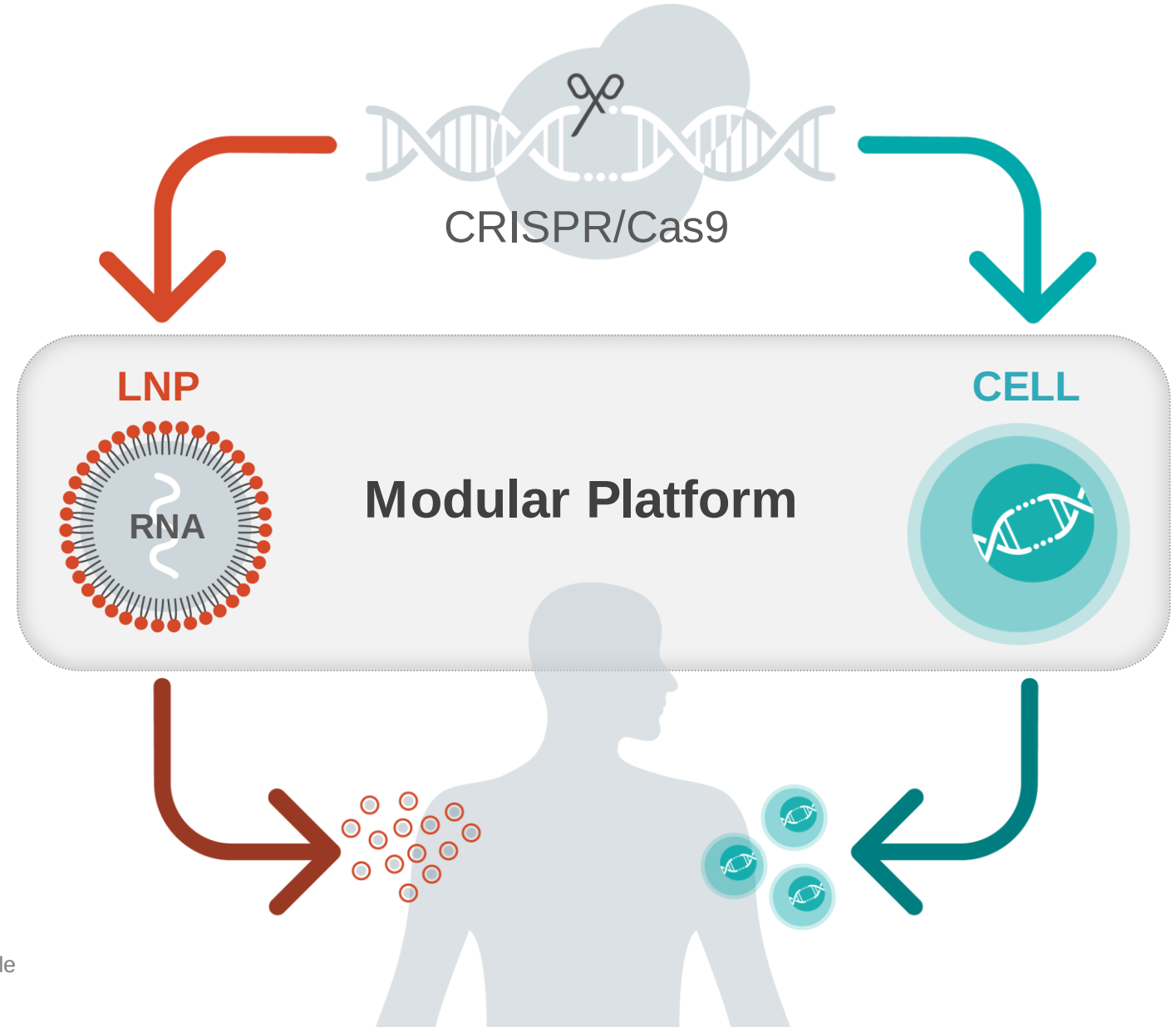
Q&A

Building a Full-Spectrum Genome Editing Company

in vivo

CRISPR is the therapy

Genetic diseases



ex vivo

CRISPR creates the therapy

Immuno-oncology

Autoimmune diseases

LNP: Lipid Nanoparticle

Transthyretin Amyloidosis (ATTR)

Caused by accumulation of misfolded transthyretin (TTR) protein, which affects ***nerves, heart, kidneys and eyes***

First Liver Knockout Program Advancing Toward the Clinic

50,000
hATTR patients worldwide[1]

2-15 yrs
Typical life expectancy from onset of symptoms[1]

Only chronic treatment options currently available

ATTR Program Achievements

- First to show dose-dependent CRISPR/Cas9 editing in NHP
- Achieved incremental editing in NHP through repeat dosing
- Achieved therapeutically relevant reduction of serum TTR protein in NHP in a single dose

