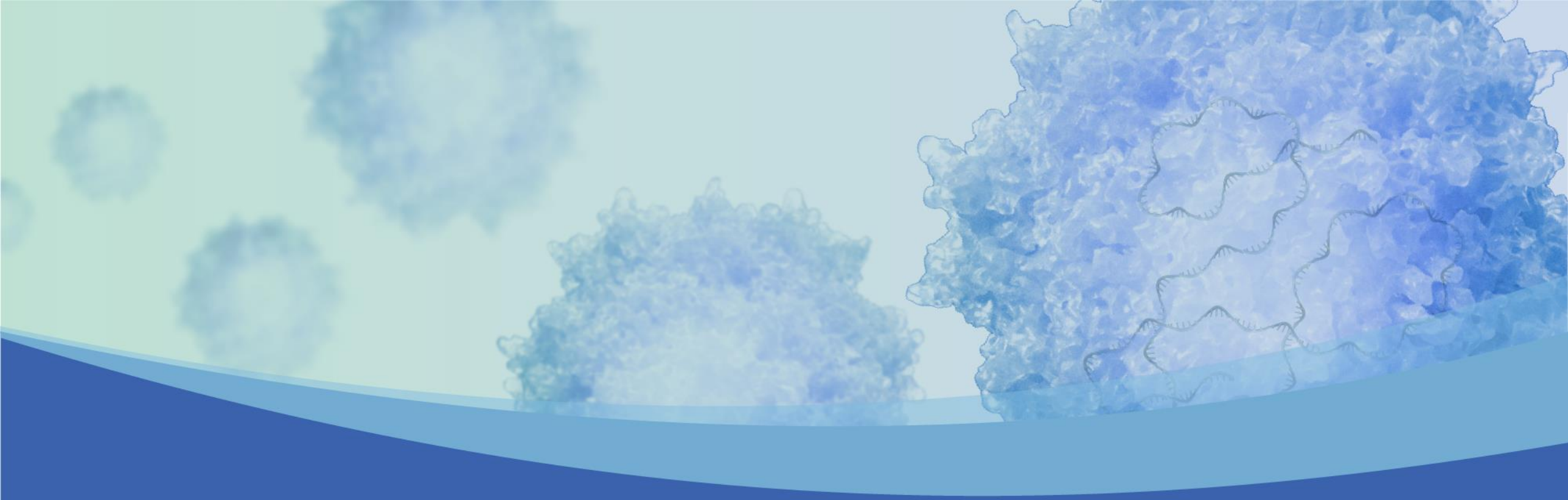


ocugen™

Courageous Innovation

Dedicated to Bringing Game-Changing Gene Therapies to Market and Working Even Harder to Provide Access to Patients Globally

February 2026

Forward Looking Statement

This presentation contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995, including, but not limited to, strategy, business plans and objectives for Ocugen's clinical programs, plans and timelines for the preclinical and clinical development of Ocugen's product candidates, including the therapeutic potential, clinical benefits and safety thereof, expectations regarding timing, success and data announcements of current ongoing preclinical and clinical trials, the ability to initiate new clinical programs, statements regarding qualitative assessments of available data, potential benefits, expectations for ongoing clinical trials, anticipated regulatory filings and anticipated development timelines, which are subject to risks and uncertainties.

We may, in some cases, use terms such as "predicts," "believes," "potential," "proposed," "continue," "estimates," "anticipates," "expects," "plans," "intends," "may," "could," "might," "will," "should," or other words that convey uncertainty of future events or outcomes to identify these forward-looking statements. Such statements are subject to numerous important factors, risks, and uncertainties that may cause actual events or results to differ materially from our current expectations, including, but not limited to, the risks that preliminary, interim and top-line clinical trial results may not be indicative of, and may differ from, final clinical data; that unfavorable new clinical trial data may emerge in ongoing clinical trials or through further analyses of existing clinical trial data; that earlier non-clinical and clinical data and testing of may not be predictive of the results or success of later clinical trials; and that that clinical trial data are subject to differing interpretations and assessments, including by regulatory authorities.

These and other risks and uncertainties are more fully described in our annual and periodic filings with the Securities and Exchange Commission (SEC), including the risk factors described in the section entitled "Risk Factors" in the quarterly and annual reports that we file with the SEC. Any forward-looking statements that we make in this presentation speak only as of the date of this presentation.

Except as required by law, we assume no obligation to update forward-looking statements contained in this presentation whether as a result of new information, future events, or otherwise, after the date of this presentation.

Leader in Ophthalmology Gene Therapy

Pioneering biotechnology company leading the way to address major blindness diseases with novel modifier gene therapy

We're Here to Make an Impact Through Courageous Innovation

Dedicated to Bringing Game-Changing Gene Therapies to Market and Working Even Harder to Provide Access to Patients Globally

Values

- Respect
- Integrity
- Teamwork
- Accountability

GMP Facility

Headquarters, Malvern, Pennsylvania

Pipeline

Targeting Three Biologics License Applications (BLAs) in Three Years

Program		Phase I	Phase II	Phase III	Target BLA/ MAA* Submission
OCU400 Retinitis Pigmentosa 300,000 (U.S. + EU)	Gene-agnostic targeting >100 genes, broad indication **Designations:** RMAT[1], ODD[2], OMPD[3] & ATMP[4]	Phase 3 in Progress (Largest Orphan Gene Therapy Clinical Trial)			2026 Rolling Submission
OCU410ST Stargardt Disease 100,000 (U.S. + EU)	ABCA4-associated retinopathies caused by 1,200+ mutations **Designation:** ODD, RPDD[5] & OMPD		Phase 2/3 Pivotal Confirmatory Clinical Trial in Progress		2027
OCU410 Geographic Atrophy 2-3 million (U.S. + EU)	Advanced dry age-related macular degeneration (dAMD) **Designation:** ATMP			Plan to Initiate Phase 3 in 2026	2028

* Market Authorization Application will follow BLA submission

[1] Regenerative Medicine Advanced Therapy (RMAT); [2] Orphan Drug Designation (ODD); [3] Orphan Medicinal Product Designation (OMPD); [4] Advance Therapy Medicinal Products (ATMP); [5] Rare Paediatric Disease Designation (RPDD);

Modifier Gene Therapy Platform

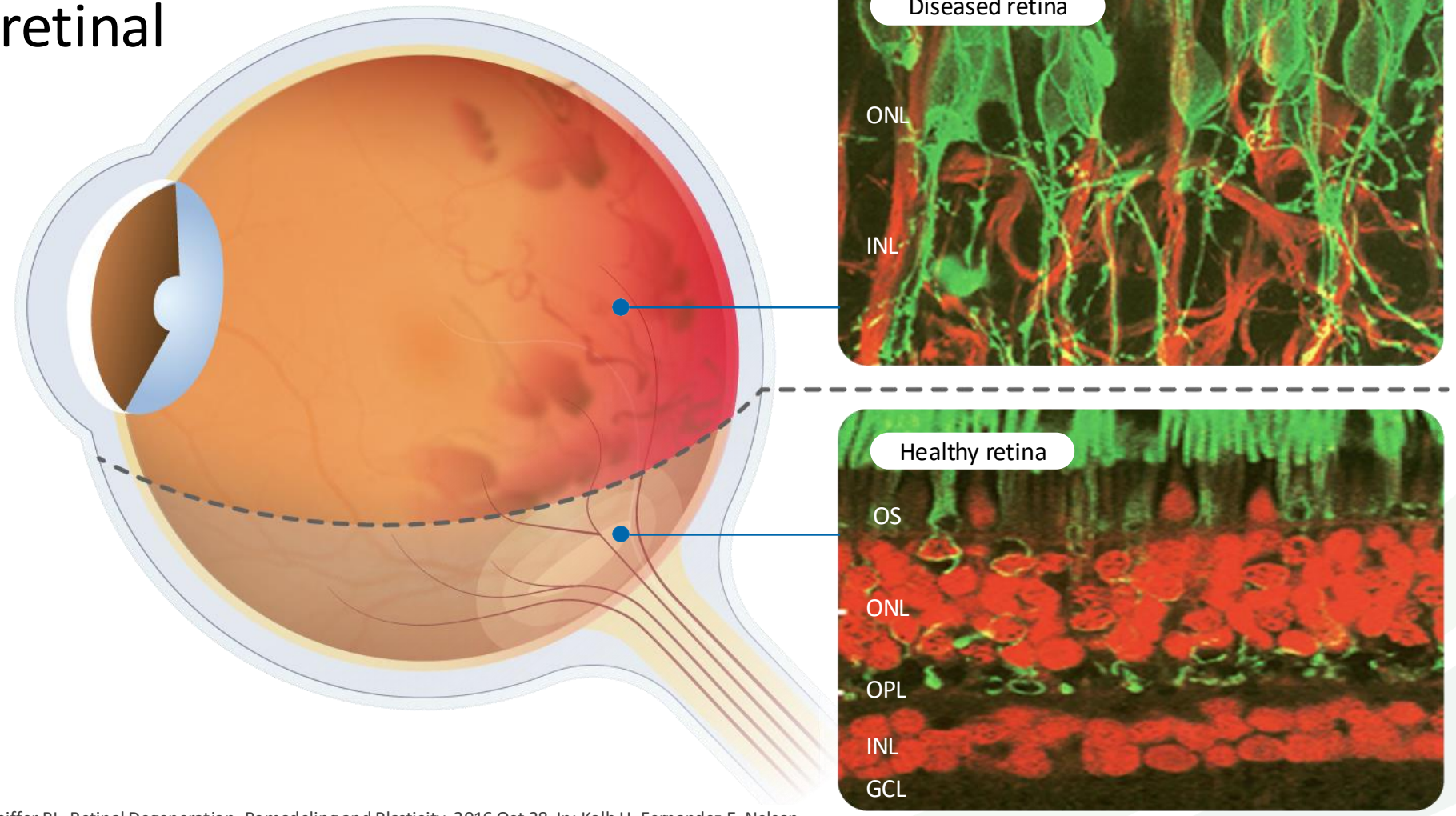
Breakthrough technology designed to address many rare diseases as well as complex diseases that affect millions

No therapy available for many retinal diseases, specially inherited retinal diseases such as RP, Stargardt and others

Most retinal therapies treat symptoms or target single genes, **leaving millions with progressive vision loss** and no effective, lasting treatment options.

3 million+

people living with retinal disease globally



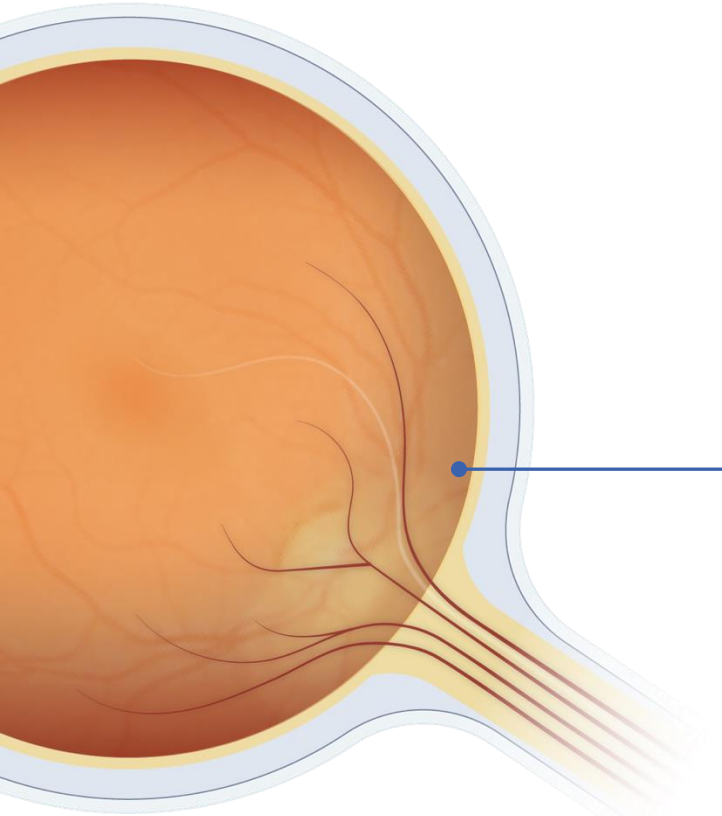
[1] Jones BW, Marc RE, Pfeiffer RL. Retinal Degeneration, Remodeling and Plasticity. 2016 Oct 28. In: Kolb H, Fernandez E, Nelson R, editors. Webvision: The Organization of the Retina and Visual System [Internet]. Salt Lake City (UT): University of Utah Health Sciences Center; 1995-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK482309/

