ADVERUM
BIOTECHNOLOGIES

Gaining Momentum in Gene Therapy

Corporate Presentation

December 2017

Forward-looking Statements

Statements contained in this document regarding matters that are not historical facts are “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. Such statements include, but are not limited to, statements regarding Adverum Biotechnologies, Inc.’s (“Adverum”) plans, potential opportunities, expectations, projections, goals, objectives, milestones, strategies, product pipeline, the sufficiency of its resources to fund the advancement of any development program or the completion of any clinical trials, and the safety, efficacy, and projected development timeline and commercial potential of products under development, all of which are based on certain assumptions made by us on current conditions, expected future developments and other factors we believe are appropriate in the circumstances. Actual results and the timing of events could differ materially from those anticipated in such forward-looking statements as a result of various risks and uncertainties, which include, without limitation, risks and uncertainties inherent in the product development and the regulatory approval process, delays in clinical trials and other matters that could affect the availability or commercial potential of product candidates, the risk of a delay in the enrollment of patients in Adverum’s clinical studies or in the manufacturing of products to be used in such clinical studies, reliance on third parties, the ability to project future cash utilization and reserves needed for contingent future liabilities and business operations, the availability of sufficient resources for its operations and to conduct or continue planned development programs and planned clinical trials and the ability to successfully develop any of its product candidates. Risks and uncertainties facing Adverum are described more fully in Adverum’s periodic reports filed with the SEC, especially under the caption “Risk Factors”. All forward-looking statements contained in this document speak only as of the date on which they were made. Adverum undertakes no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they were made.

This document contains estimates, projections and other information concerning Adverum’s industry, business and the markets for certain drugs, including data regarding the estimated size of those markets, their projected growth rates and the incidence of certain medical conditions. Information that is based on estimates, forecasts, projections or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data from reports, research surveys, studies and similar data prepared by third parties, industry, medical and general publications, government data and similar sources believed to be reliable, but the accuracy or completeness of such information is not guaranteed by, and should not be construed as representations made by, Adverum.

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Adverum is a Clinical-Stage Gene Therapy Company with Industry-leading Capabilities

Industry-leading AAV platform and capabilities:
- Proprietary vector development to engineer next-generation vectors
- In-house manufacturing - Process development, assay development

Robust pipeline:
- ADVM-043 for A1AT deficiency – Began enrollment in ADVANCE Phase 1/2 Trial 4Q17
- ADVM-053 for HAE – Plan to file IND in 2H18
- ADVM-022 for wet AMD – Plan to file IND in 2H18

$187M in cash* to fund lead programs through the end of 2019

Leadership team with **extensive clinical development expertise**

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* Cash, cash equivalents, and marketable securities as of September 30, 2017

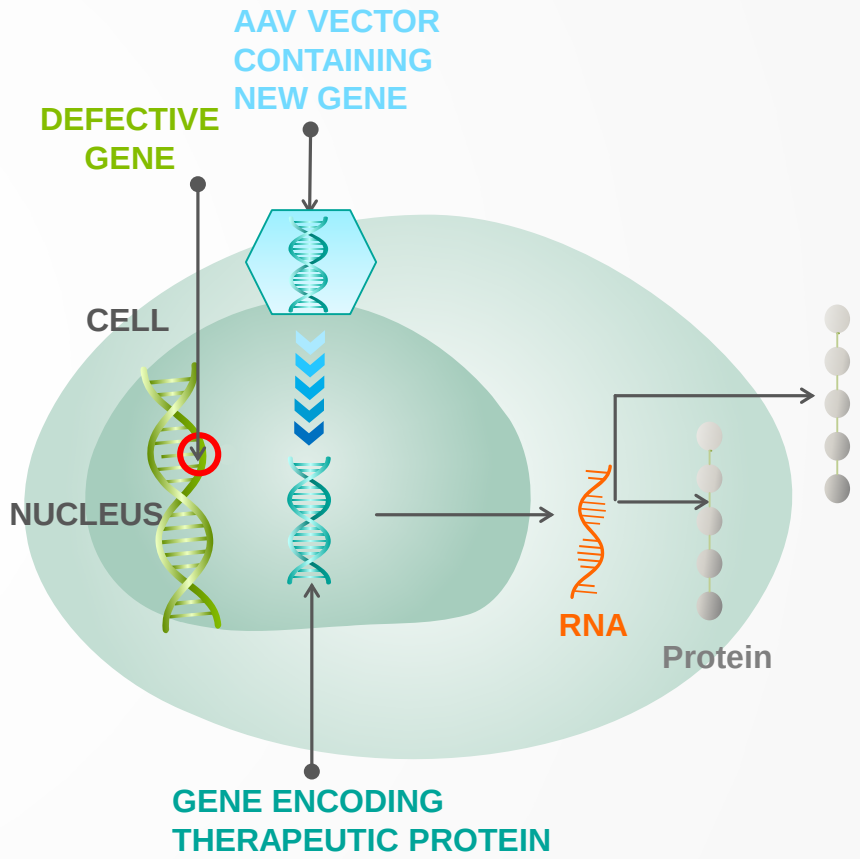
Adverum's Approach: AAV Gene Therapy Platform

Efficacy

- Highly efficient transfer of DNA to patient
- Long-lasting potential

Safety

- Non-integrating vector genome
- Therapeutic proteins expressed from within, rather than introducing an exogenous protein
- No known associations with disease
- Safely used in more than 100 gene therapy clinical trials to date[1]



1 Gene Therapy Clinical Trials Worldwide. The Journal of Gene Medicine Web site. http://www.wiley.com/legacy/wileychi/genmed/clinical/ Accessed February 24, 2014.