[1]Ann Med. 2015; 47(8): 625–638.
NHP: Non-Human Primate

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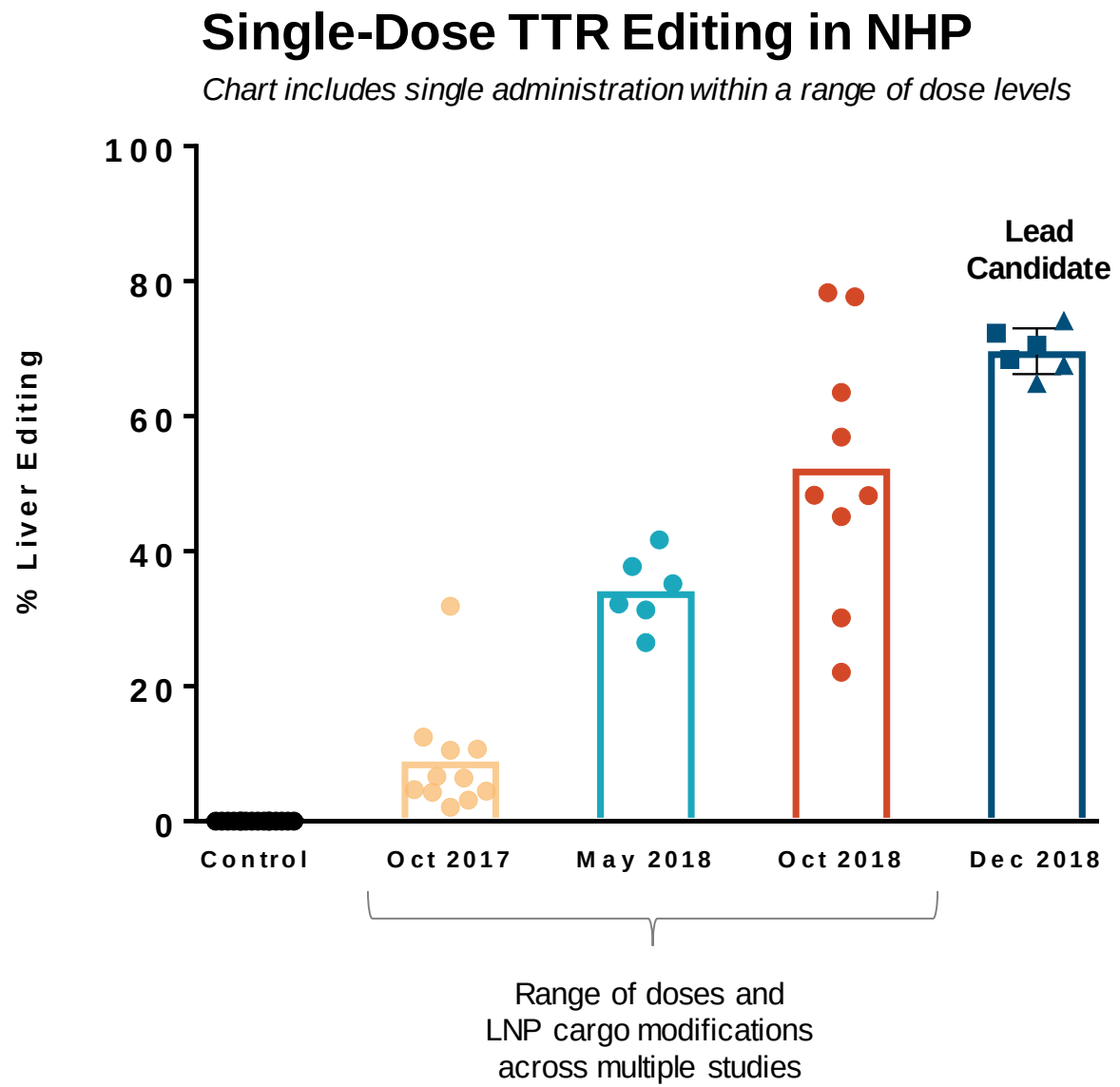
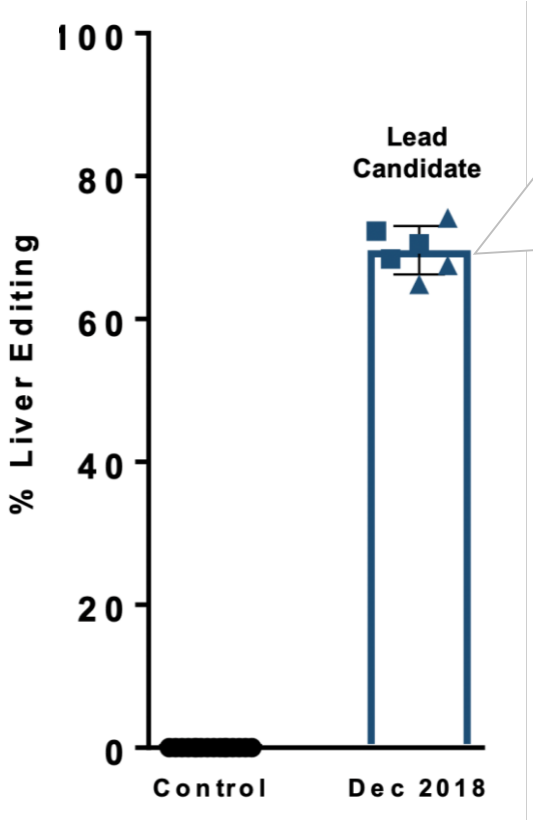
ATTR: Improved CRISPR/Cas9 LNP Leads to Rapid Progress in Liver Editing