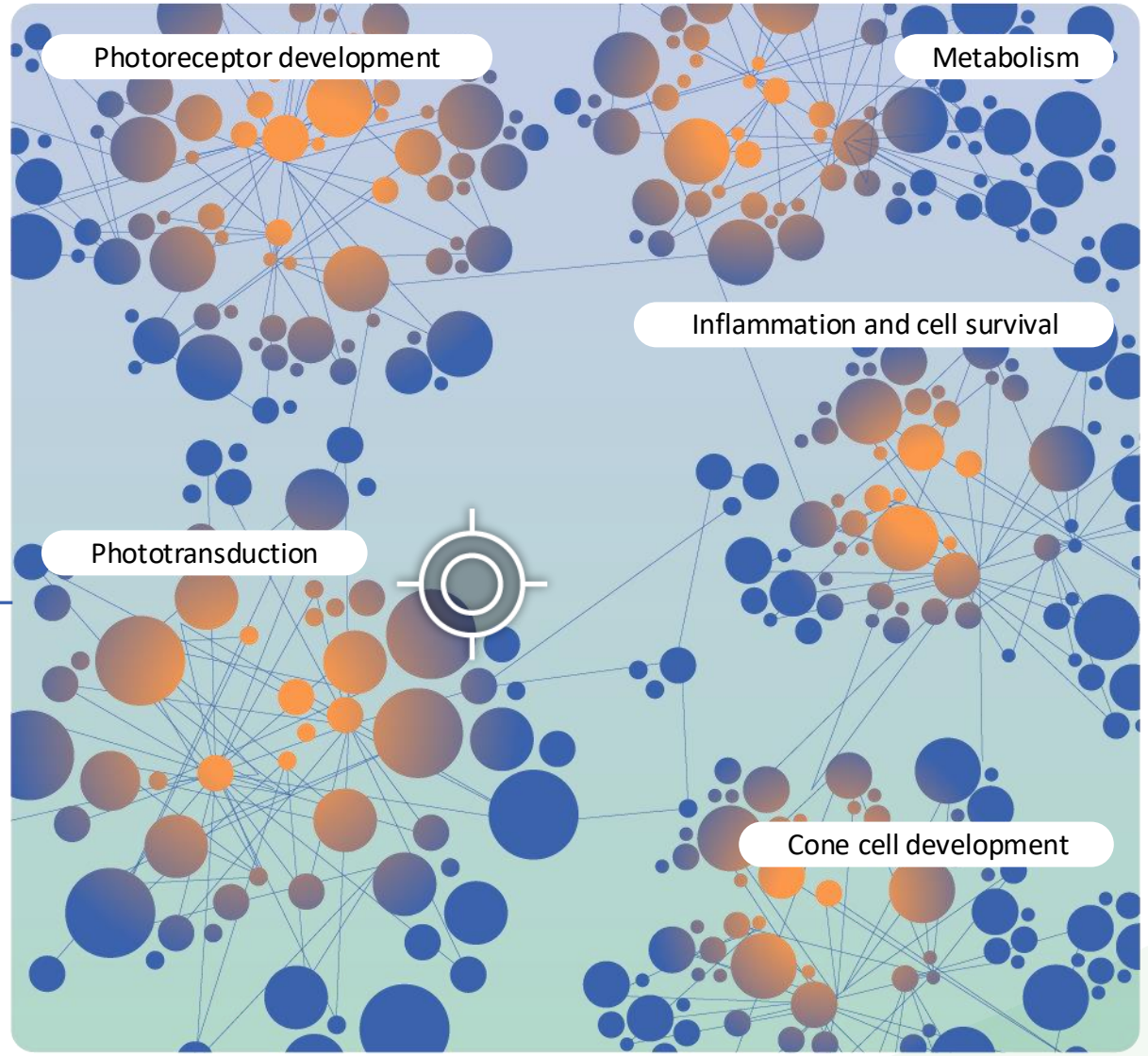
[2] https://www.nature.com/articles/s41434-024-00440-6

Problem

Traditional therapy has limited therapeutic potential

Traditional therapy can only target one single gene at a time, limiting therapeutic potential.





65%

of all human proteins are expressed in the retina

785

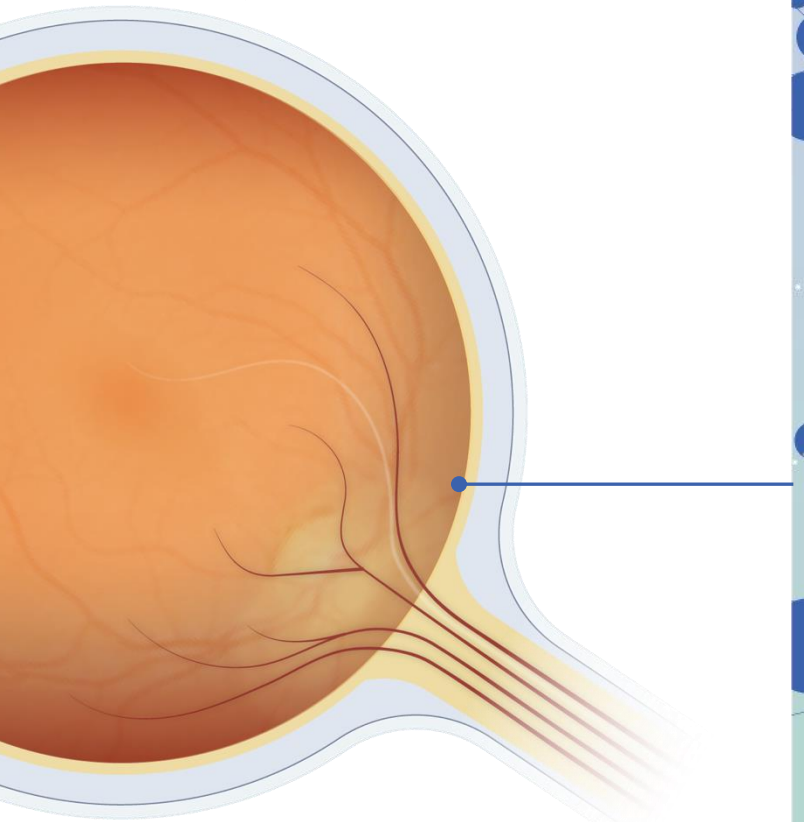
genes are highly specialized to it, interacting through complex pathways

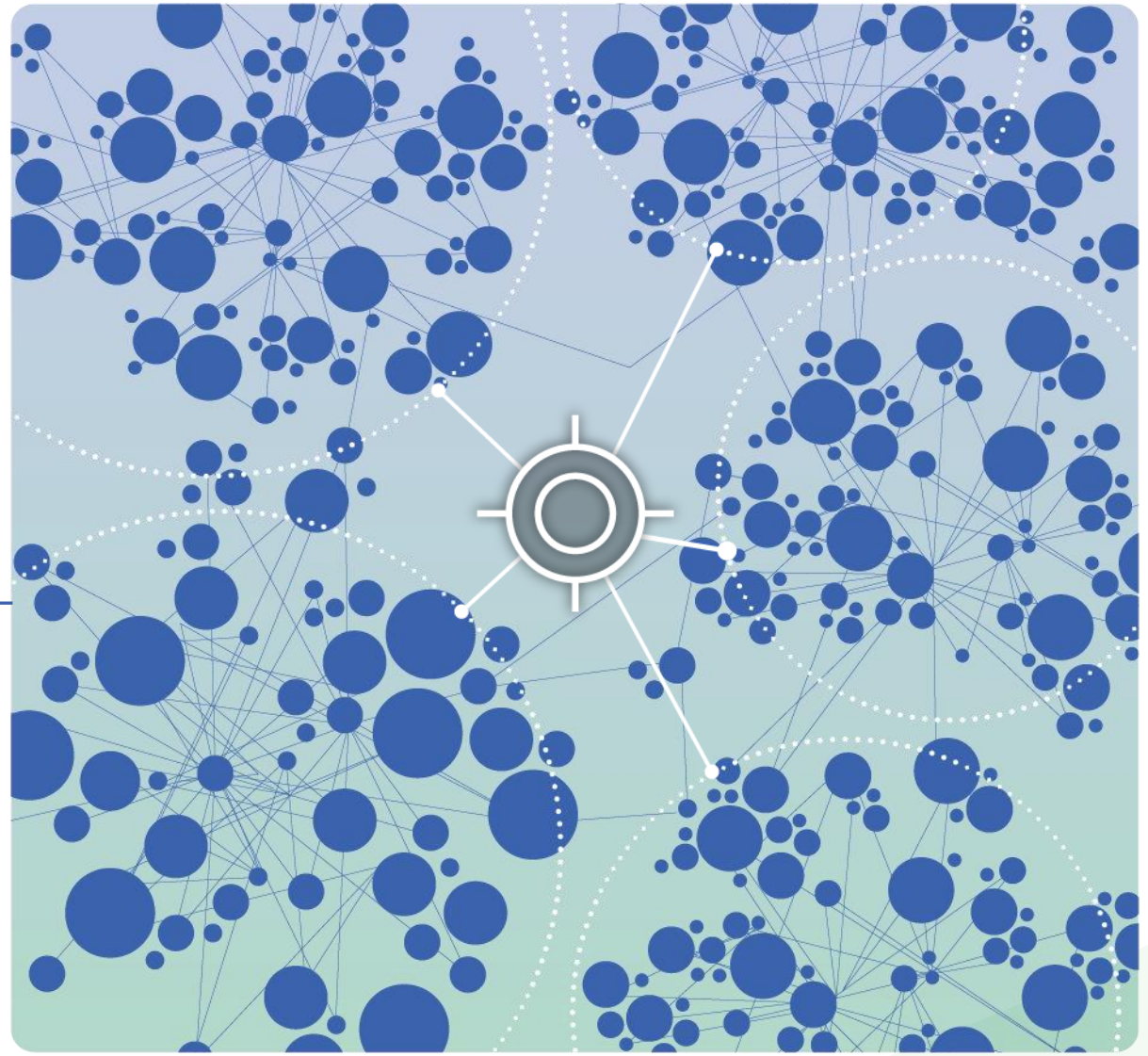
250+

mutations affecting the retina have already been identified

The Solution is a Gene-Agnostic Approach

Our breakthrough technology is designed to address rare diseases and complex diseases





Targeting master regulators

Master regulators control entire gene networks. By targeting them, Ocugen's gene therapy platform addresses the root cause of IRDs and multifactorial diseases (e.g dAMD).