Advancing Gene Therapies for Serious Rare & Ocular Diseases

Product Candidate	Stage of Development		
	Research	Preclinical	Phase 1/2
Lead Programs – Worldwide Rights			
ADVM-043 (Rare Disease)			**ADVANCE Trial for Alpha-1 Antitrypsin (A1AT) Deficiency**
ADVM-053 (Rare Disease)			**Hereditary Angioedema (HAE)**
ADVM-022 (Ocular Disease)			**Wet Age-related Macular Degeneration (wAMD)**
Partnered Programs			
Up to 5 Undisclosed Targets			**Inherited Retinal Disease** — editas MEDICINE Collaboration
X-linked Retinoschisis and 3 Undisclosed Targets			**Ophthalmic Disease** — REGENERON Collaboration

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Adverum's Lead Gene Therapy Programs

Alpha-1 Antitrypsin (A1AT) Deficiency

Hereditary Angioedema (HAE)

Wet Age-related Macular Degeneration (wAMD)

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A1AT Deficiency is an Orphan Disease Which Can Lead to Worsening Lung Function

- 100,000 U.S. patients[1]
- Genetic mutation results in very low levels of A1AT
  - A1AT deficiency is associated with premature emphysema
- Challenging compliance
  - Need for weekly IV infusions[2] ($100K annually)
  - Worsening lung function from underdosing

1 Healthcare Provider's Guide. The Alpha-1 Foundation. Version 2.0 (2015).
2 Glassia, Prolastin-C, Aralast NP, Zemaira.

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Potential to Treat A1AT Deficiency With ADVM-043

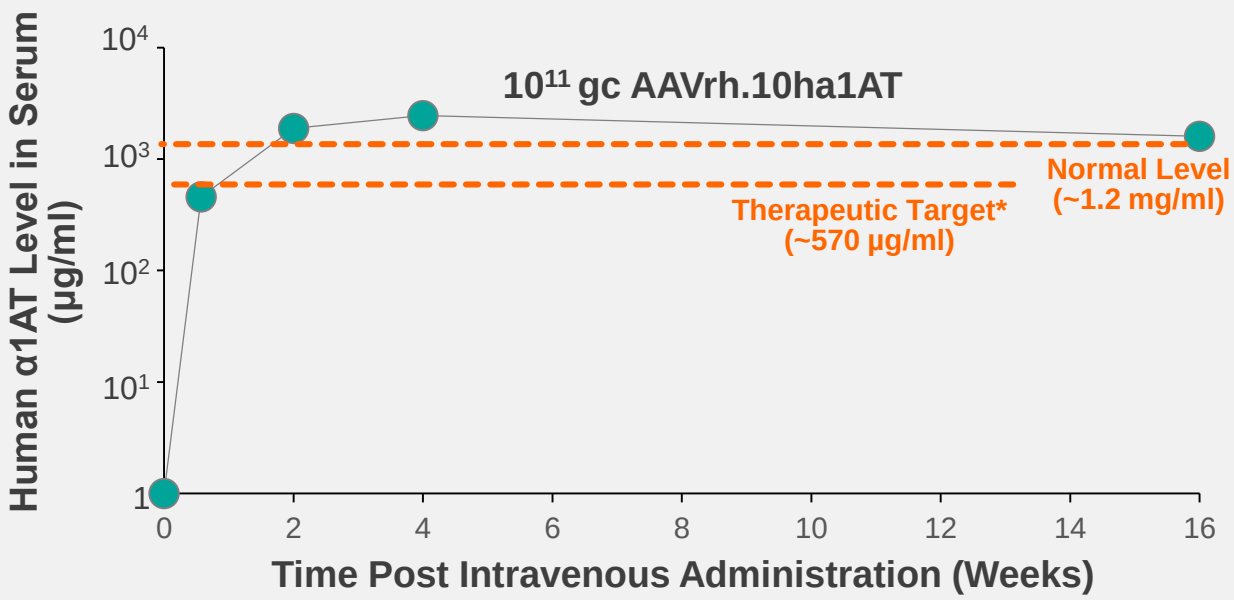
- **Single administration of ADVM-043** demonstrated robust A1AT expression in preclinical proof-of-concept study
  - A1AT expression above therapeutic levels in mice following intravenous or intrapleural administration
- Evidence of stable long-term expression of hA1AT mRNA out to 1 year following intrapleural administration in non-human primates[1]
- ADVM-043 (AAVrh.10-A1AT) has the potential to induce stable, long-term A1AT expression at therapeutic levels
- Began enrolling patients in the ADVANCE Phase 1/2 trial in December 2017

1 Intrapleural Administration of an AAVrh.10 Vector Coding for Human a1-Antitrypsin for the Treatment of a1-Antitrypsin Deficiency, Human Gene Therapy Clinical Development 24:161–173 (December 2013), Chiuchiolo et al.

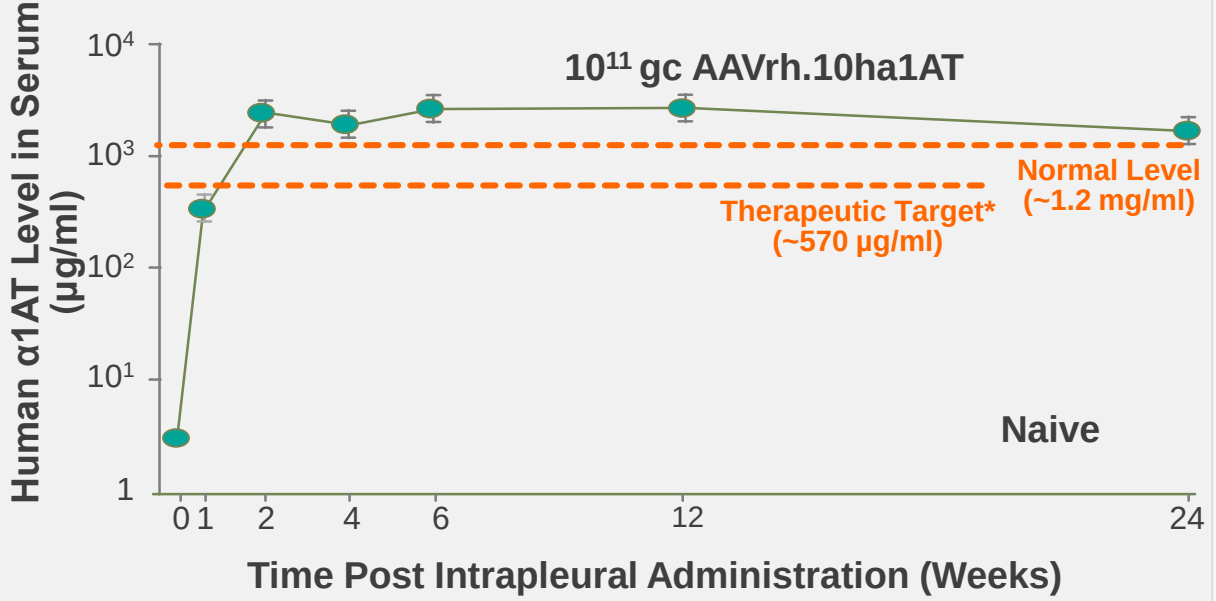
Proof-of-concept Study: Single Administration of ADVM-043 Induces Stable, Long-term Expression of hA1AT

Human A1AT Expression in Serum after ADVM-043 Administration in Mice

Intravenous (IV) Delivery[1]



Intrapleural (IP) Delivery[2]



*Note: Therapeutic Target is based on serum levels demonstrated by approved standard-of-care therapies
Note: 1.2 mg/ml is approximately equivalent to 20µM; 570 µg/ml is approximately equivalent to 11µM

1 Company data on file
2 High Levels of Persistent Expression of A1-Antitrypsin Mediated by the Nonhuman Primate Serotype rh.10 Adeno-associated Virus Despite Preexisting Immunity to Common Human Adeno-associated Viruses, Mol Ther Vol. 13, No. 1 (January 2006), De et al.