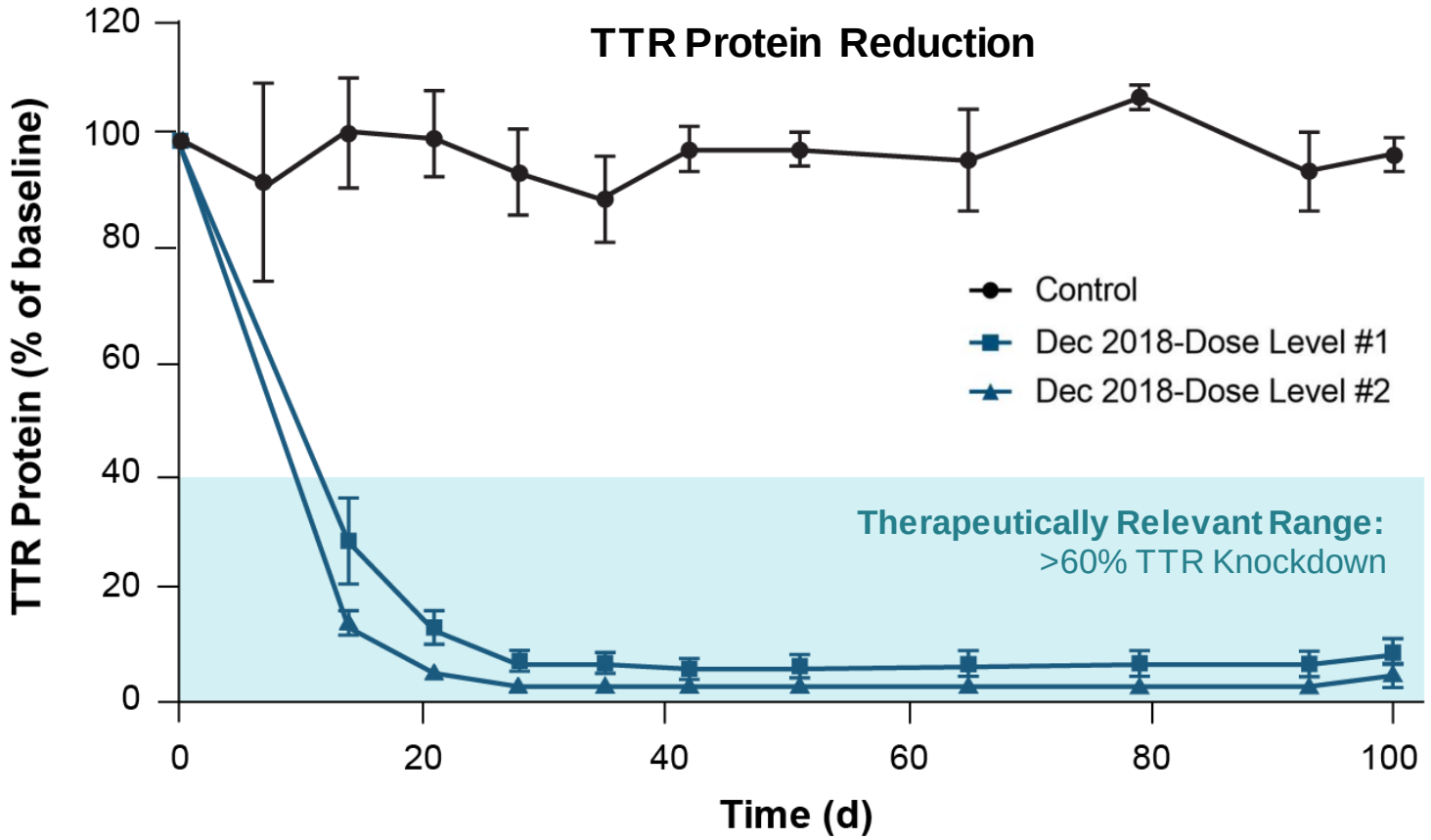
Achieved Sustained Protein Reduction in NHPs After a Single Dose for ATTR

Single-Dose TTR Editing

Chart includes single administration within a range of dose levels



>95% Reduction in Circulating Levels of TTR



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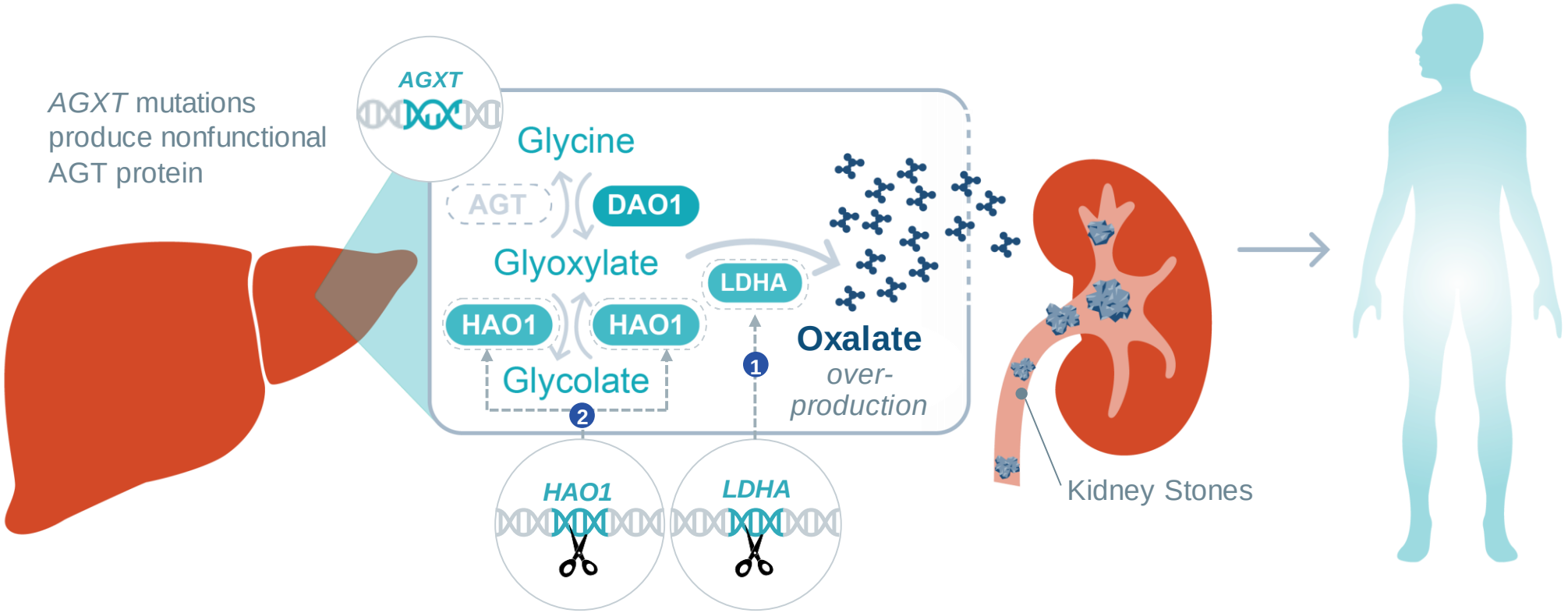
ATTR: Advancing NTLA-2001 Toward the Clinic

Next Steps

- Initiate IND-enabling toxicology studies in mid-2019
- Commence manufacturing of NTLA-2001 Phase 1 materials in 2019
- Submit IND application in 2020

IND: Investigational New Drug

In People with Primary Hyperoxaluria (PH1), the Production of Surplus Oxalate Combines with Calcium to Form Insoluble Deposits



Potential to treat PH1 with either:

1. CRISPR/Cas9-mediated knockout of ***LDHA**** or
2. CRISPR/Cas9-mediated knockout of ***HAO1****

* Gene symbols for humans, non-human primates and other domestic species are italicized and all in upper-case. Gene symbols for mice and rats are italicized, with only the first letter in upper-case.