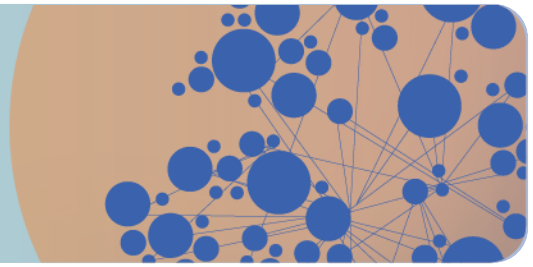
- Gene-Agnostic
- Multifactorial
- Durable Effect
- Broad Impact

Modifier Gene Therapy Platform

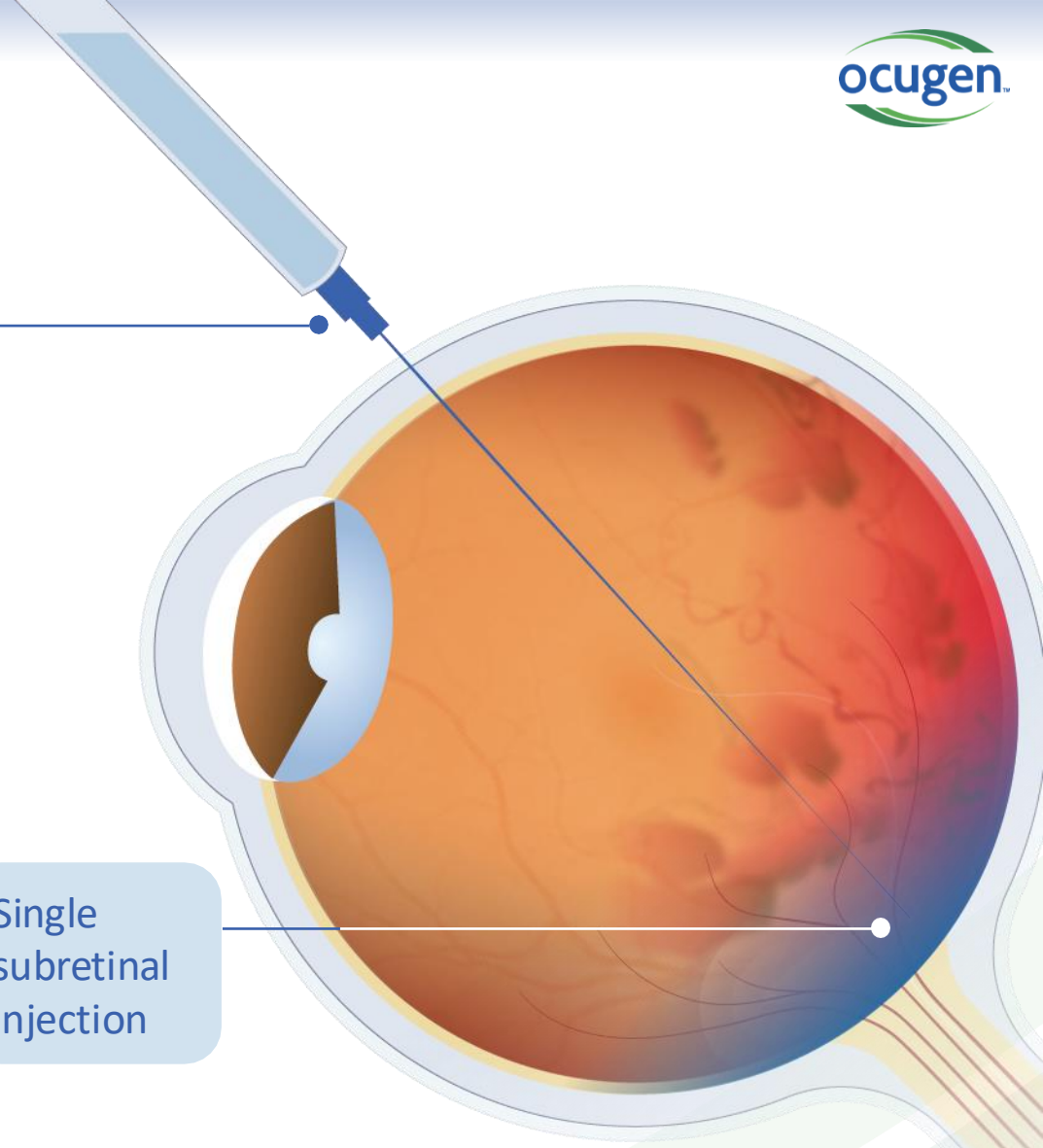
1. **AAV5**
   Carries Modifier Gene (M)*

2. **Modifier Gene (M)**
   Regulation of target gene Expression

3. **Molecular Reset of the Gene Network**
   Restoration of Molecular and cellular homeostasis



4. **Retina**
   Increased survival of retinal cells

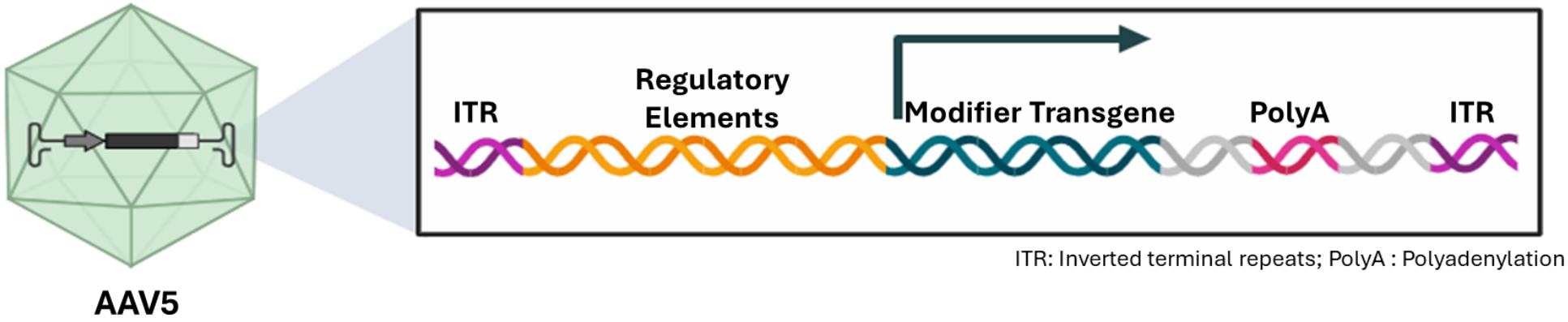


Single subretinal injection

* Modifier Genes: *NR2E3* or *RORA*

Modifier Gene Therapy: A Platform Technology

Based on AAV5 Vector and Nuclear Hormone Receptor Genes



ITR: Inverted terminal repeats; PolyA : Polyadenylation

Key Attributes of AAV5 vector:

- Non-integrating Vector
- Enhanced Tissue Specificity
- High Transduction Efficiency
- Long Term Gene Expression
- Low Immunogenicity

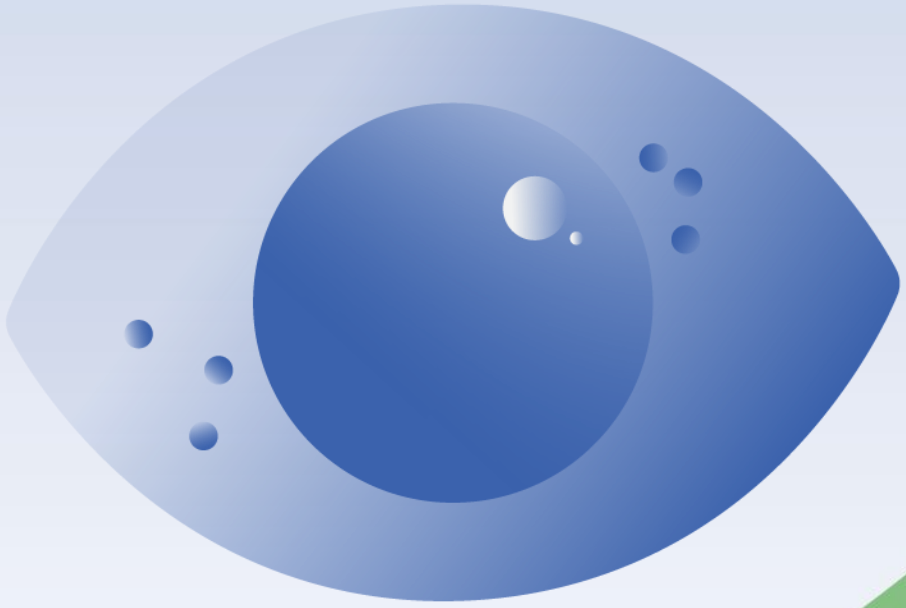
Product Highlights:

- Novel Gene Agnostic Therapy
- Broad Patient Eligibility
- Durable Benefit
- Favorable Safety & Tolerability Profile
- Proven Clinical Efficacy

OCU400

Retinitis Pigmentosa (RP)

Broad indication, gene-agnostic, targets 100+ genes



First-in-Class Gene Therapy for Retinitis Pigmentosa

Retinitis Pigmentosa

Retinitis Pigmentosa (RP) is a group of rare, inherited retinal diseases caused by mutations in over 100 genes, leading to progressive vision loss and, in many cases, blindness.

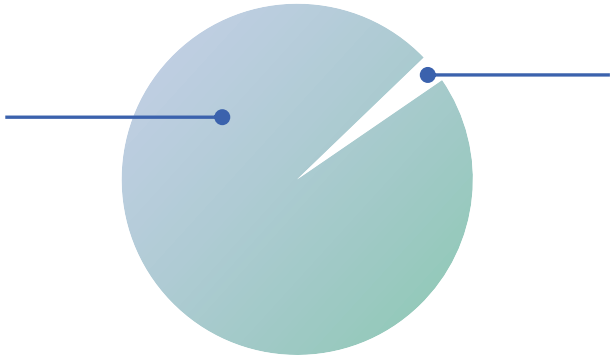
1.6 million
globally suffer from RP

1
approved treatment available

Market Potential

U.S. + EU

298,000
Patients going untreated



2,000
Luxturna® only addresses one gene (RPE65)

$52M peak annual sales

OCU400

One product for all 100 genes delivered via a single, subretinal injection

Regulatory Milestones

(Anticipated)

- **2026**
  Phase 3 trial underway — largest orphan gene therapy trial for RP
- Manufacturing process validation
- Rolling Submission U.S. (BLA)
  Followed by EU (MAA)

Designations

- FDA
  (RMAT + ODD)
- EMA
  (ATMP+ OMPD)

Regenerative Medicine Advanced Therapy (RMAT); Orphan Drug Designation (ODD); Orphan Medicinal Product Designation (OMPD); EAP= Expanded Access Program

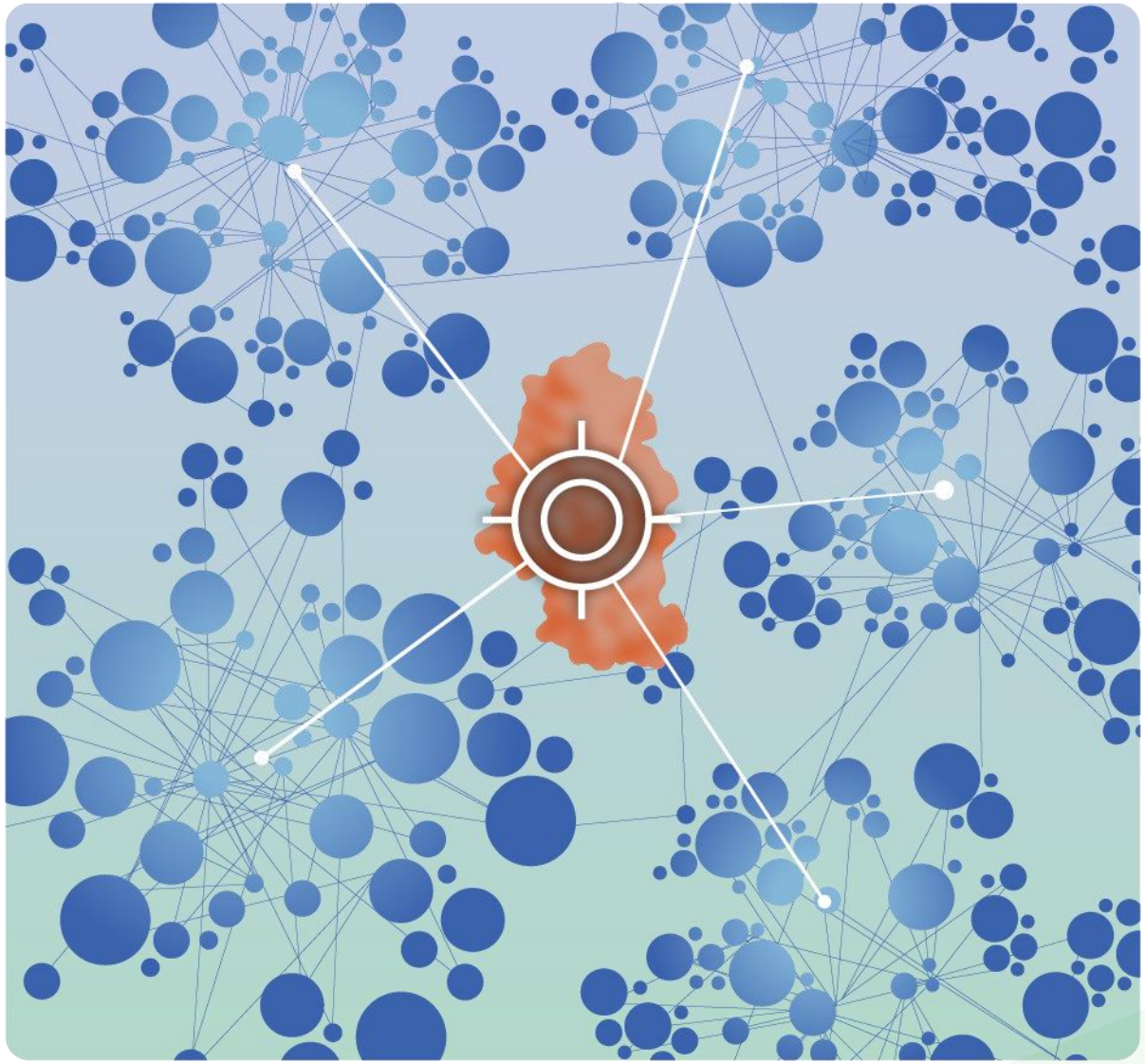
A Novel Modifier Gene Therapy for RP Patients