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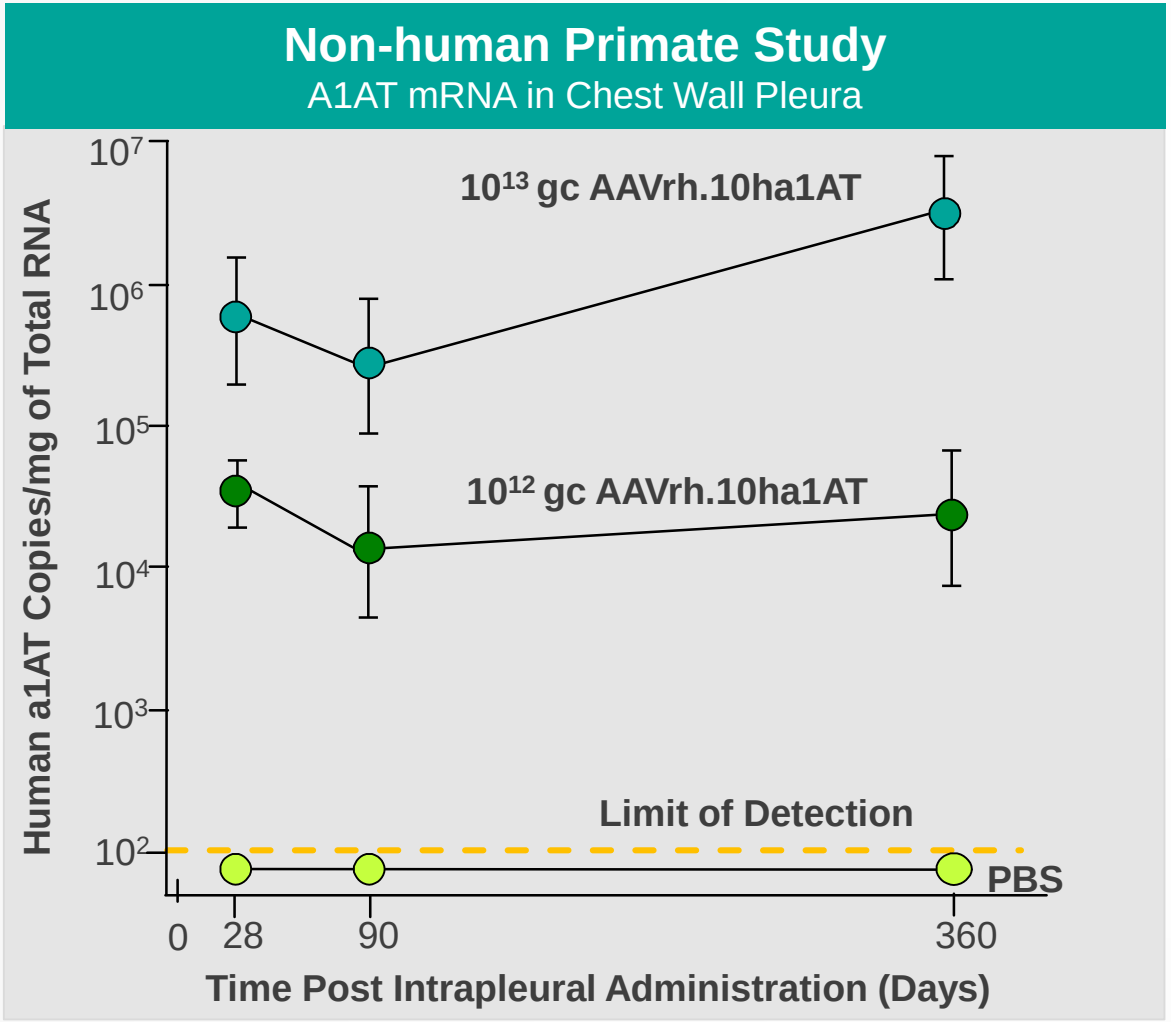
Proof-of-concept: Single Administration of ADVM-043 Induces High, Stable Human A1AT mRNA Expression Out to 1 Year



Intrapleural (IP) Delivery[1]

- Stable expression of human A1AT mRNA >1 year after single administration

1 Intrapleural Administration of an AAVrh.10 Vector Coding for Human a1-Antitrypsin for the Treatment of a1-Antitrypsin Deficiency, Human Gene Therapy Clinical Development 24:161–173 (December 2013), Chiuchiolo et al.

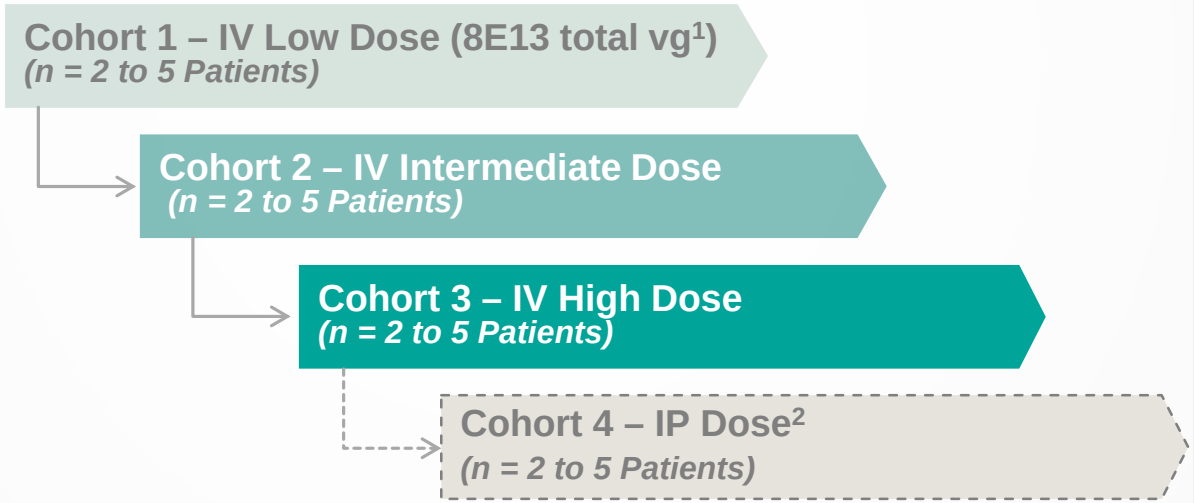
ADVANCE Phase 1/2 Trial: Preliminary Data Expected in 2H18