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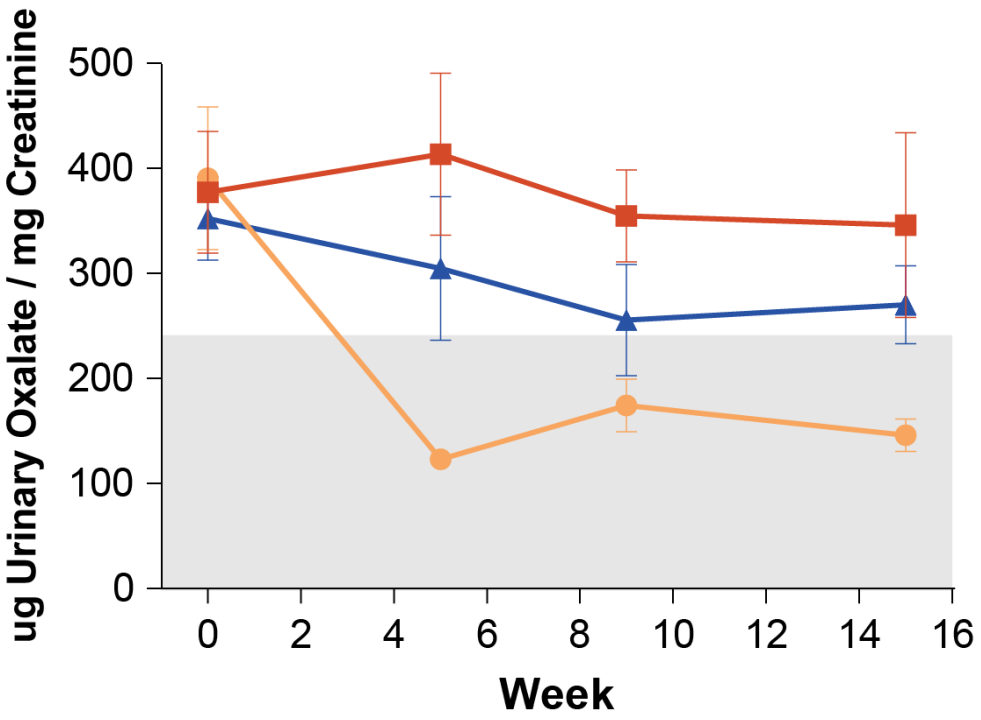
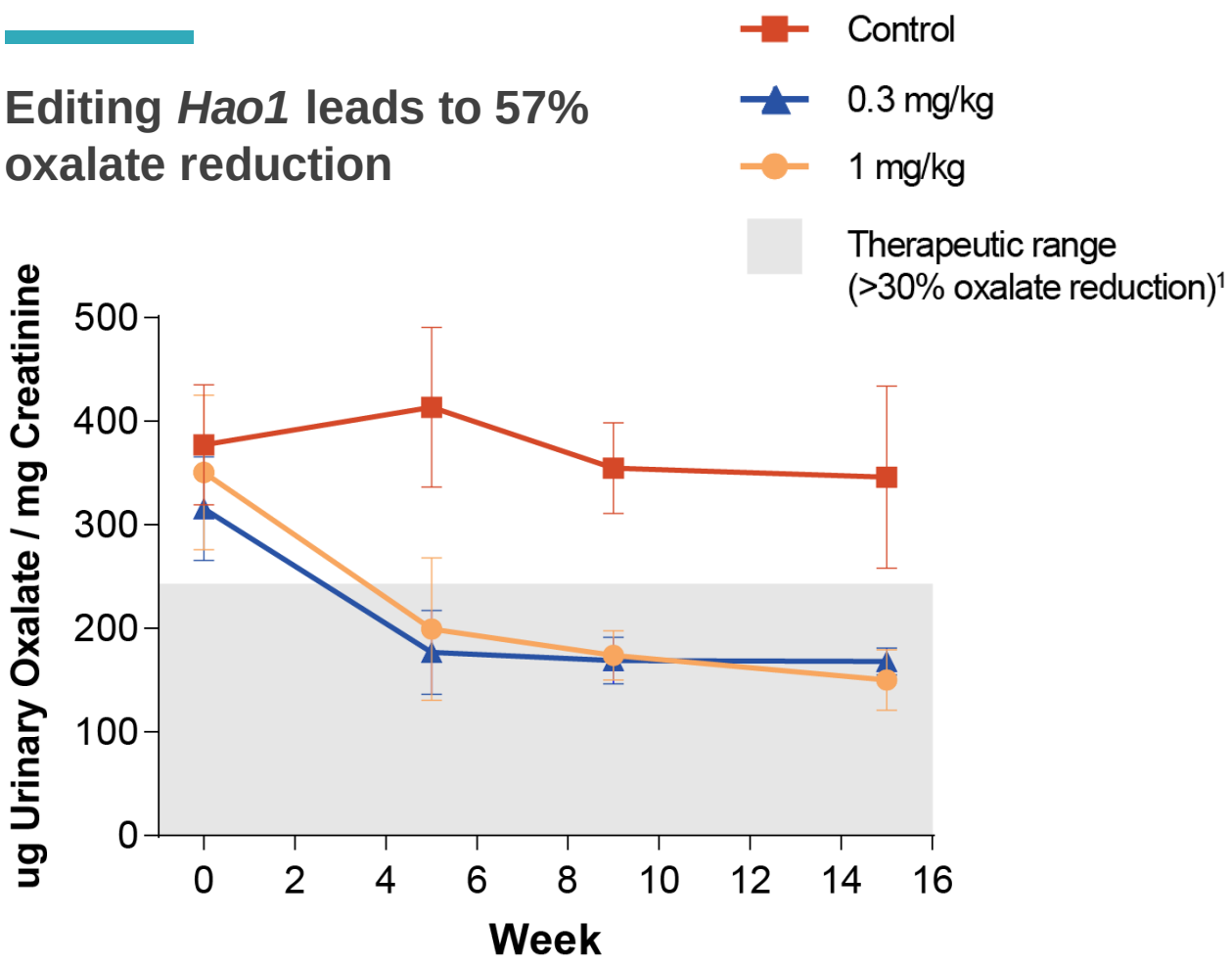
Knockout of Either *Ldha* or *Hao1* Results in Sustained Oxalate Reduction, Following Single Dose in PH1 Mouse Model