A gene-agnostic, broad-spectrum approach targeting retinal health at the root

Potential curative therapy with a single subretinal injection using NR2E3

Preclinical data demonstrates activity across multiple retinal degeneration mouse models

- rd1
- rd16
- Rho $^{-/-}$
- rd7
- Rho P23H



NR2E3

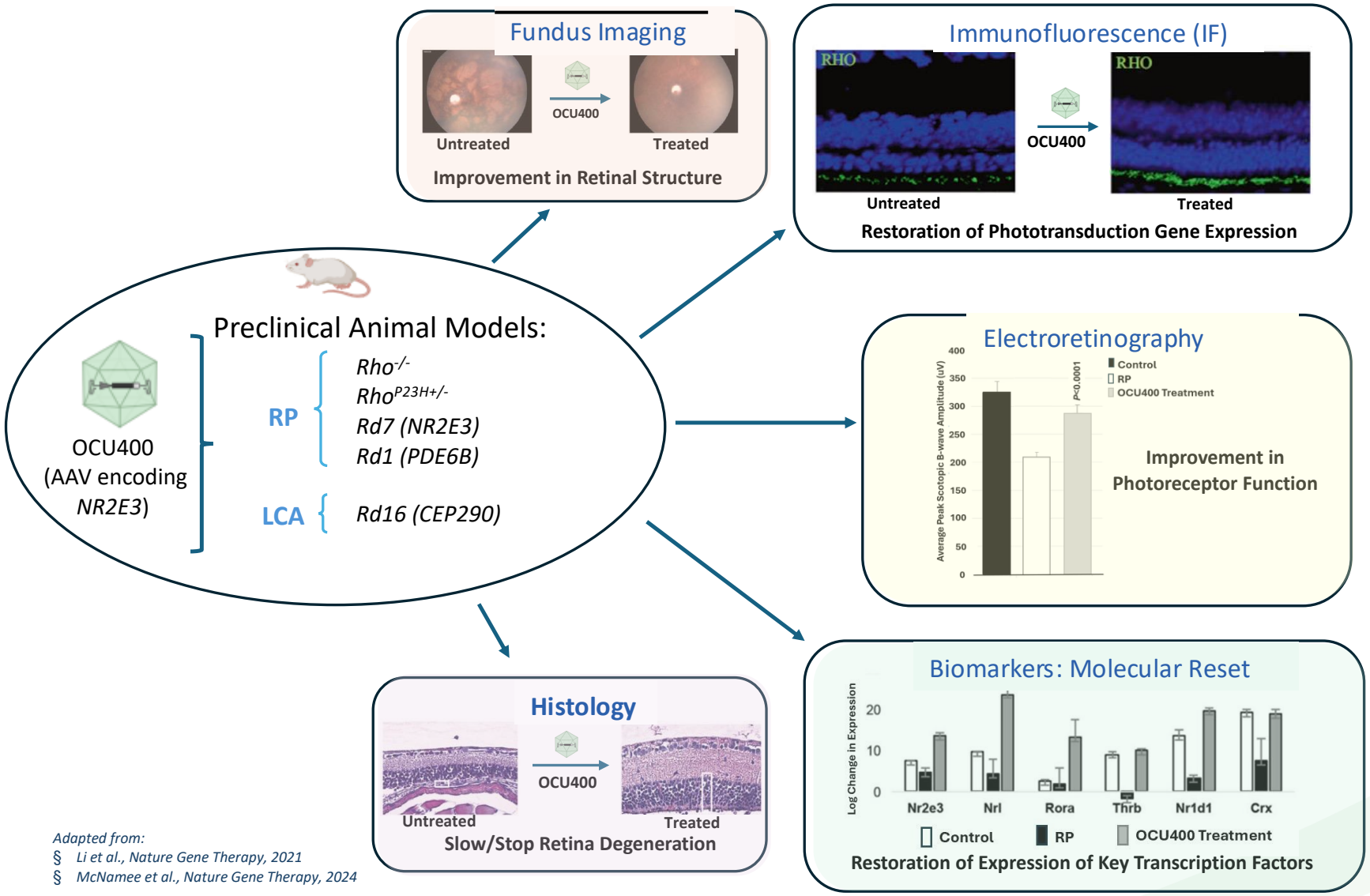
Retina-specific gene expression

"Master Regulator" of many genetic pathways

Resets transcriptional networks and restores retinal health

Li S. *Nature Gene Ther*. 2021;28(5):223-241.

Preclinical studies demonstrating MOA

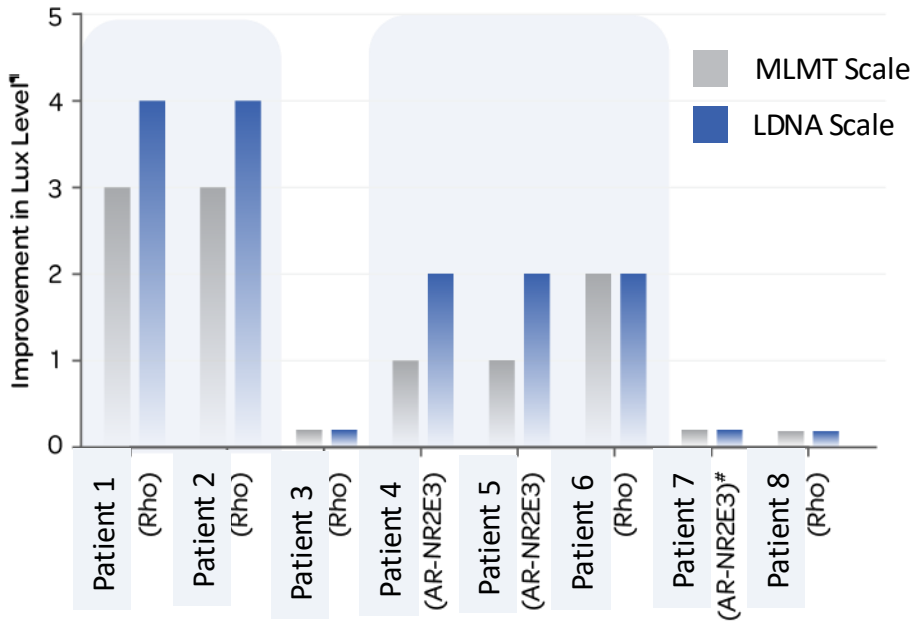


Adapted from:

- *Li et al., Nature Gene Therapy, 2021*
- *McNamee et al., Nature Gene Therapy, 2024*

Improved Patient Visual Function and Field in Phase 1/2 Clinical Trials

Eye Mobility Under Low Light

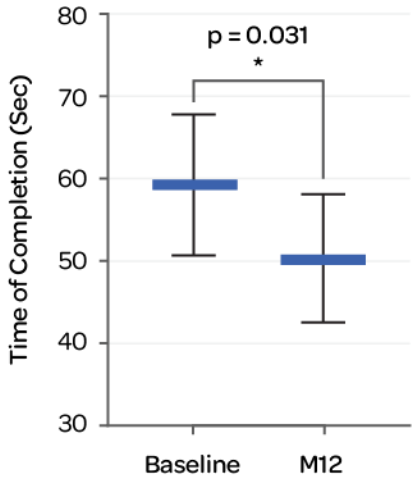


63%

of Treated Eyes Showed Improvement

from baseline after 12 months

Mobility Test Improvement

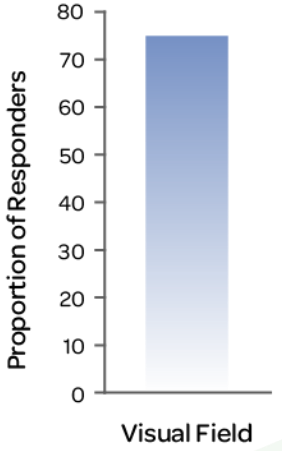


10s

Improvement

statistically significant improved in MT completion in Treated Eyes (p=0.031)

Visual Field Improvement



75%

Improvement

of VF in Treated Eyes in ITT subgroup demonstrated compared to untreated eyes (6/8)

Subject ID (with Mutation)

MLMT Scale (Phase 1/2)

Lux Levels	0	1	2	3	4	5	6	7
Lux Intensity	400	250	130	50	10	5	1	0.1

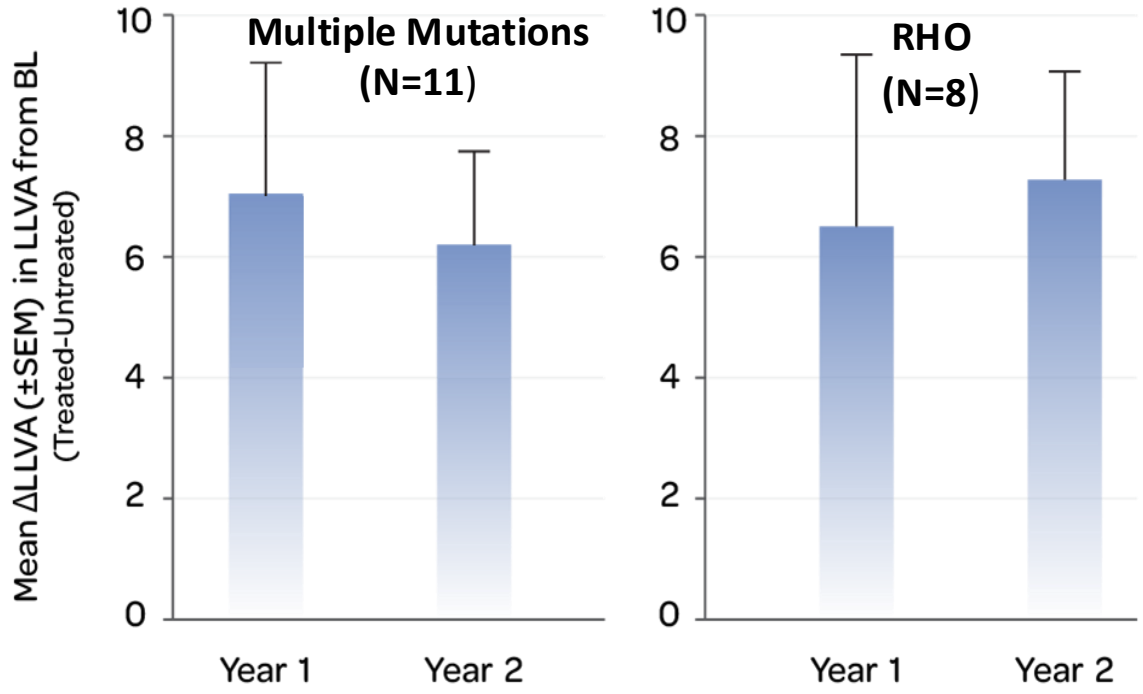
LDNA Scale (Phase 3)

Lux Levels	0	1	2	3	4	5	6	7	8	9
Lux Intensity	500	178	63	22	8	3	1	0.35	0.125	0.04

*RHO +AR-NR2E3 Subjects (- Adverse Events, Sentinel); and Ceiling Effect (RHO) Subjects; ^ ceiling effect (AR-NR2E3)
AR-NR2E3 Subjects: Baseline MLMT at 5 Lux level; 1Lux level improvement resulted in ceiling effect on old scale on 0-6 Lux levels
¶ Subjects 001-003, 003-001, 001-005, 002-002 and 003-006 were responders based on the adapted LDNA Scale rounded to the nearest Lux level. Visual field is represented as improvements in VTOT or V30 compared to untreated eyes

Long-Term Safety & Durability Data

Mean Change in LLVA (ETDRS Letters) from Baseline



Results from Phase 1/2 Study

Improvement in visual function in treated eyes when compared to untreated eyes, demonstrates gene-agnostic Mechanism of Action

0

Serious Adverse Events Reported

100%

treated evaluable subjects showed improvement or preservation

in visual function compared to untreated eyes

OCU400 demonstrated a durable and statistically significant (p=0.005) improvement in visual function (LLVA) in all evaluable treated subjects at 2 Yr when compared to untreated eyes