ADVANCE Phase 1/2 Clinical Trial
ADVM-043 for A1AT Deficiency

Key Entry Criteria

- ≥18 years of age
- A1AT genotype ZZ or Z Null
- FEV1 >35% predicted
- No evidence of liver disease
- Neutralizing antibody titer less than 1:5

Multi-center, Open-label Dose Escalation Study (n = Up to 20 Patients)



Endpoints

- Safety and tolerability
- Total and M-specific plasma concentrations of A1AT up to 52 weeks

1 Low dose of 8E13 total vg equivalent to approximately 1E12 vg/kg based on an 80-kg patient
2 Cohort 4 may open to evaluate IP administration of ADVM-043 at the dose that provided the best protein expression with IV administration

ClinicalTrials.gov under trial identifier number NCT02168686

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Adverum's Lead Gene Therapy Programs

Alpha-1 Antitrypsin (A1AT) Deficiency

Hereditary Angioedema (HAE)

Wet Age-related Macular Degeneration (wAMD)

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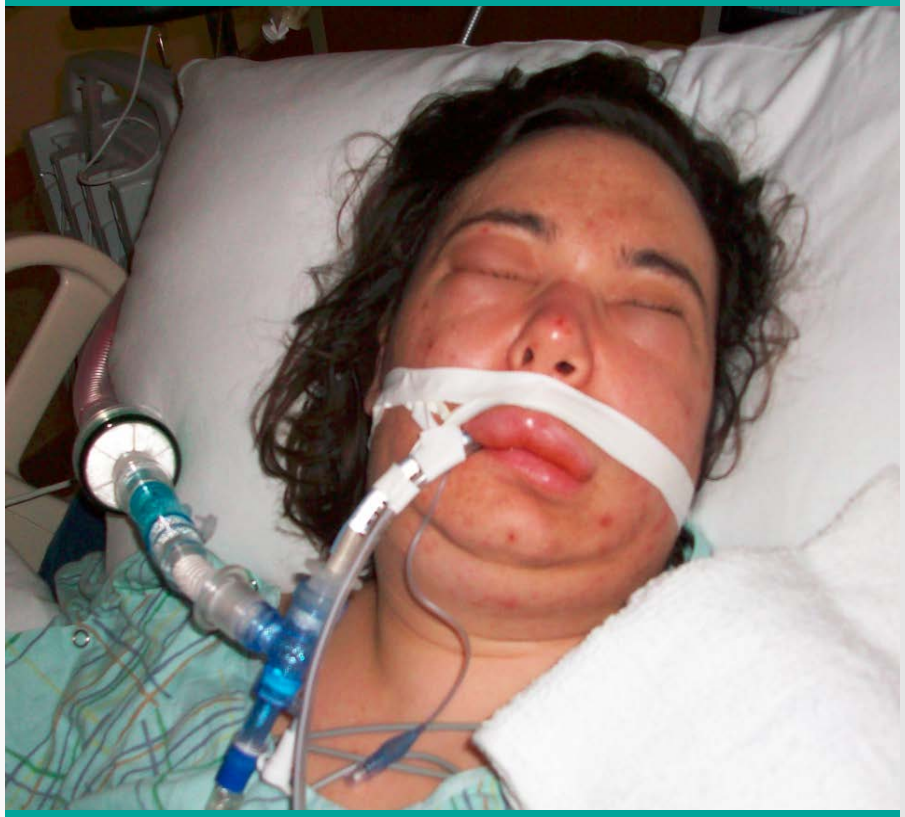
HAE is an Orphan Disease That is Challenging to Manage



- 8,000 U.S. patients[1]
- Genetic mutation results in low levels of C1-esterase inhibitor (C1EI)
  - Low C1EI levels lead to sudden swelling/edema of respiratory airways, GI tract, and extremities
- Challenging management strategy
  - Prophylaxis requires 2-3x/week IV infusions or SC of C1EI[2]
  - Breakthrough attacks still occur

1 Decision Resources Group; November 2015. Wu, Jing; Anderson, Sarah.
2 Prophylactic use: Cinryze, Haegarda / Acute treatment: Firazyr, Berinet, Ruconest, Kalbitor.

Potential to Prevent HAE Attacks with ADVM-053

- **Single intravenous administration of ADVM-053** showed robust C1EI expression in preclinical studies
  - C1EI protein expression above therapeutic levels
  - Decreased vascular permeability
- ADVM-053 (AAVrh.10-C1EI) has the potential to prevent HAE attacks