Editing *Ldha* leads to 63% oxalate reduction



Editing *Hao1* leads to 57% oxalate reduction

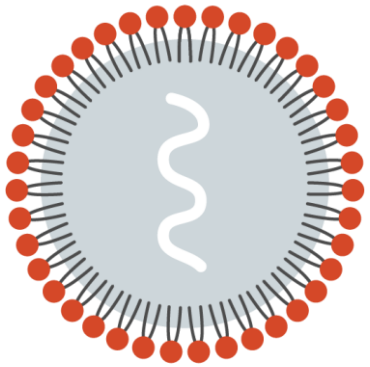


[1]Nephrology Dialysis Transplantation 1999; 14:2556-2558.

CRISPR Delivery with LNPs and AAV as Template is an Effective Modular Approach for Targeted, Stable DNA Insertion for Range of Genetic Diseases

Lipid nanoparticles (LNPs)

Transient Cas9 delivery



+

Adeno-associated virus (AAV)

Effective template delivery system

=

Targeted, stable gene insertion

Cas9 mRNA

gRNA

Bi-directional insertion template

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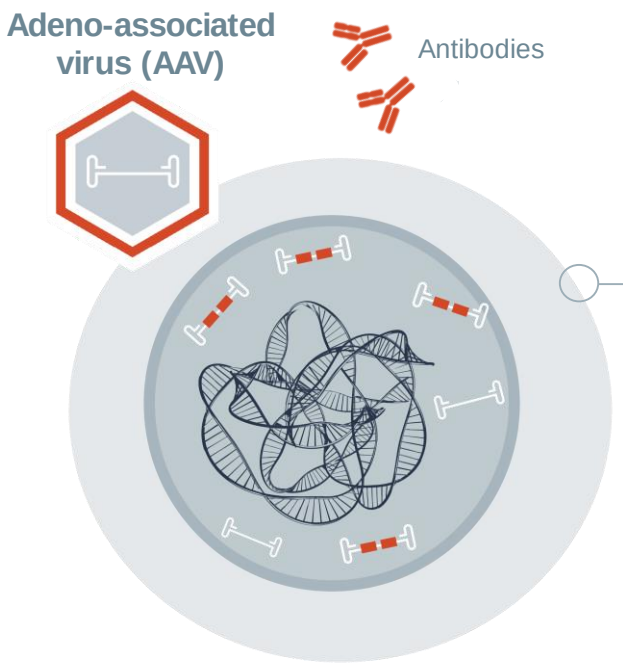
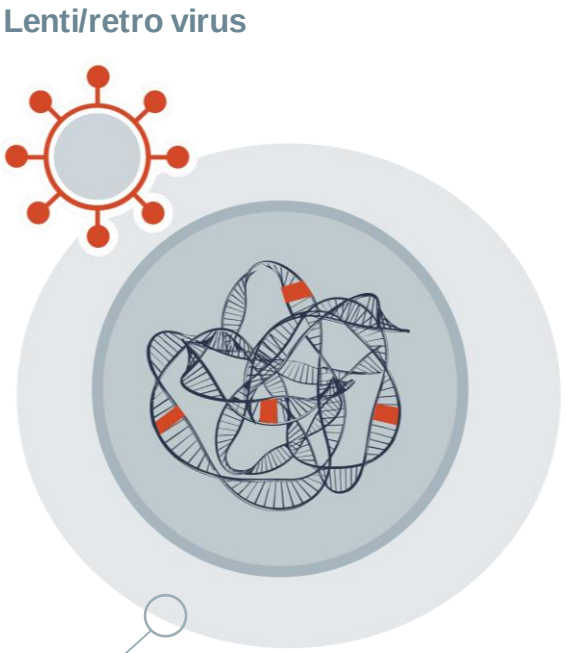
Precise Gene Insertion Has the Potential to Overcome Limitations of Traditional Gene Therapy



AAV generally does not integrate into the genome; **expression is transient in dividing cells**

AAV exposure generates antibodies; **prevents potential re-dosing of same patient to maintain durability of effect**



Lenti/retro viral vectors integrate randomly; **risk of insertional mutagenesis**