Phase 3 liMeliGhT Trial—Largest RP Data Set

Phase 3 Study Design

MTD
Determined in Phase 1/2

100+ RP patients
2:1 ratio

2 **Treatment Group**
2.5×10^{10} vg per eye 250 µL

1 **Control Group**
No Treatment

Endpoints

Target Population

Early- to late-stage disease in broad RP population
Including pediatrics (5+ years)

Primary

12-month change in Function Vision assessed by LDNA*

Improvement in Lux Level in LDNA from baseline to 12 months

Secondary

Visual function improvement in treated eye vs. control eye

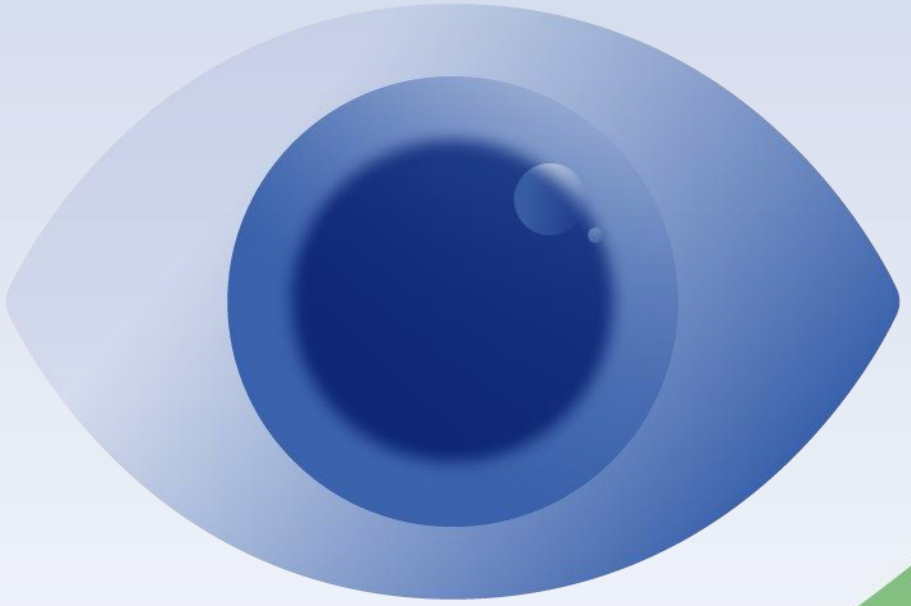
Assessed by **Low Luminance Visual Acuity (LLVA)**

*LDNA= Luminance Dependent Navigation Assessment is a mobility test administered on a maze under different lux levels

OCU410ST

Stargardt Disease

ABCA4 -associated retinopathies >1,200 mutations



OCU410ST

First-in-Class Gene Therapy for Stargardt Disease

Stargardt Disease

A rare IRD associated with 1,200+ mutations of the *ABCA4* gene

1 million
globally suffer from *ABCA4*-associated retinopathies

0
approved treatments available

Market Potential

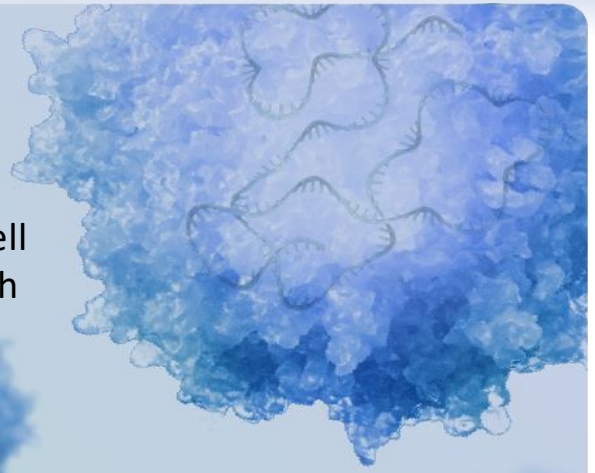
U.S. + EU

100,000
Potential Patients

100%
of Patients going untreated

OCU410ST

for upregulation of networks of key genes improving the cell environment and survival with a single, subretinal injection



Regulatory Milestones

(Completed/anticipated)

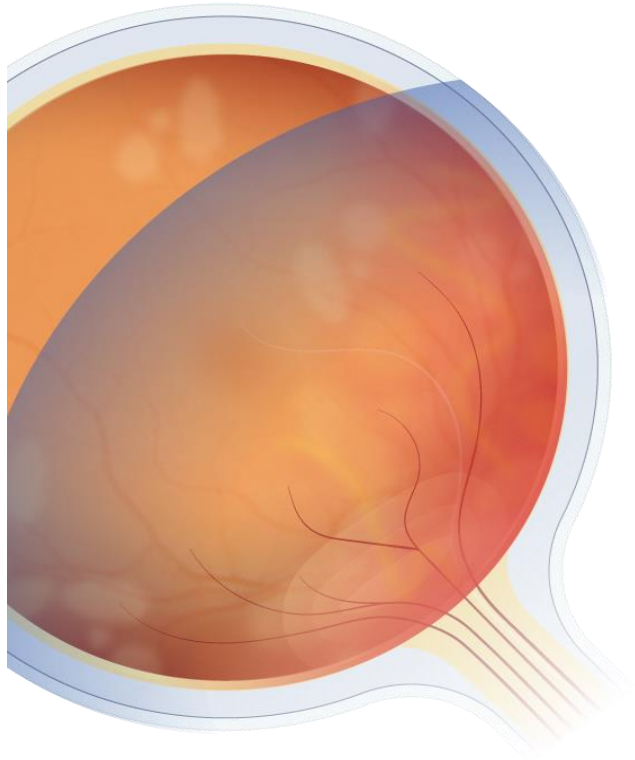
- **2025**
  Initiated pivotal Phase 2/3
- **2026**
  Complete enrollment
  Interim analysis
- **2027**
  Topline Data, BLA submission

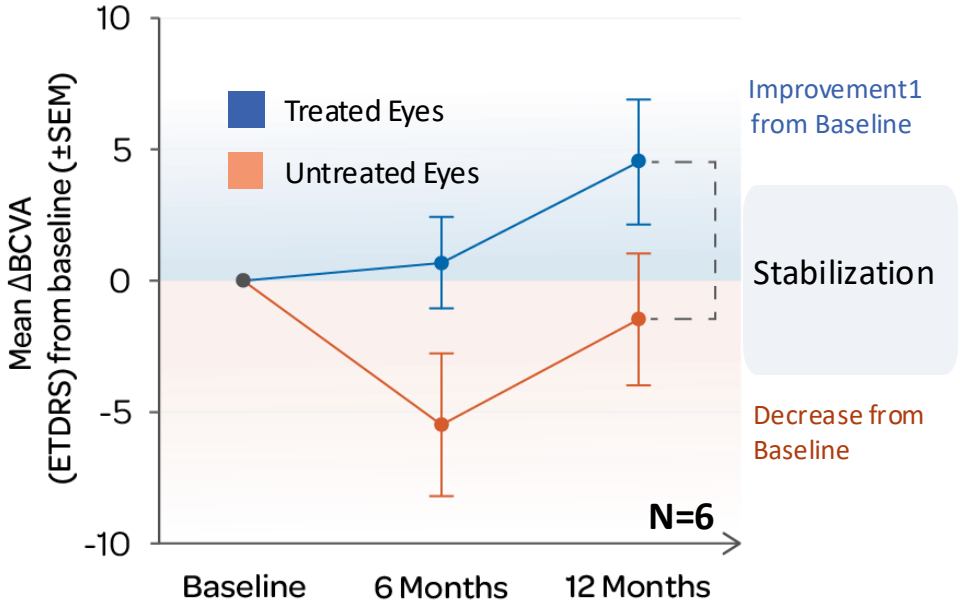
Designations

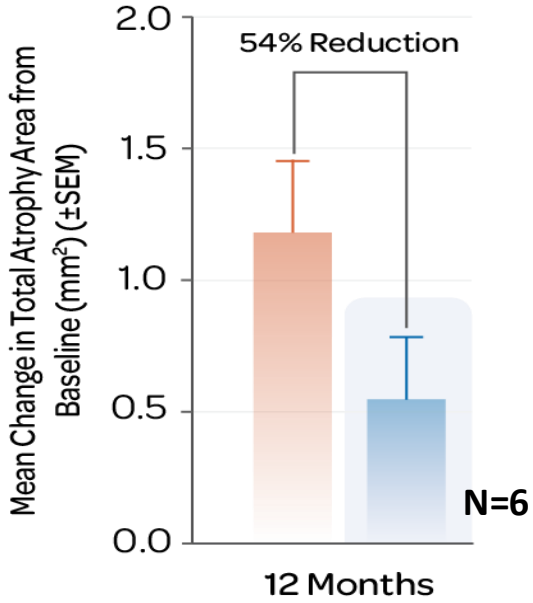
- FDA (RPDD + ODD)
- EMA (ATMP+ OMPD)

Advanced Therapeutic Medicinal Product (ATMP); Orphan Drug Designation (ODD); Orphan Medicinal Product Designation (OMPD)

Phase 1 GARDian1 Trial Demonstrated Clinically Meaningful Benefit







Nearly
1-line gain
In visual acuity compared to untreated eyes

Visual Function*
100%
Stabilized or Improved
compared to untreated eyes

Atrophic Lesion Growth*
54% slower
compared to untreated eyes

No Serious Adverse Events Reported

Improvement or Preservation in evaluable Treated Eyes
Preservation = -/+4 letters from Baseline, Improvement: ≥5 Letters from Baseline

*Khanani *et al*., Nature Eye, January 10, 2026 (https://doi.org/10.1038/s41433-025-04202-5)

GARDian 3- Phase 2/3 Pivotal Confirmatory Trial

Trial Design

MTD
Established in Phase 1

Randomized 2:1 (N=51)

17
Control Group
No Treatment

34
Treatment Group
3×10^{10} vg per eye in 200 µL

DSMB
4-week Data Reviews

First	Second	All
17	17	Subjects

DMC
Interim-Data Analysis

Endpoints

Target Population

Early- to late-stage disease population
Including pediatrics (3+ years)

Primary

12-month change in atrophic lesion size from baseline vs. control

Measured in mm^2 by fundus autofluorescence (FAF)

Secondary

Functional improvement in vision vs. control eye

Assessed by LLVA and BCVA

Adaptive design with sample size re-estimation [Mid-2026]

Interim Analysis: 24 subjects complete 8 months post-OCU410ST
(16 treated and 8 controls)

OCU410

Geographic Atrophy

Advanced dry age-related macular degeneration (dAMD)

OCU410

First-in-Class Gene Therapy for GA Patients

Geographic Atrophy

Geographic Atrophy (GA) is an advanced form of dry AMD. GA causes irreversible degeneration of retina cells in the macula, leading to loss of central vision.

