



**Courageous  
Innovation**

November 2022  
NASDAQ: OCGN

# Forward Looking Statements

*This presentation contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995, which are based on the beliefs and assumptions of Ocugen, Inc. and on information currently available to management. All statements contained in this presentation other than statements of historical fact are forward-looking statements. 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. These and other risks and uncertainties are more fully described in our 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. Forward-looking statements that we make in this presentation are based on a combination of facts and factors currently known to us and 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.*

# We're Here to Make an Impact Through *Courageous Innovation*

**Mission:** Developing cutting-edge innovations for people facing serious disease and conditions with a commitment to ensuring global market access

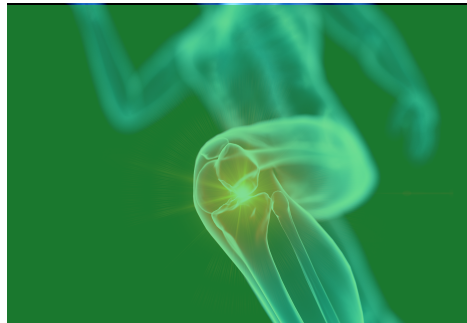
Pioneering modifier gene therapy for inherited retinal diseases, as well as larger blindness diseases with unmet need



Innovating a novel biologic to treat eye diseases that can lead to vision loss for millions of people



Developing vaccines to provide choice in the fight against COVID-19



Pursuing Regenerative Cell Therapy to treat serious conditions like articular cartilage lesions



# Pipeline Overview

	Asset/Program	Indication	Current Status
Vaccines	<b>COVAXIN™ (BBV152)</b> SARS-CoV-2 virus	<b>COVID-19</b>	<ul style="list-style-type: none"> <li>EUA for adults in Mexico; EUA for 5 to 18-year-olds submitted</li> <li>Recruitment completed for U.S. Phase 2/3 Immuno-bridging and broadening clinical trial</li> </ul>
	<b>OCU500</b> Mucosal vaccine	<b>COVID-19</b>	<ul style="list-style-type: none"> <li>License secured from Washington University</li> <li>Phase 1/2 pending FDA discussions</li> </ul>
Cell therapies (Regenerative Medicine)	<b>NeoCart®</b> (Autologous chondrocyte-derived neocartilage)	<b>Treatment of Articular Cartilage Defects in the Knee</b>	U.S. Regenerative Medicine Advanced Therapy (RMAT) designation; Phase 3 clinical trial under development and subject to finalization with FDA
Gene therapies	<b>OCU400 **</b> AAV-hNR2E3	<b>Gene mutation-associated retinal degeneration*</b>	
		<i>NR2E3 Mutation (RP)</i>	Phase 1/2
		<i>RHO Mutation (RP)</i>	Phase 1/2
		<i>CEP290 Mutation (LCA)</i>	Phase 1/2
	<b>OCU410</b> AAV-hRORA	<b>Dry Age-Related Macular Degeneration (Dry AMD)*</b>	IND planned for Q2 2023
Biologicals	<b>OCU410ST</b> AAV-hRORA	<b>Stargardt disease (orphan disease)</b>	IND planned for Q2 2023
	<b>OCU200</b> Transferrin – Tumstatin	<b>Diabetic Macular Edema</b>	IND planned for Q1 2023
		<b>Diabetic Retinopathy</b>	IND-enabling
		<b>Wet Age-Related Macular Degeneration (Wet AMD)</b>	IND-enabling

\*No approved therapies exist

<https://www.aao.org/eye-health/diseases/retinitis-pigmentosa-treatment> | <https://www.aao.org/eye-health/diseases/amd-treatment>

\*\*ORPHAN DRUG DESIGNATION in the US; Broad ORPHAN MEDICINAL PRODUCT DESIGNATION by the EC for the treatment of retinitis pigmentosa (RP) and Leber congenital amaurosis (LCA)



# COVAXIN™ (BBV152)

A whole-virion inactivated COVID-19 vaccine candidate licensed from Bharat Biotech (BBIL) for North American Markets

# Why COVAXIN™ (BBV152)?

Designed to augment our North American arsenal of vaccines against COVID-19

## DESIGNED FOR BROAD SPECTRUM IMMUNE RESPONSE

- Adult and pediatric phase 2/3 data suggest both humoral & cellular responses generated against multiple viral proteins
- Data support that the vaccine induces a Th1 response (cell-mediated immunity) which can be vital for durable protection

## RESULTS SHOW PREVENTION OF SEVERE COVID-19 DISEASE

- Phase 3 data suggest prevention of hospitalizations caused by COVID-19
- Booster dose provides robust neutralizing antibody responses against Omicron and Delta variants