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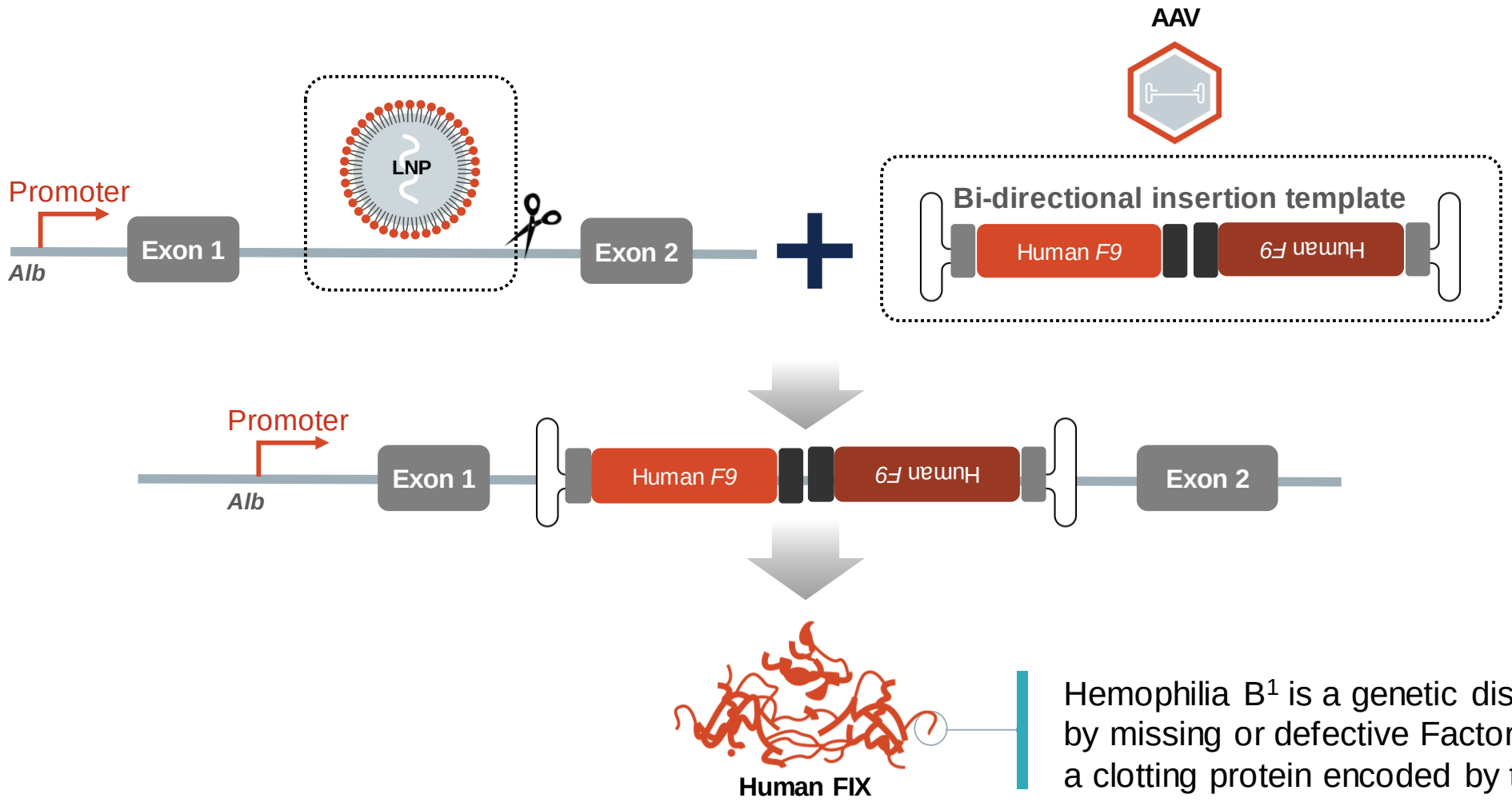
Human *Factor 9* (*F9*) Model System Used to Investigate *In Vivo* Insertion at Albumin Intron Safe Harbor Site



Hemophilia B[1] is a genetic disorder caused by missing or defective Factor IX (FIX), a clotting protein encoded by the *F9* gene

[1] National Hemophilia Foundation

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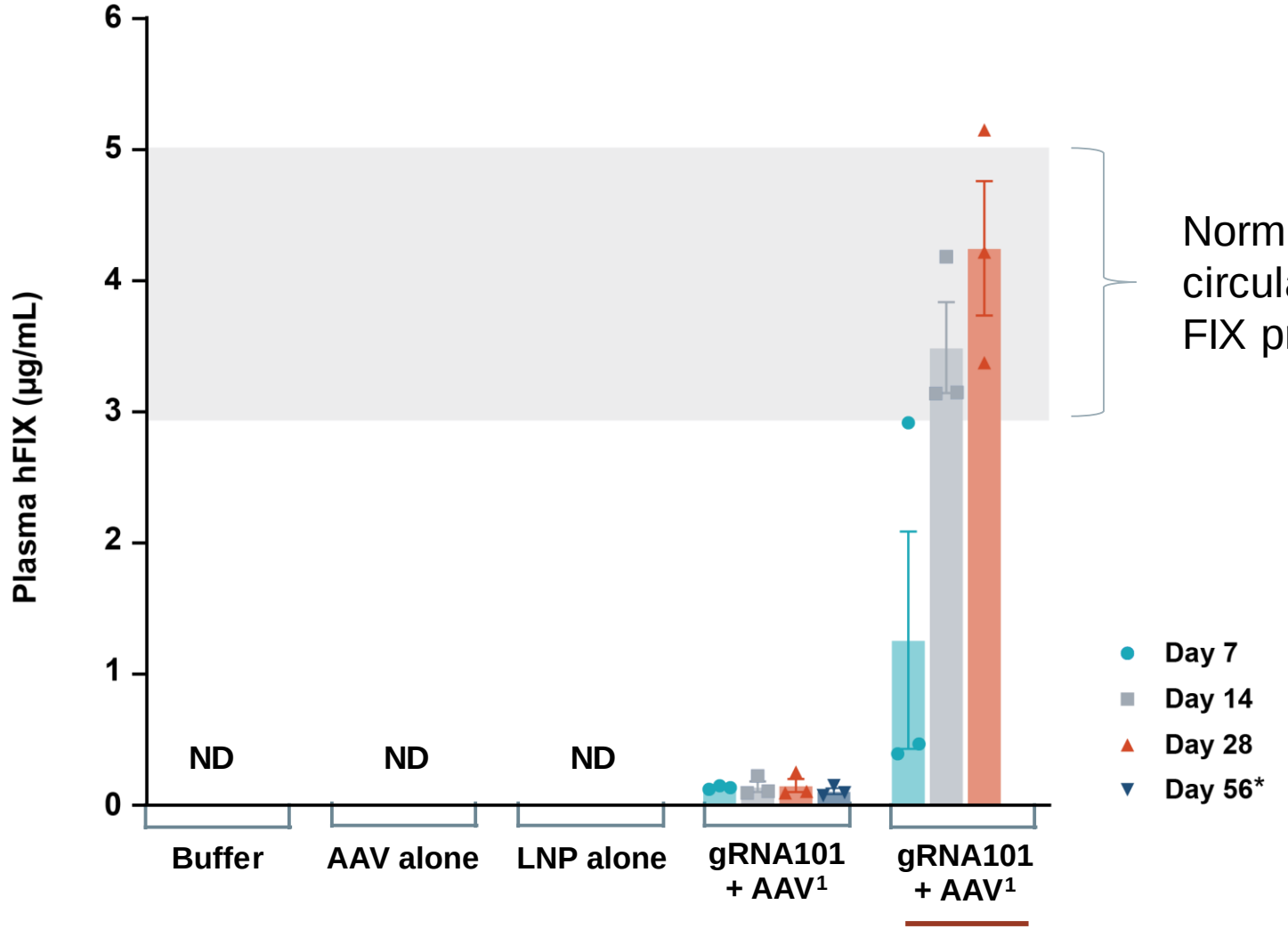
Physiologically Normal Levels of Circulating Human FIX Protein Achieved With Insertion of *F9* in NHPs and Maintained Through Day 28