~8 million

globally suffer from advanced dAMD

2

approved treatments available that address only 1 of the 4 pathways involved in disease progression

Market Size

U.S. + EU

2-3M

Patients

Approved Products in US

SYFOVRE® and IZERVAY®

>$1B combined annual sales

OCU410

Designed to address all four pathways associated with GA without 6-12 injections per year and related side effects

Regulatory Milestones

(Anticipated)

- **2026** Phase 2 full data release
- **2026** Initiate Phase 3
- **2027** Complete enrollment
- **2028** Topline data, BLA submission

Designations

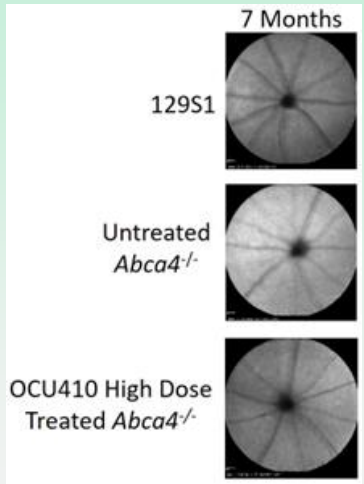
- EMA (ATMP)

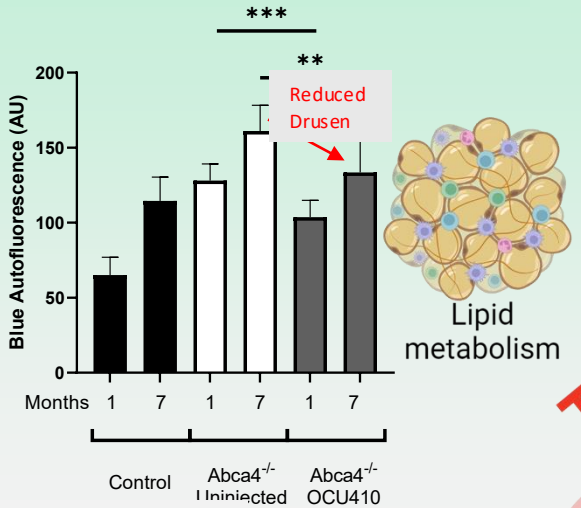
Recent Milestone

Positive Preliminary 12-month Phase 2 data

OCU410 (RORA): A Modifier Therapeutic Approach for dAMD

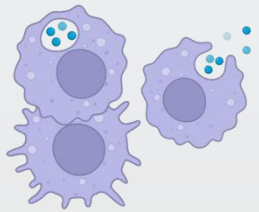
Anti-drusen activity and improves retinal function

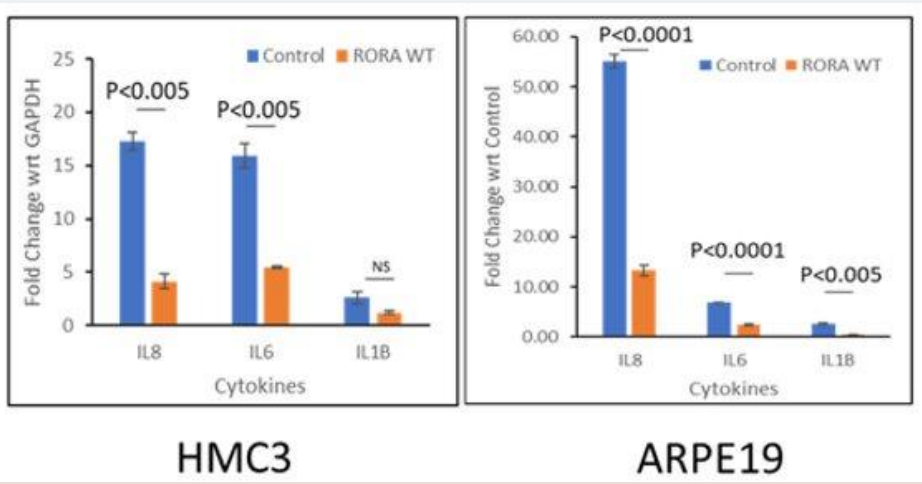


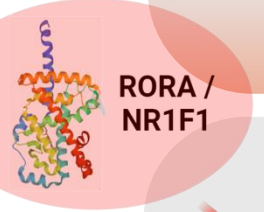


Macular Degeneration Model

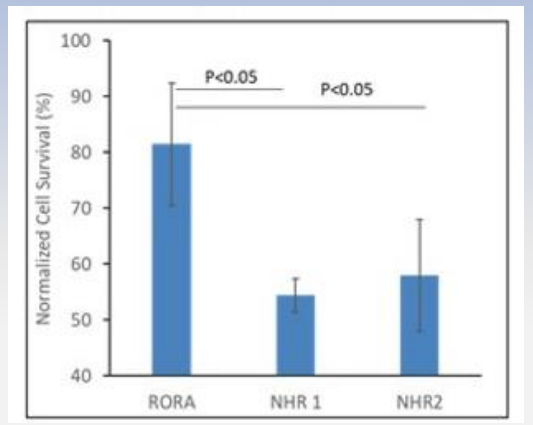
Anti-inflammatory: Suppresses inflammation in HMC3 cells

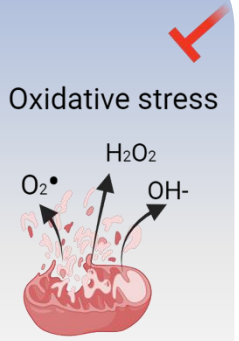




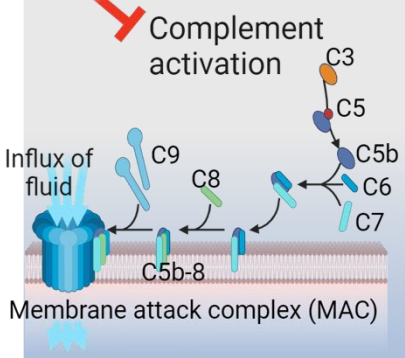


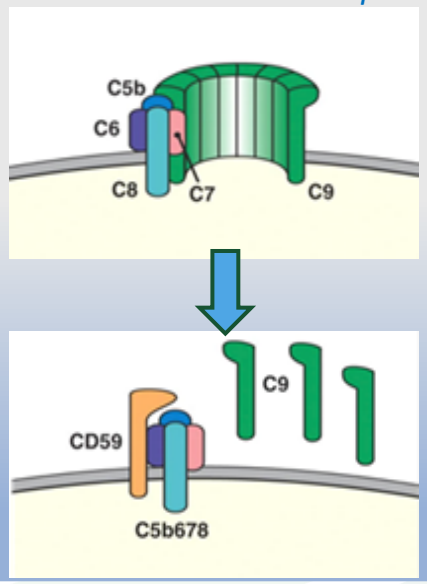
Anti-oxidative: Improves ARPE19 cells survival

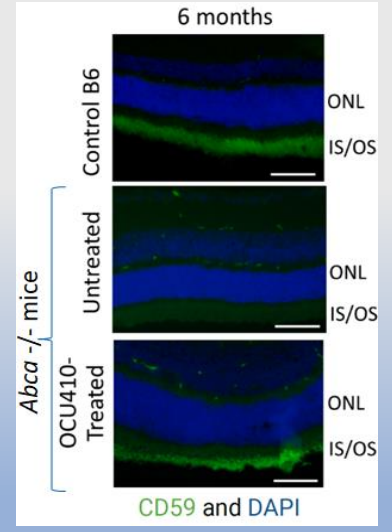




Anti-complement: Increased anti-complement (Cd59) protein







Phase 1 ArMaDa Trial

Trial Design

Dose Escalation (1:1:1)

3 👥

Low Dose Group

2.5x 10^9 vg/ml in 200µL

(or 5x 10^9 vg per eye)

3 👥

Medium Dose Group

5x 10^{10} vg/ml in 200µL

(or 1x 10^{10} vg per eye)

3 👥

High Dose Group

1.5x 10^{11} vg/ml in 200 µL

(or 3x 10^{10} vg per eye)

DSMB

4-week post-OCU410 Safety Reviews

First	Second	All Subjects
3	3	9

Endpoints

Target Population

GA secondary to dAMD

Primary

- Safety, AEs and SAEs
- Indirect ophthalmoscopy
- IOP

Secondary

- Humoral/cellular immune response
- Vector shedding

Exploratory

- Indirect ophthalmoscopy
- Fundus Autofluorescence
- Drusen volume (mm^3) measured by SD-OCT
- Incidence of conversion to wet AMD
- MAIA
- Patient Reported Outcomes (NEI-VFQ25)

CNV in fellow eye was not exclusionary

OCU410 Phase 1—Baseline Characteristics and Safety

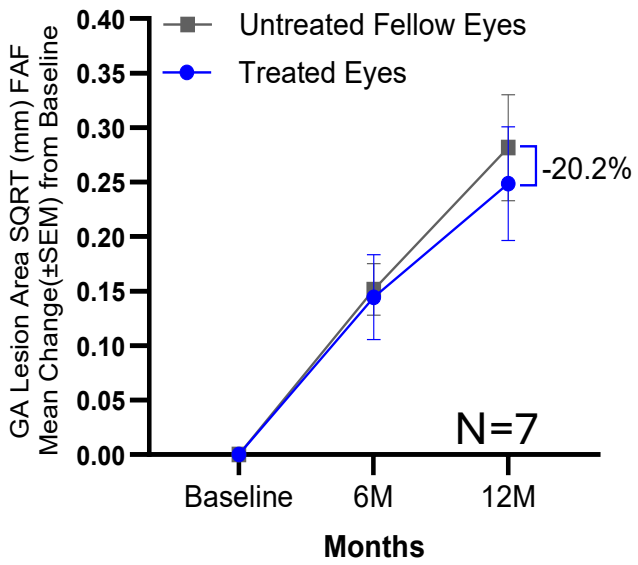
	Mean ± SEM Study Eye	Mean ± SEM Fellow Eye
Age (Years)	79 ± 8	
BCVA Letters	46.89 ± 5.98	59.67 ± 8.07
LLVA Letters	34.78 ±5 .71	41.89 ±7 .59
Lesion Size at BL (mm^2)	7.74 ± 1.54	8.19 ± 1.81

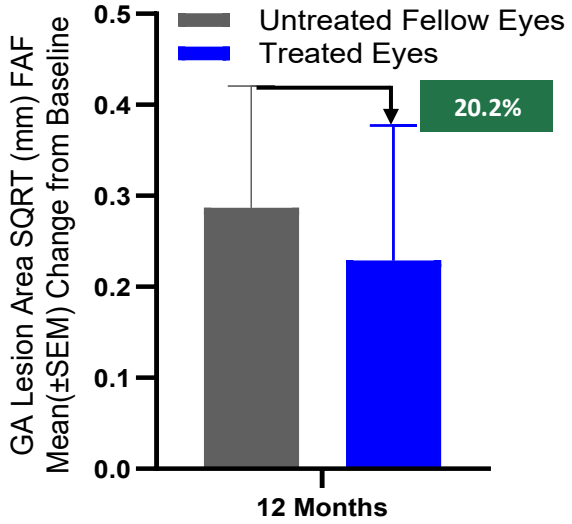
No adverse or severe adverse events related to the study drug were reported including:

- No development of exudation
- No infectious endophthalmitis
- No intraocular Inflammation
- No anterior ischemic optic neuropathy (AION)
- No vasculitis

BL= Baseline; SEM= Standard Error of the Mean

Phase 1—OCU410 Treatment shows reduction in GA Lesion Growth





Lesion Size

20.2% Reduction

compared to untreated fellow eye

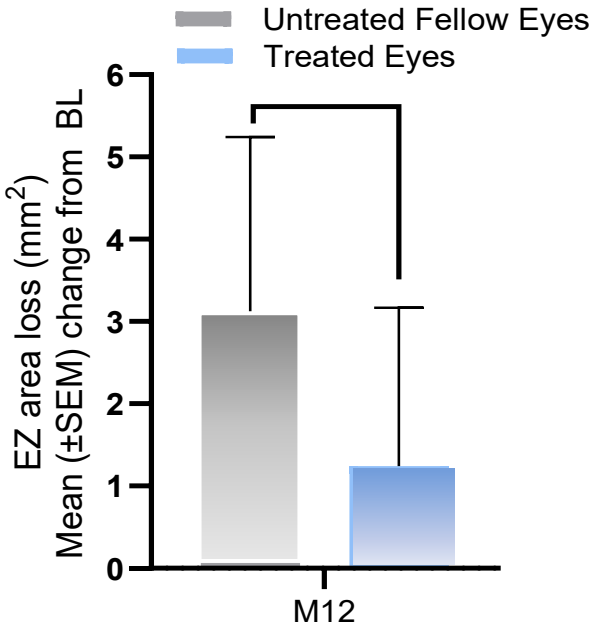
Disease Progression

Slower Atrophy Growth

compared to untreated fellow eye

Data points at 12M (N=7, 3 Low Dose, 2 Med Dose, 2 High Dose)
1 High dose subject with loss-to-follow up, and 1 Med dose subject with foveal detachment during surgery were not included in the analysis
GA= Geographic Atrophy, SQRT= square root; SEM= standard error or mean