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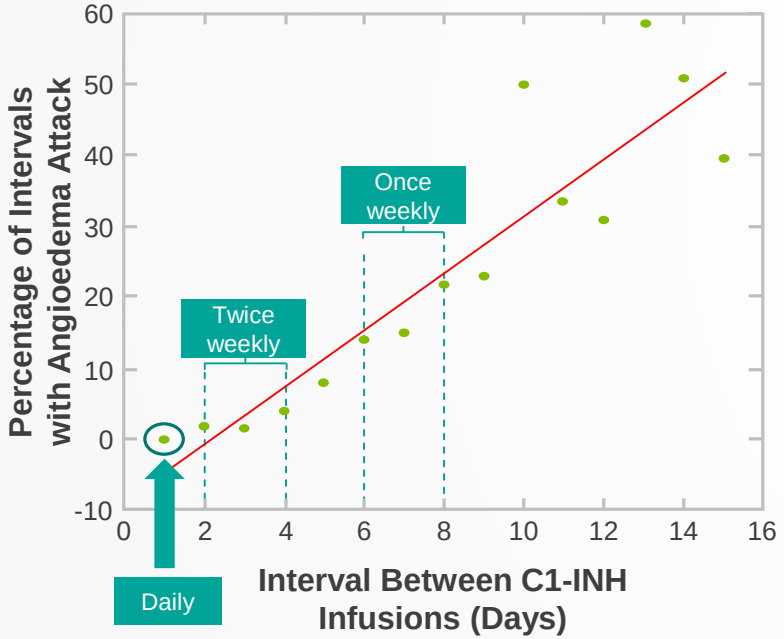
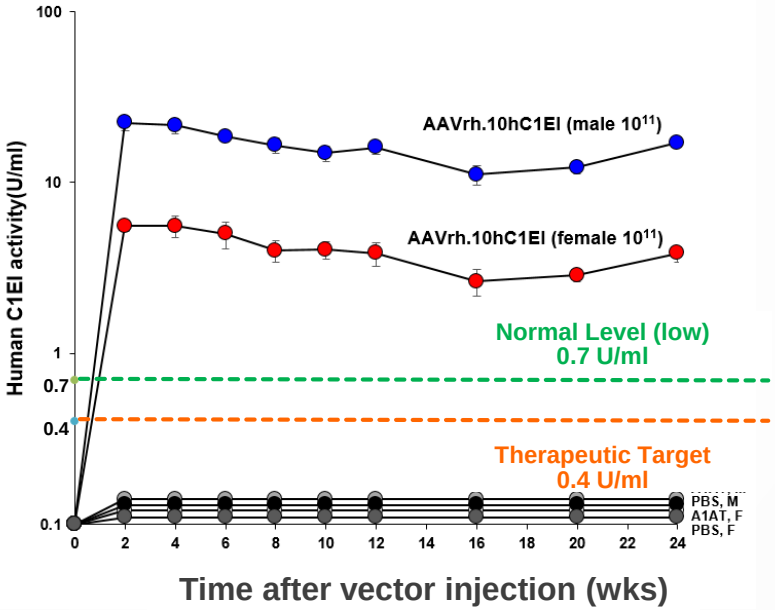
Proof-of-concept Study: Single IV Administration of ADVM-053 Induces Protein Expression Above Therapeutic Level

Attack rate drops to near zero with daily C1-INH infusion[1]
(not clinically practical)



ADVM-053 induces expression above therapeutic level in mice



ADVM-053 showed decrease in vascular permeability to wild type levels

Efficacy in C1EI Deficient Mouse Model

Wild Type[2]	S63 C1EI Deficient	S63 ADVM-053

24 Weeks Post Injection

Presence of pathology will result in dye leaking into tissues (vasodilation)

1 Safety and Efficacy of Prophylactic nanofiltered C1-inhibitor in Hereditary Angioedema, Amer J Med 2012;125, 938.e1-938.e7, Zuraw BL and Kalfus I

2 Wild type picture is two weeks post injection

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Advancing ADVM-053 for HAE

- Held pre-IND meeting with FDA in 1Q17
- Performing IND enabling studies and working with a contract manufacturing organization to prepare clinical material
- Planning to file IND in 2H18

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Adverum's Lead Gene Therapy Programs

Alpha-1 Antitrypsin (A1AT) Deficiency

Hereditary Angioedema (HAE)

Wet Age-related Macular Degeneration (wAMD)

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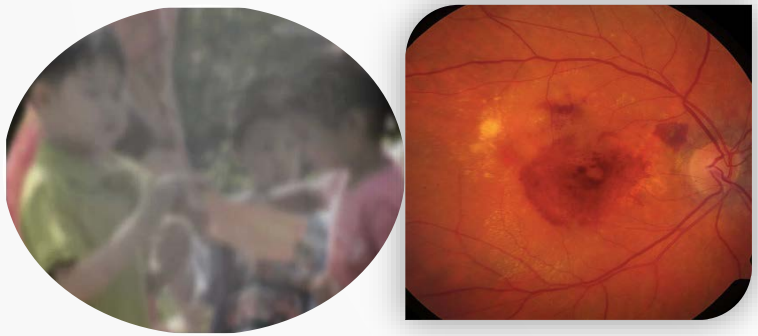
wAMD is a Large Market with Challenging Compliance Issues

Intermediate AMD - 20/20-20/30 Vision



Wet AMD at Diagnosis - 20/80 Vision

- Vision loss from abnormal blood vessel proliferation and leakage due to VEGF activity
- 1.2M U.S. patients[1], 3M globally
- $8B global sales for anti-VEGF proteins
- Challenging compliance
  - Need for monthly/every other month intravitreal injections
  - Vision loss from underdosing