Normal range of circulating human FIX protein levels[2]

Baseline albumin levels maintained at day 28

[1]AAV MOI 3e13 vg/kg [2]Amiral et al., Clin. Chem., 1984 ND: not detected * Second study ongoing

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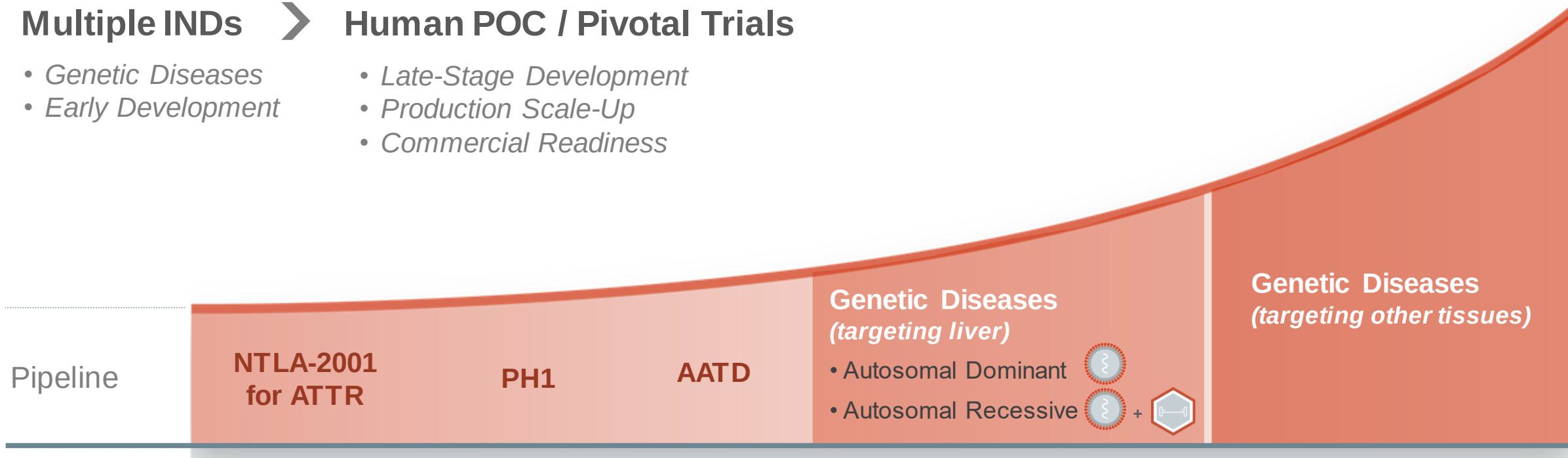
Building for Long-Term Sustainability

Multiple INDs › Human POC / Pivotal Trials

- *Genetic Diseases*
- *Early Development*

- *Late-Stage Development*
- *Production Scale-Up*
- *Commercial Readiness*



Modular Platform Capabilities

LNP

Delivery to the liver

Knockout ⟶ Insert / Repair

›

Delivery to other tissues (CNS, muscle, etc.)

Knockout ⟶ Insert / Repair

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Our Engineered Cell Therapy Strategy

TCR Replacement

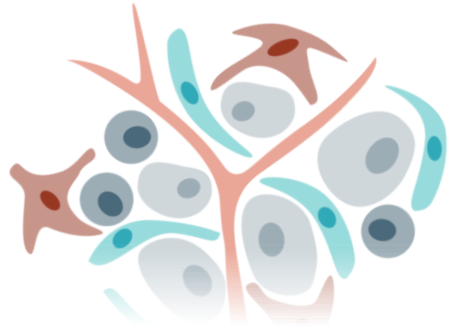
- Knock out the endogenous TCR to prevent GvHD
- Insert tumor-specific TCR in locus to achieve physiological expression

Allogeneic Cell Source

- Knock out MHC-I and MHC-II complexes
- Address multiple surface protein signals
- Achieve persistence in presence of NK cells

Functional Modulation

- Knock out and/or knock-in of key receptors, including checkpoint inhibitors, to modulate T cell functionality in multiple microenvironments



Solid Tumor Efficacy

- Use CRISPR screening to unravel targetable key regulators of T cell fitness in the TME

GvHD: Graft-Versus-Host Disease
NK: Natural Killer
TCR: T Cell Receptor
TME: Tumor Microenvironment

Acute Myeloid Leukemia (AML)

Cancer of the blood and bone marrow that is rapidly fatal without immediate treatment

Most common type of acute leukemia in adults[1]

First Wholly Owned Engineered Cell Therapy

TCR Replacement Approach

~20,000
New cases in the U.S. in 2018[1]

>40,000
New cases in the 7MM[2] in 2018[1]

<30%
5-year overall survival[1]

AML Program Achievements

- Identified natural TCRs that target key epitopes of Wilms' Tumor 1 (WT1), an attractive tumor target
- Observed selective elimination of AML blasts upon co-culture with WT1-specific T cells
- Demonstrated multiplex functional modulation to T cells

[1] NIH SEER Cancer Stat Facts: Leukemia – Acute Myeloid Leukemia (AML)
[2] GlobalData EpiCast Report: Acute Myeloid Leukemia July 2017, 7MM: Seven Major Markets (includes U.S.)