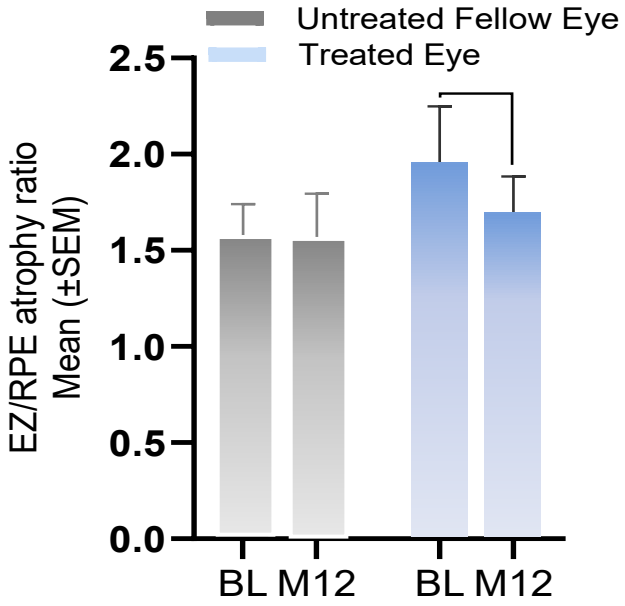
Phase 1—Treatment Provides Retinal Structural Preservation by Reducing EZ Loss & Photoreceptor Degeneration



EZ loss

60% slower

compared to untreated fellow eyes



EZ-RPE loss

Reduced

compared to untreated fellow eyes
potential treatment effect

M=Months
Data points at 12M (N=7, 3 Low Dose, 2 Med Dose, 2 High Dose)
1 High dose subject with loss-to-follow up, and 1 Med dose subject with foveal detachment during surgery were not included in the analysis
Preservation= reduction in the loss of EZ and EZ/RPE (photoreceptors) as a treatment outcome

Phase 2 ArMaDa Trial

Trial Design

MTD
Determined in Phase 1

Randomization
1:1:1

17

Control Group
No Treatment

17

Medium Dose Group
5x 10^{10} vg/ml in 200µL
(or 1x 10^{10} vg per eye)

17

High Dose Group
1.5x 10^{11} vg/ml in 200 µL
(or 3x 10^{10} vg per eye)

DSMB
4-week Safety Reviews

First	Second	All Subjects
17	17	51

Endpoints

Target Population

Geographic atrophy secondary to Dry AMD

Primary

Change in GA lesion size
Measured in mm^2 by fundus autofluorescence (FAF)

Secondary

Change in LLVA from baseline at 12M

Preservation of retinal tissue around areas of atrophy

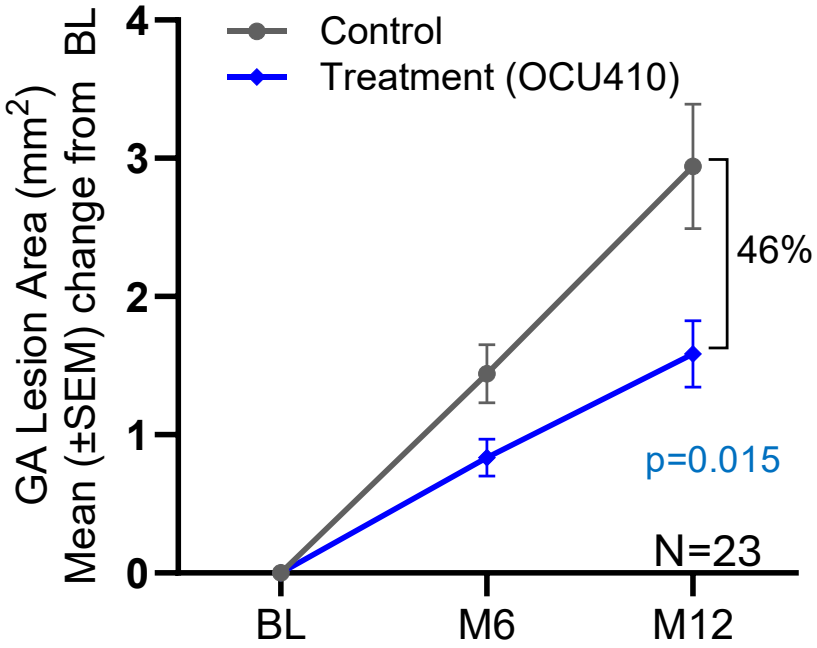
Phase 2—Baseline Characteristics and Safety

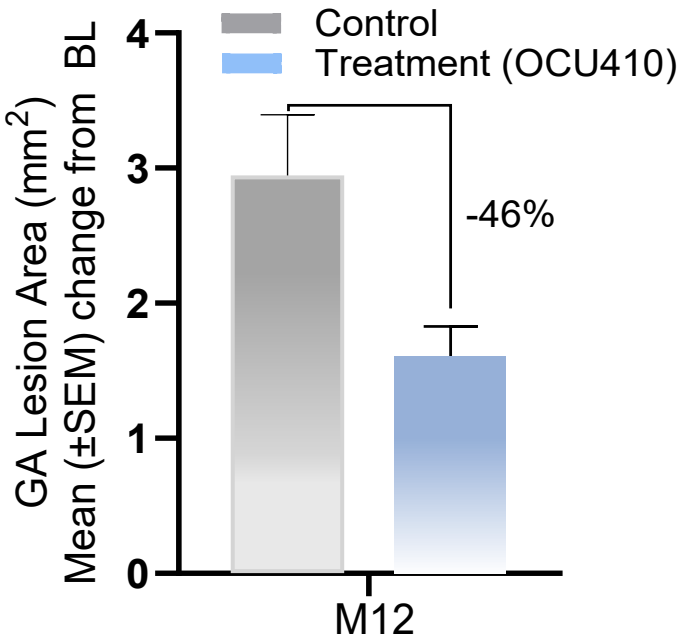
Age (Years)	**75.96 ± 6.27**		
Male	20 (39.2)		
Female	31 (60.8)		
	Mean ± SD Overall Study	**Mean ± SD Treated Eye**	**Mean ± SD Control Eye**
BCVA Letters	53.96± 19.27	56.55 ± 18.93	47.15 ± 19.20
LLVA Letters	30.32±17.18	30.41 ± 18.30	30.07 ± 14.50
Lesion Size at BL (mm^2)	8.67 ± 4.89	8.48 ± 4.59	9.14 ± 5.74

Side effects	**OCU410**	Products with every-other- month and every month injections
Endophthalmitis and Retinal Detachments	—	✓
Retinal Vasculitis and/or Retinal Vascular Occlusion	—	✓
Choroidal Neovascularization	—	✓
Intraocular Inflammation	—	✓
Optic ischemic Neuropathy	—	✓
Treatment Emergent Serious Adverse Events	—	✓
Treatment Emergent Adverse Events considered severe	—	✓

BL= Baseline; SEM= Standard Error of the Mean

Phase 2—Treatment Demonstrates Reduction in GA Lesion Growth at 12 Months





Lesion Size

46% Reduction

in treatment group compared to controls

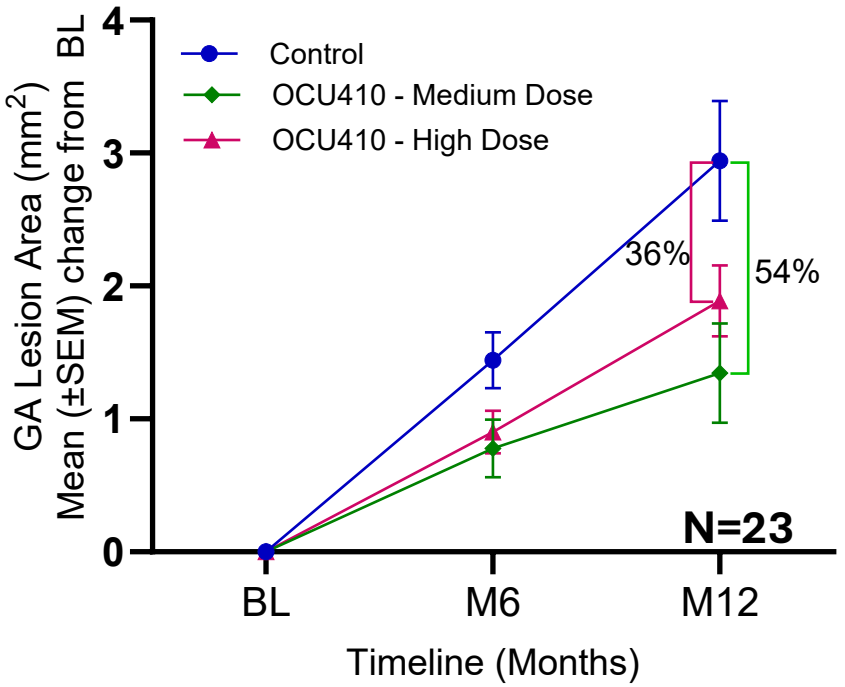
Disease Progression

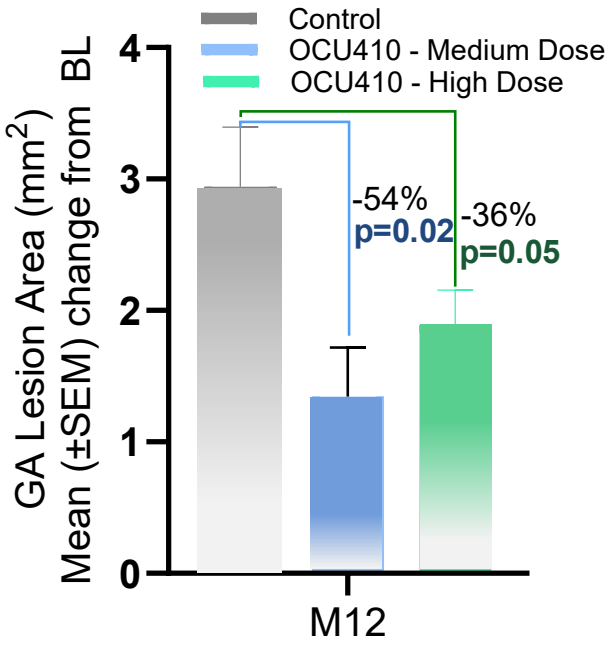
Slower Atrophy Growth

compared to controls

Includes both foveal and subfoveal GA: geographic atrophy; Treated Eyes that received OCU410 Medium dose and OCU410 High Dose were combined for analysis
Data points for Control, N=5; Treated Medium Dose, N=10; Treated High-Dose, N=8

Phase 2—OCU410 demonstrates reduction in GA Lesion Growth at 12 Months





Lesion Size

54% vs 36%

Lesion reduction in medium dose and high dose compared to controls

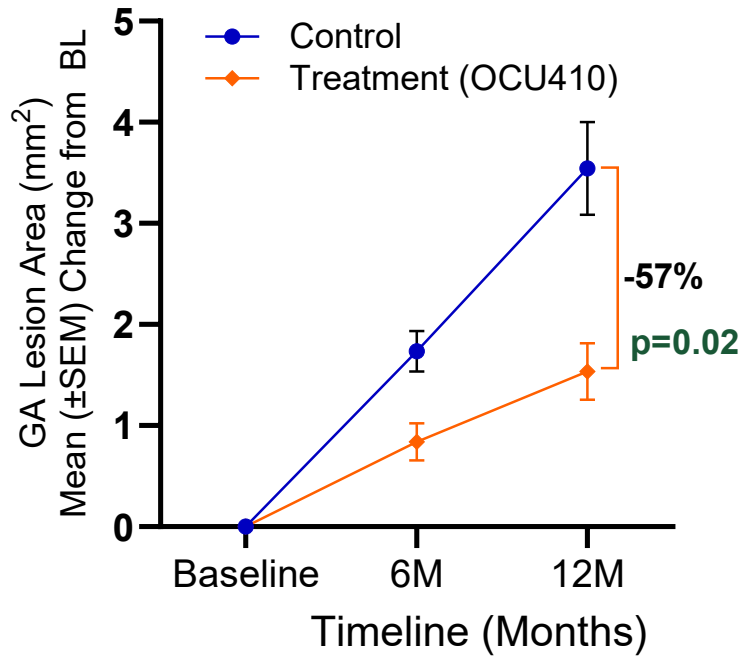
Disease Progression

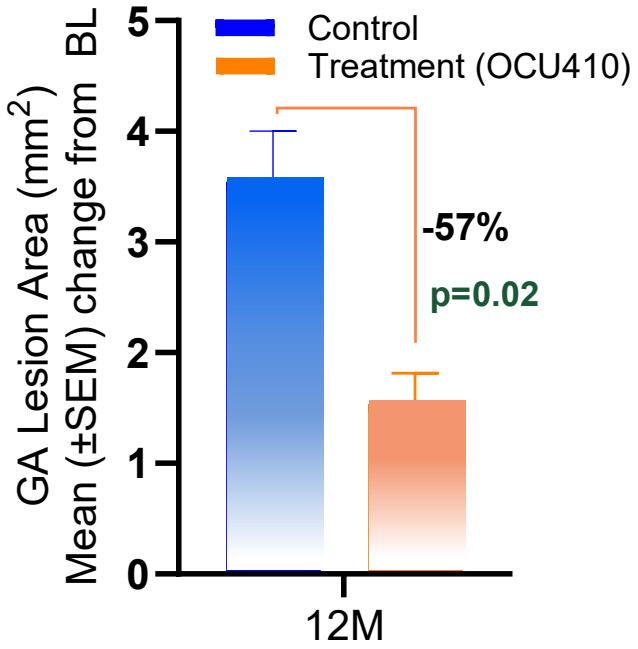
Slower Lesion Growth

in both dose groups compared to controls

Includes both foveal and sub foveal GA: geographic atrophy, Data points for Control, N=5; Treated Medium Dose, N=10; Treated High-Dose, N=8