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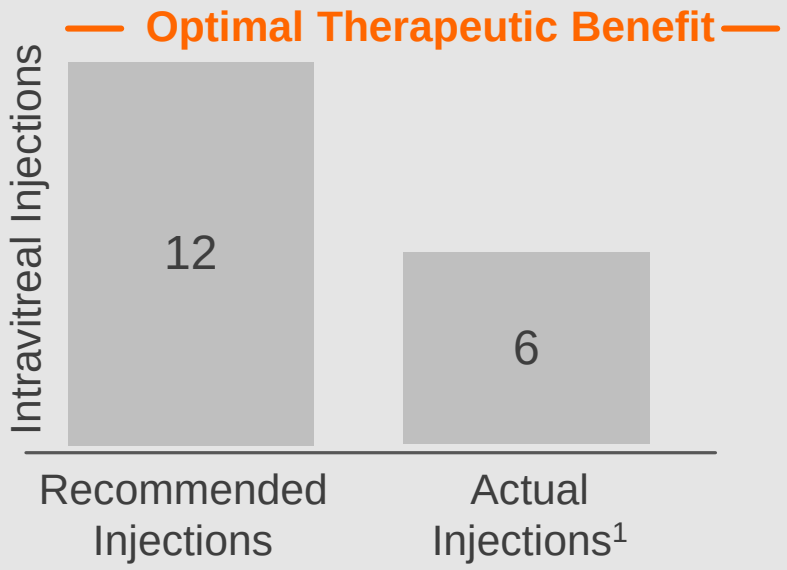
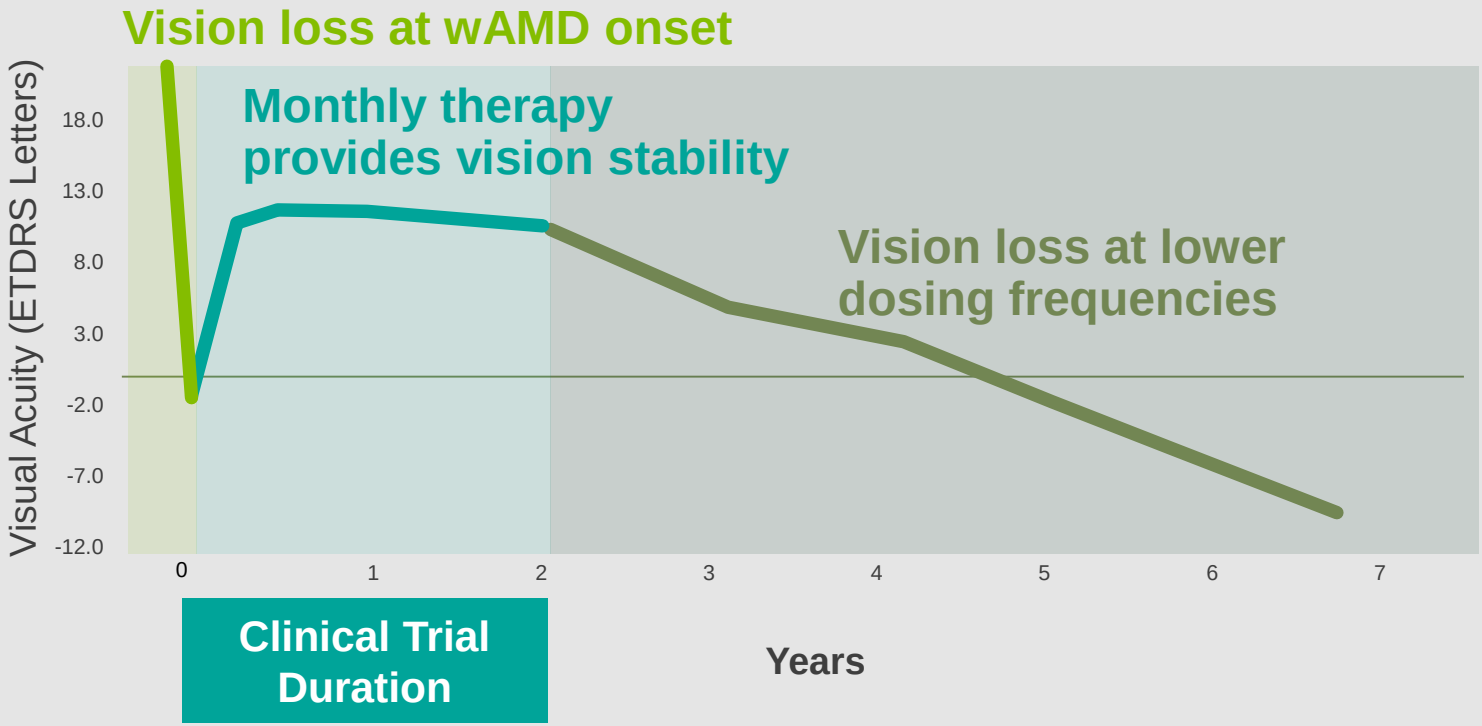
1 Prevalence of Age-Related Macular Degeneration in the United States, Arch Ophthalmol. 2004;122(4):564-572. doi:10.1001/archopht.122.4.564.

Significant Opportunity to Improve wAMD Treatment

Compliance with Monthly Injections is Difficult



Poor Compliance Leads to Vision Loss[2]



1 Clinical utilization of anti-VEGF agents and disease monitoring in neovascular age-related macular degeneration, Am J Ophthalmol. 2014;157(4):825-833, Holekamp NM, et al.
2 Multiple studies (MARINA/ANCHOR & HORIZON/SEVEN-UP, SECURE, CATT) indicate that vision benefits are lost at less than recomended dosing frequencies

Potential to Treat wAMD with a Single Intravitreal Injection

- **Intravitreally-delivered** gene therapy, ADVM-022, showed durable anti-VEGF expression in pre-clinical proof-of-concept studies
  - **Injection avoids subretinal surgery**
- **ADVM-022** (AAV.7m8-aflibercept) advancing
  - Robust protein levels seen in vitreous up to 52 weeks post injection

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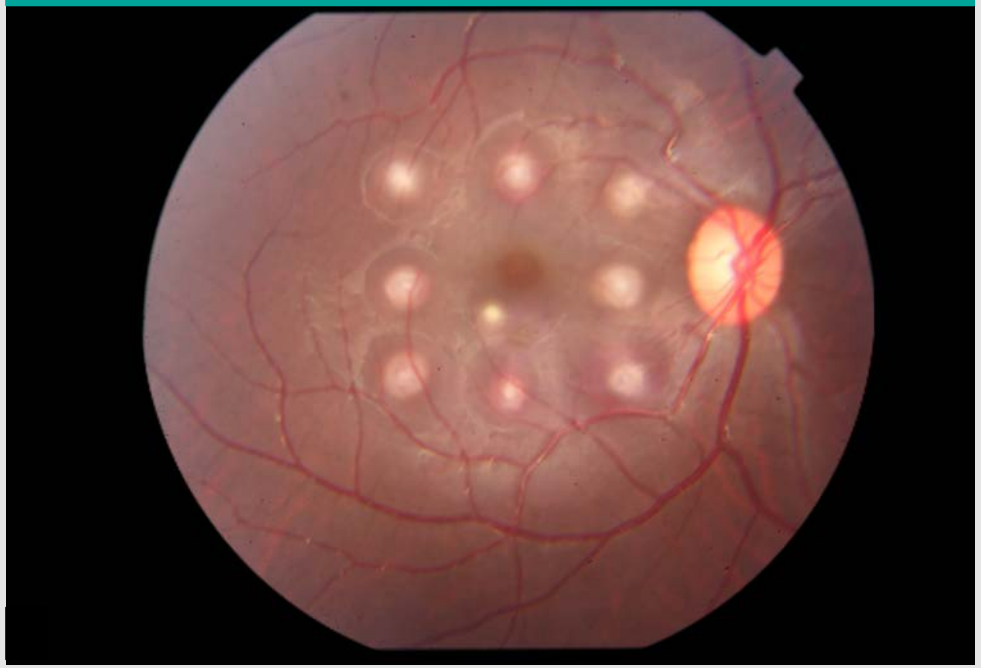
Industry-standard Model Used to Test New wAMD Therapies