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Our TCR Replacement Approach Targeting WT1 for Treatment of AML

WT1 is an Attractive Tumor Target

- Identified as top cancer antigen by NCI[1]
- Overexpressed in >90% of AML blasts[2]
- Overexpressed in a broad set of liquid and solid tumors[3]

Expect to nominate development candidate for treatment of acute myeloid leukemia (AML) by end of 2019

[1] Cheever et al. Clin Cancer Res, 2009
[2] Cilloni et al., J Clin Oncol, 2009
[3] Sugiyama et al., Jap J Clin Oncol, 2010

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AML: Advancing Multiple Lead TCRs into Patient-Derived Xenograft Models

Engineering WT1-Specific T Cells Progress

- >98% knockout of endogenous TCRs
- Insertion of WT1-specific TCRs into >95% of isolated T cells
- Engineered T cells capable of specifically killing high levels of patient-derived AML blasts
- Identified multiple lead TCRs restricted to the *HLA-A*02:01* allele

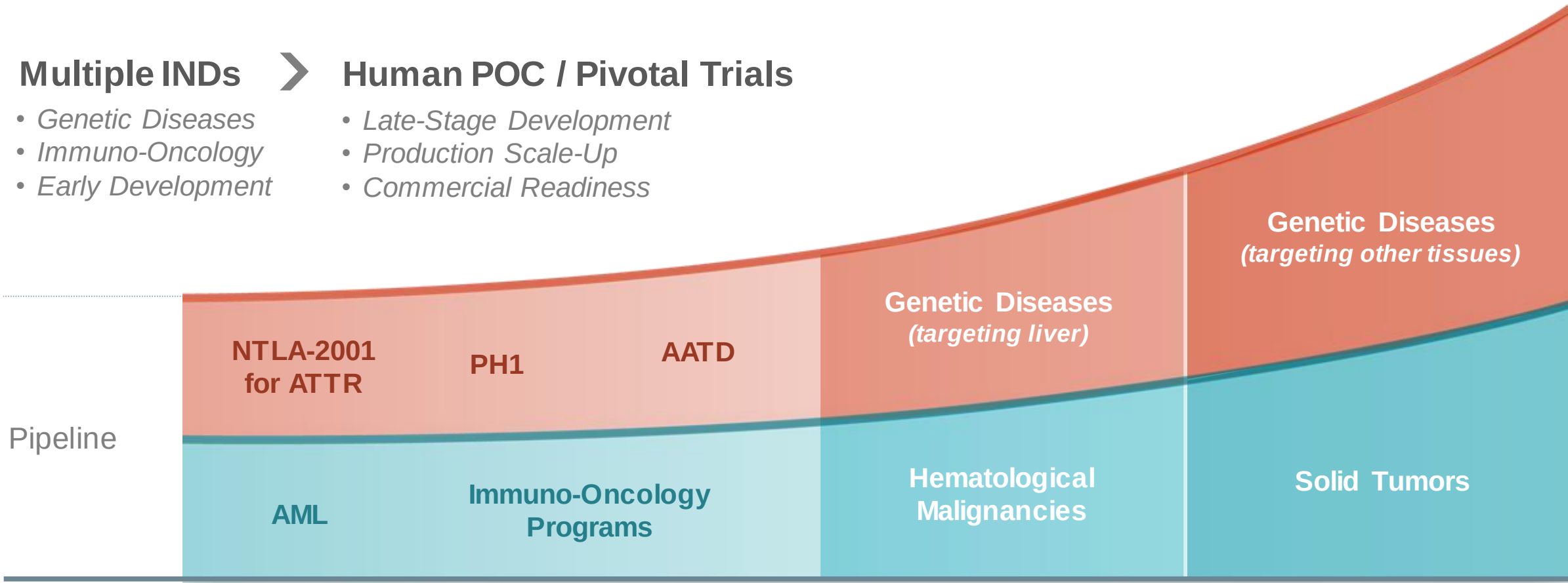
In collaboration with IRCCS Ospedale San Raffaele

Building for Long-Term Sustainability

Multiple INDs › Human POC / Pivotal Trials

- *Genetic Diseases*
- *Immuno-Oncology*
- *Early Development*

- *Late-Stage Development*
- *Production Scale-Up*
- *Commercial Readiness*



Modular Platform Capabilities

LNP

Delivery to the liver
Knockout ⟶ Insert / Repair
›
Delivery to other tissues (CNS, muscle, etc.)
Knockout ⟶ Insert / Repair

CELL

Autologous › Allogeneic

Hematological › Solid Tumors

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Financial Results

Balance Sheet	March 31, 2019	December 31, 2018
Cash, Cash Equivalents & Marketable Securities	$296.6M	$314.1M
Total Assets	$344.4M	$347.3M
Statement of Operations	**Three Months Ended March 31, 2019**	**Three Months Ended March 31, 2018**
Collaboration Revenue	$10.4M	$7.5M
Research and Development	$23.7M	$22.5M
General and Administrative	$10.5M	$7.4M
Net Loss	$(21.9M)	$(21.4M)

Expect Q1 2019 ending cash balance to fund operations into 1H 2021

Key Achievements

	2019
ATTR	✓ Achieved >95% durable TTR protein reduction in NHPs ✓ Substantially completed dose-range finding studies in NHPs ✓ Nominated NTLA-2001 to advance into IND-enabling toxicology studies
AML	✓ Engineered WT1-specific T cells capable of specifically killing patient-derived AML blasts ✓ Identified multiple lead TCRs restricted to the *HLA-A*02:01* allele
Gene Insertion: Restoring Functionality	✓ First demonstration of CRISPR-mediated, targeted insertion of a gene in liver of NHPs ✓ Normalized circulating human FIX protein levels in NHPs
Gene Knockout: Removing Harmful Genes	✓ Demonstrated therapeutically relevant reduction in urinary oxalate levels in disease mouse model of PH1 with knockout of *Ldha* or *Hao1* ✓ Achieved 15 weeks of sustained protein reduction for PH1 with each standalone approach

2019 Milestones

ATTR

- Initiate IND-enabling toxicology studies in mid-2019
- Commence manufacturing of NTLA-2001 Phase 1 materials in 2019
- Submit IND application in 2020

AML

- Initiate functional testing in patient-derived xenograft models of multiple lead TCRs in mid-2019
- Nominate first engineered cell therapy development candidate by the end of 2019


Q+A

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