## KNOWN SAFETY PROFILE USING VERO CELL PLATFORM

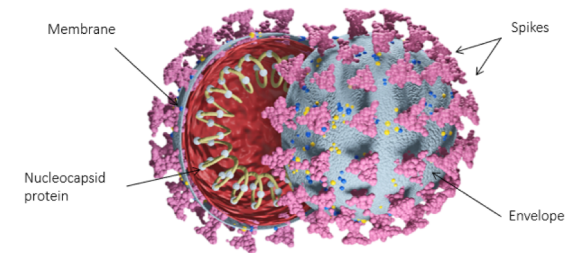
- Data demonstrate strong safety profile within adult and pediatric populations
- Similar technology platform used to produce Polio, Influenza and Rabies vaccines

## TRANSPORTATION AND STORAGE EASE

- 10 dose vial that can be stored and shipped at 2°- 8° C with an expected 2-year shelf life and 6-month stability at room temperature



Image for illustrative purposes only



# COVAXIN™ (BBV152) Adult and Pediatric Clinical Trial Data

## Phase 3 Clinical Trial

93.4%

Efficacy vs  
Severe Disease

12.4%

Adverse Events  
COVAXIN™  
and Placebo Arms

Less  
than  
0.5%

Serious  
Adverse Events

n = 25,798 • Nov 2020 - Jan 2021 across 25 sites • Two doses, 28 days apart

## Phase 2/3 Clinical Trial in Children (2-18 years) • Observed GMTR = 1.32 (0.92, 1.90 [CI 95%])

92%

Seroconversion to  
Wild-Type  
Neutralizing

92%\*

Seroconversion to  
S1 IgG, RBD IgG,  
NP IgG

\*median

0%

SAEs defined as:  
hospitalizations,  
myocarditis,  
pericarditis, GBS,  
thrombosis,  
anaphylactic reactions

n = 526 • May 2021 - Jul 2021 across 6 sites • Two doses, 28 days apart



# Pathway for COVAXIN™ (BBV152) development

NCT: 05258669

## Phase 2/3 Trial

*A Phase 2/3, Observer-Blind, Immuno-bridging, and Broadening Study of a Whole, Inactivated Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) Vaccine (BBV152) in Healthy Adults*

Study Type:	Interventional (Clinical Trial)
Estimated Enrollment:	400 participants
Allocation:	Randomized
Intervention Model:	Parallel assignment
Intervention Model Description:	1:1 randomization ratio
Primary Purpose:	Prevention

Immuno-bridging and broadening

Top line results

Safety

BLA Submission Window

# OCU500

## Ocugen's COVID-19 Mucosal Vaccine

Exclusive license agreement with Washington University to develop, manufacture and commercialize its proprietary vaccine in the United States, Europe, and Japan

# OCU500: Mucosal Vaccine

- **Potential to generate rapid local immunity** in the nose, mouth, upper airways, and lungs - where SARS-CoV-2 enters and infects the body
- Generates neutralizing IgG, mucosal IgA, and T cell responses to **help reduce transmission rate**
- Mucosal immunity has been demonstrated as a potential way to prevent infection and spread, thus **limiting the origin of new variants**
- This approach represents a **potential universal booster**, regardless of previous COVID-19 vaccination

## Other features include:

- Non-invasive
- Needle-free administration
- Potential for increased compliance
- Scalable manufacturing
- Stored and shipped at standard refrigerated conditions
- Potential to develop multi-strain and variant specific versions



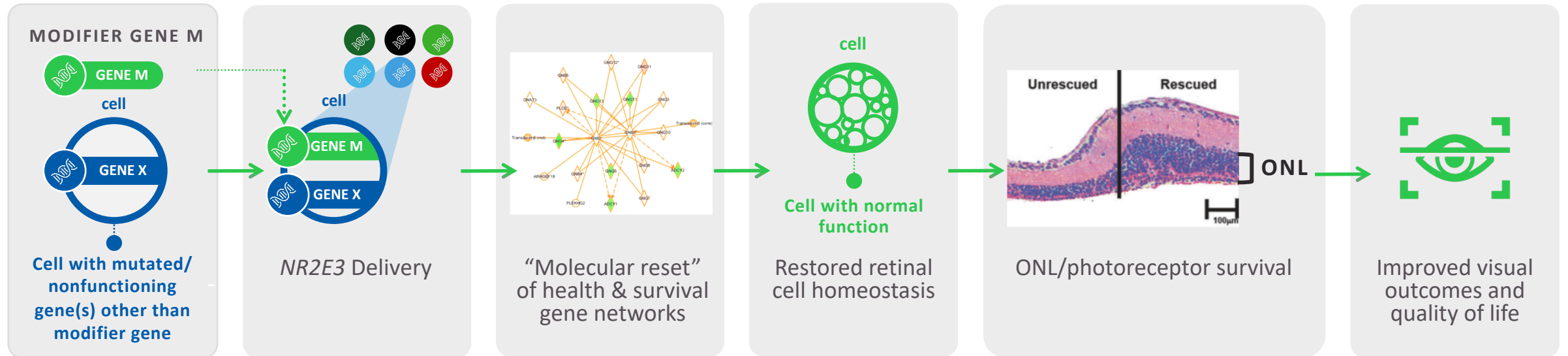
# MODIFIER GENE THERAPY PLATFORM

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

# Modifier Gene Therapy: A Broader Reach

Gene modifier therapy can potentially address multiple genetic defects with a single product.