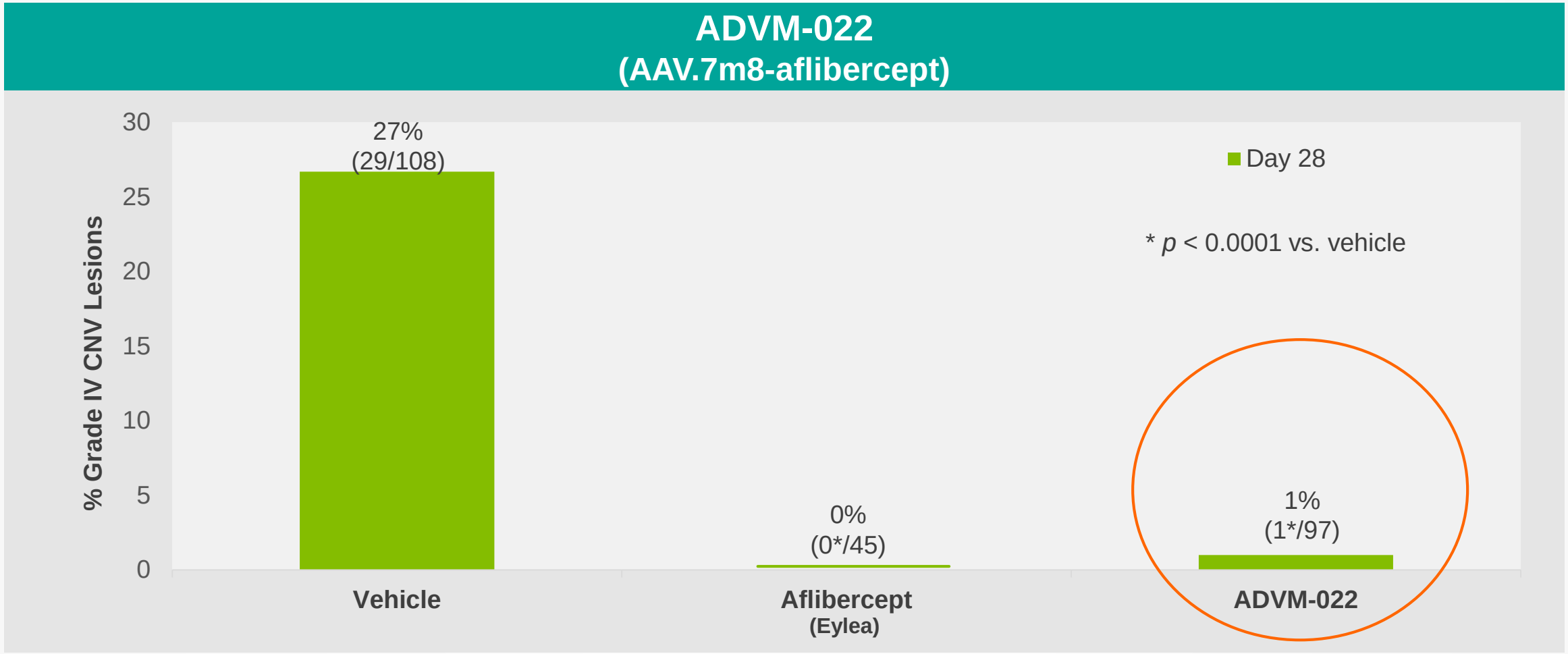
Retinal Image after Laser Treatment



- Choroidal neovascularization (CNV) is induced experimentally by laser
- Nine lesions per eye are graded for severity (grades I-IV)
- Efficacy is assessed by reduction of the number of most severe, clinically relevant (grade IV) lesions

Source: European Society of Gene and Cell Therapy (ESGCT) Conference, October 2016

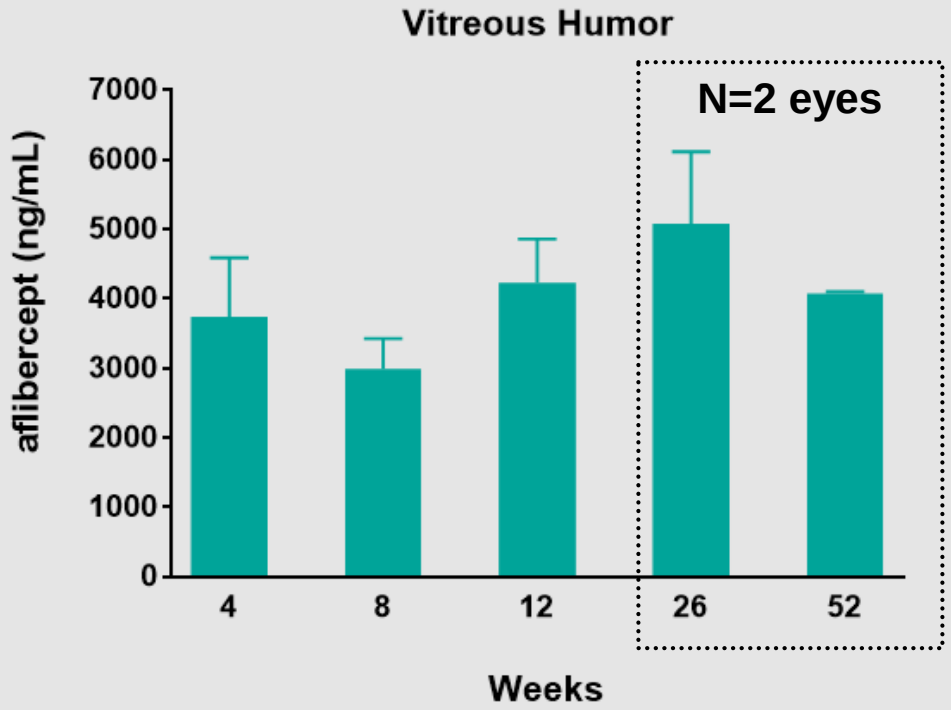
Single Injection ADVM-022: 28-Day Efficacy Comparable to Positive Control



Source: European Society of Gene and Cell Therapy (ESGCT) Conference, October 2016

Robust and Sustained Aflibercept Levels Detected in Vitreous up to 52 Weeks after Single Injection ADVM-022

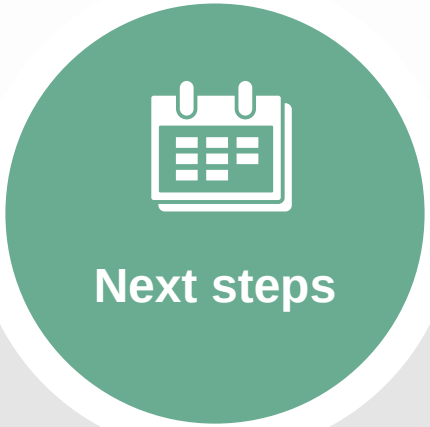
ADVM-022 NHP Study 1
($2x10^{12}$ vg/eye, n=2-4 eyes*)