Greater Lesion Reduction in Subjects with ≥7.5 mm^2 at Baseline





Lesion Size

57% Reduction

in treated eyes compared to controls

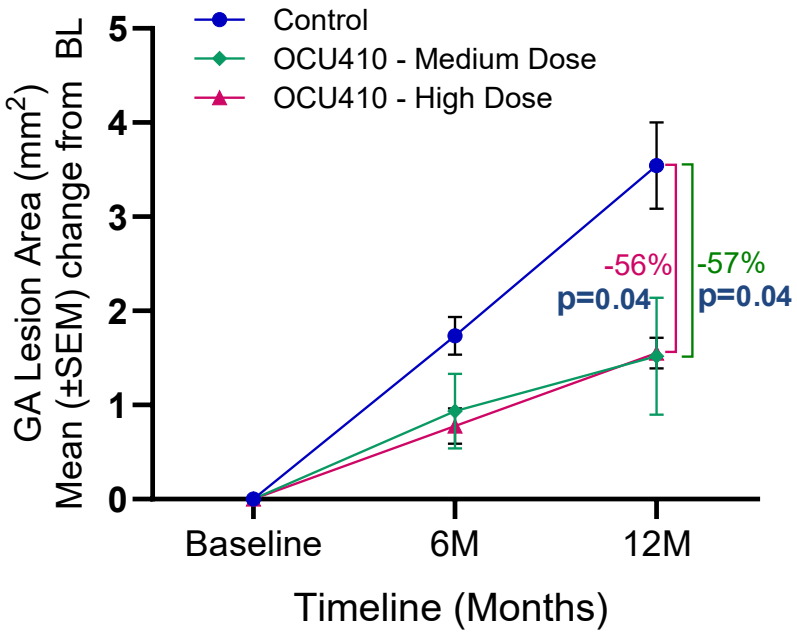
Disease Progression

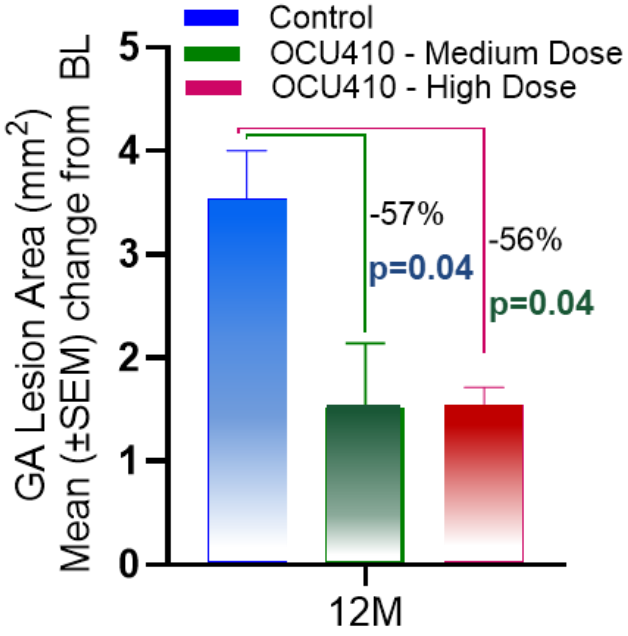
Slower Lesion Growth

in treated eyes compared to controls

Includes both foveal and sub foveal GA: geographic atrophy, Data points for Control, N=3; Treated Medium Dose, N=5; Treated High-Dose, N=6

Similar GA Lesion Growth at 12 Months for Medium and High Dose for Lesion Size ≥7.5mm^2 at Baseline





Lesion Size

57% vs 56%

lesion reduction in medium dose and high dose compared to controls

Disease Progression

Slower Lesion Growth

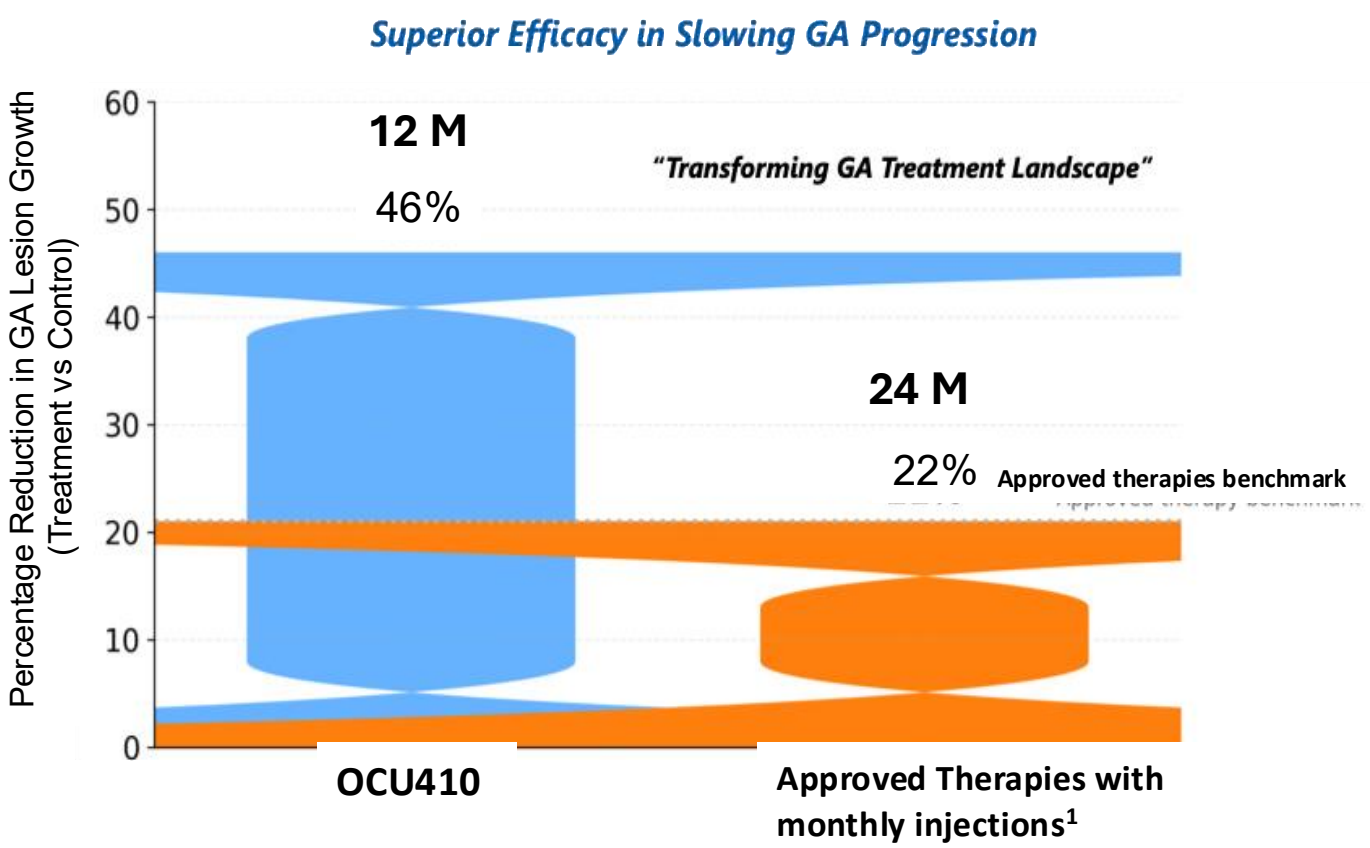
in both dose groups compared to controls

No difference observed between doses

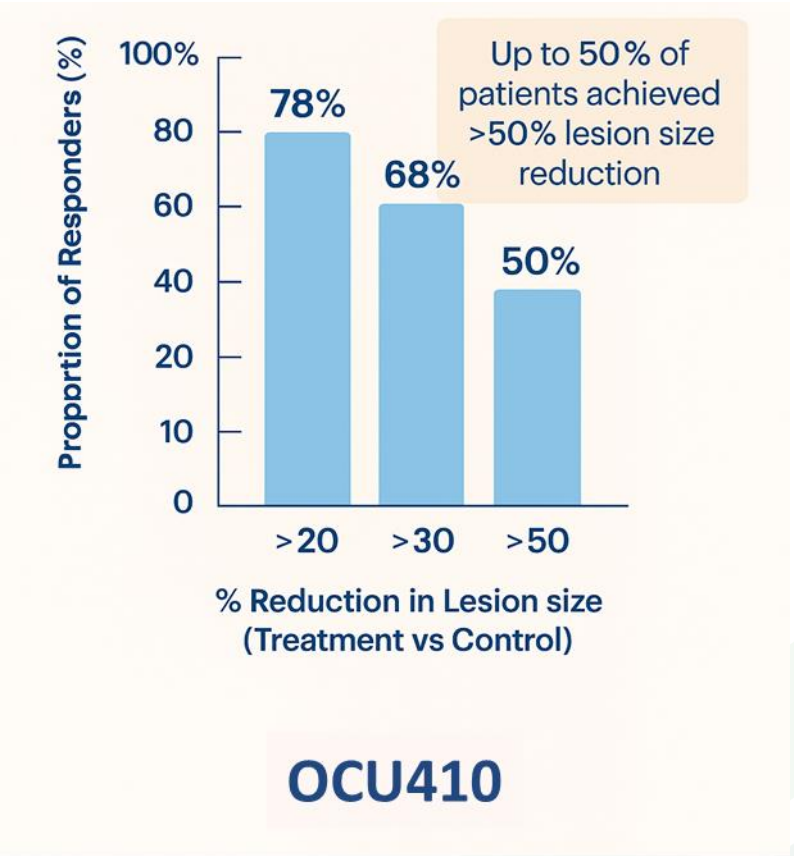
Includes both foveal and sub foveal GA: geographic atrophy, Data points for Control, N=3; Treated Medium Dose, N=5; Treated High-Dose, N=6

Phase 2—Demonstrates Superior Clinical Effects in GA Patients

Significant Lesion Size Reduction Compared to Control



Responder Rate to OCU410 Treatment



Oaks and Derby Study reports are obtained from Heier e tal., 2023, PMID:37865470

[1] Data presented are based on package inserts of approved therapies. OCU410 remains investigational, and no head-to-head trials have been conducted.

Transformative Gene Therapy for Geographic Atrophy (GA)

Comprehensive Mechanism of Action

- Targets Multiple pathways and Demonstrated anti-oxidative, anti-complement, anti-inflammatory, and anti-drusen activity in preclinical models

Clinical Efficacy Data

- 46% reduction in treated (high + medium dose) vs control at 12M for all lesion sizes (***p value = 0.015***) ; [~22% for approved therapies in 24M]
- 57% reduction in treated (high + medium dose) vs control at 12M for lesion size ≥ 7.5 mm^2 (***p value = 0.02***)
- No difference between high and medium doses at 12 months for lesion size ≥ 7.5 mm^2
- Significant responder rates: up to 50% of patients achieved >50% lesion size reduction vs control in 12M

Favorable Safety and Tolerability Profile

- No serious adverse events related to OCU410 reported to date
- No incidence of retinal detachment, vasculitis, and other complications compared to approved drugs

Unmet Need & Market Potential

- Addresses large patient population with limited treatment options
- Potential one-time treatment for life vs monthly/bi-monthly injections for approved therapies

Anticipated Near-Term Targeted Milestones

OCU400
RP

- Initiate Rolling BLA Submission
- Phase 3 topline data

OCU410ST
Stargardt Disease

- 100% Enrollment Completion
- Interim data
- Phase 3 top line data
- BLA Submission

OCU410
GA

- Phase 2 Study Results
- Initiate Phase 3

Reach Out

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