In patients with IRDs, this could mean:



# Proof of Principle: Published in Nature Gene Therapy

- Efficacy results shown in five unique mouse models of RP
- Technology developed at Harvard Medical School, Dr. Neena Haider's Lab
- Study suggests potency of modifier gene therapy to elicit broad-spectrum therapeutic benefits in early and advanced stages of RP
- Results suggest evidence of vision rescue in early & advanced stages of disease



Important milestone for development of therapy; demonstrated proof of principle



Protection elicited in multiple animal models of degeneration caused by different mutations



Potential to represent first broad-spectrum gene agnostic therapy and provide rescue even after disease onset

**nature**research

<https://www.nature.com/articles/s41434-020-0134-z>



# OCU400 Phase 1/2 U.S. Clinical Trial Progress

## OCU400

*PHASE 1/2 Study to Assess the Safety and Efficacy of OCU400 for Retinitis Pigmentosa Associated with NR2E3 and RHO Mutations and Leber Congenital Amaurosis with Mutations(s) in CEP290 Gene*

NCT:	05203939
Study Type:	Interventional (Clinical Trial)
Estimated Enrollment:	21 participants*
Clinical Trial Sites:	Seven
Allocation:	Non-randomized
Intervention Model:	Sequential assignment
Masking:	None (Open Label)
Primary Endpoint:	Safety
Observational endpoint	Efficacy (structural, functional, BCVA, mobility)
Dosing:	Escalation study involving low, medium, high doses

### Cohort 1

✓ Completed

*Low dose*

*First dose March 2022*

*No serious adverse events reported*

### Cohort 2

✓ Completed

*Medium dose*

*First dose August 2022*

*No serious adverse events reported*

### Cohort 3

🔄 In progress

*High dose*

*First dose October 2022*

# OCU400 Expected Pathway to Clinical Development & Potential Approval



# Age-related Macular Degeneration(AMD)

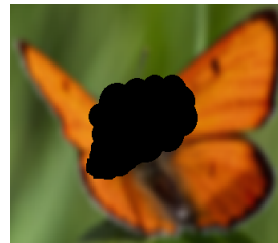
## Stargardt Disease (STGD)