ADVM-022 NHP Study 2
($2x10^{12}$ vg/eye, n=14 eyes)

*Note: Data from ADVM-022 study 1 on 2 NHPs (4 eyes) at the first 3 assessments, but 1 NHP (2 eyes) at weeks 26 and 52
Source: Targeting Ocular Disorders and the Retina Society, September 2017

Advancing Intravitreally-delivered ADVM-022



- Held pre-IND meeting with FDA in 1Q17
- Evaluating durability of anti-VEGF protein expression in NHPs
  - Durable expression seen out to 7 months in 14 eyes
  - Expect to report efficacy at 12 months in 1H18
- Planning to file IND in 2H18

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Industry-leading Capabilities in Novel Vector Development

Adverum's Research Initiatives

- Research to engineer next-generation vectors
  - Directed evolution and rational design of AAV capsids
  - Potential for better transduction efficiency, antibody neutralization profiles
- Discovery of improved ubiquitous and cell-specific promoters, expression cassettes
  - Potential for optimal transgene expression upon transduction in target tissue
  - Opportunity to decrease off-target effects
- Production of sufficient high-throughput libraries for screening in large animal studies
- Development of novel expression cassettes

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Adverum's In-house Manufacturing Expertise Derisks Process to Support Clinical and Commercial Product Supply

- Process development capabilities to deliver scalable process to GMP contract manufacturer
  - Baculovirus/Sf9 production system applicable to multiple AAV serotypes
  - State-of-the-art bioindustry technology for purification
  - Process is readily transferred to CMO
- Assay development capabilities and GMP quality control to optimize product release for human use

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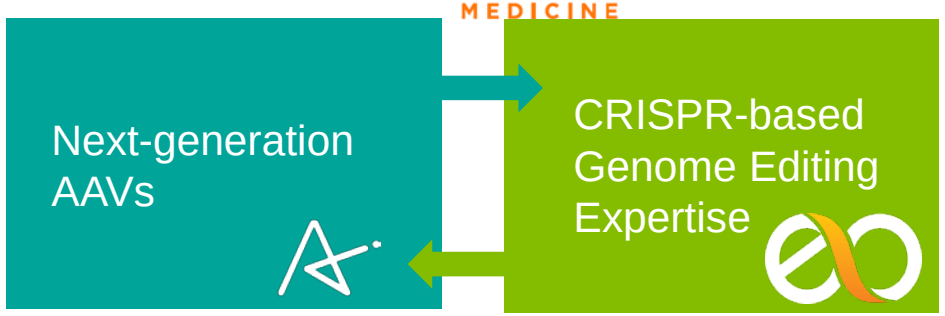
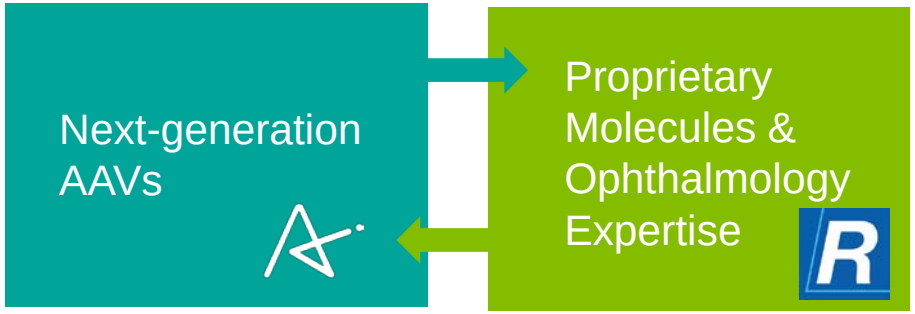
Adverum's Leadership in Ophthalmic Vector Development, Product Delivery Has Led to Collaborations

editas MEDICINE



- Up to 5 ophthalmic indications
- CRISPR technology delivery
- $1M upfront* to evaluate next-generation AAV vectors
- $1M option exercise fee for each indication
- Up to a mid-teen, million-dollar amount in development and commercialization milestones for each product
- Tiered royalties from mid-single digits to low-teens on net sales of each product

REGENERON



- Up to 8 ocular therapeutic targets (4 already identified)
  - AVA-311 for juvenile X-Linked Retinoschisis (XLRS) as first collaboration program
- Adverum has option to share up to 35% on profits and development costs for two targets
- $8M initial payment, up to $640M in payments upon achievement of milestones, low to mid-single digit royalties on WW net sales
- Initial 3-year collaboration term recently extended by additional 3 years to May 2020

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Leadership Team: Significant Clinical Development Experience

Name	Background	Experience
Amber Salzman, Ph.D. President and CEO	25+ years experience in pharma and biotech management with 15+ years leading gene therapy and rare disease initiatives	gsk, Annapurna Therapeutics, Cardiokine, The STOP ALD Foundation
Leone Patterson Chief Financial Officer	20+ years experience in management and financial operations	Novartis, Transcept Pharmaceuticals, Inc, Diadexus
Athena Countouriotis, M.D. SVP, Chief Medical Officer	15 years experience leading drug development programs with several successful approvals, orphan oncology experience	Bristol-Myers Squibb, Pfizer, Halozyme, ambit
Mehdi Gasmi, Ph.D. Chief Science and Technology Officer	20+ years experience developing gene therapy vectors for the treatment of common and rare diseases	Chiron, A Novartis Business, Cell Genesys, Peregene, Genethon
Jennifer Cheng, Ph.D., J.D. VP and General Counsel	15+ years experience in biotechnology companies, including legal and intellectual property counsel and research	Allergan, MAP Pharmaceuticals, Inc., Genentech, A Member of the Roche Group

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Upcoming Milestones

ADVM-043 for A1AT Deficiency	
✓ Began patient enrollment in ADVANCE Phase 1/2 clinical trial	4Q17
Expect to report preliminary data from ADVANCE trial	2H18
ADVM-022 for wAMD	
Expect to report 12-month efficacy data from ongoing preclinical NHP study	1H18
Plan to file IND	2H18
ADVM-053	
Plan to file IND	2H18
$187M cash* to fund development of 3 leading programs	End of 2019

* $187M in cash, cash equivalents, and marketable securities as of September 30, 2017
45.0M shares outstanding as of October 31, 2017

Nasdaq: ADVM