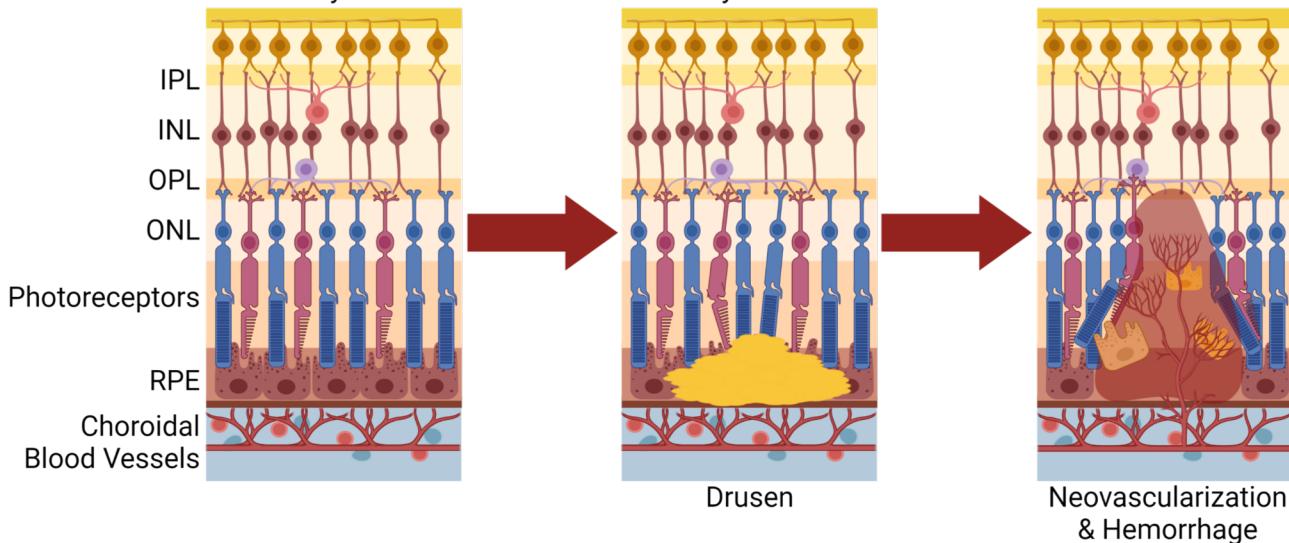
Healthy Retina



Dry AMD



Wet AMD



### Macular Degeneration

Acquired  
Age-related

Inherited

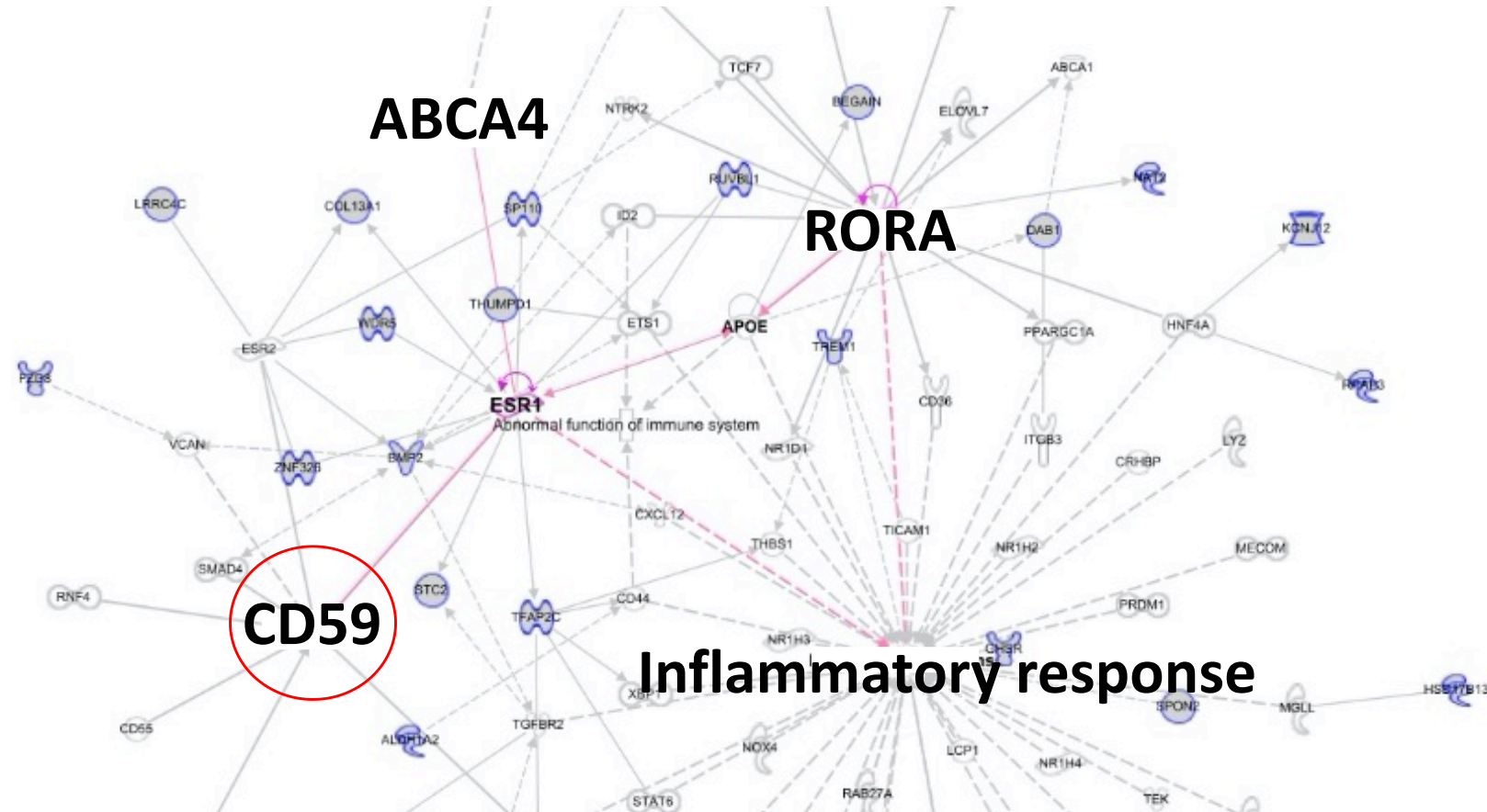
- ❖ AMD starts as a “dry,” non-neovascular form
- ❖ Progresses to geographic atrophy
- ❖ Most prevalent (~90%) form
- ❖ Can progress to a more rapid “wet,” neovascular form
- ❖ Wet AMD may cause vascular leakage, hemorrhage, and fibrovascular growth

- ❖ Stargardt Disease (STGD1)\*
  - Dysfunction of ABCA4,
  - >1,200 ABCA4 variants are associated with STGD
  - Important for detoxifying oxidized retinol compounds in visual cycle



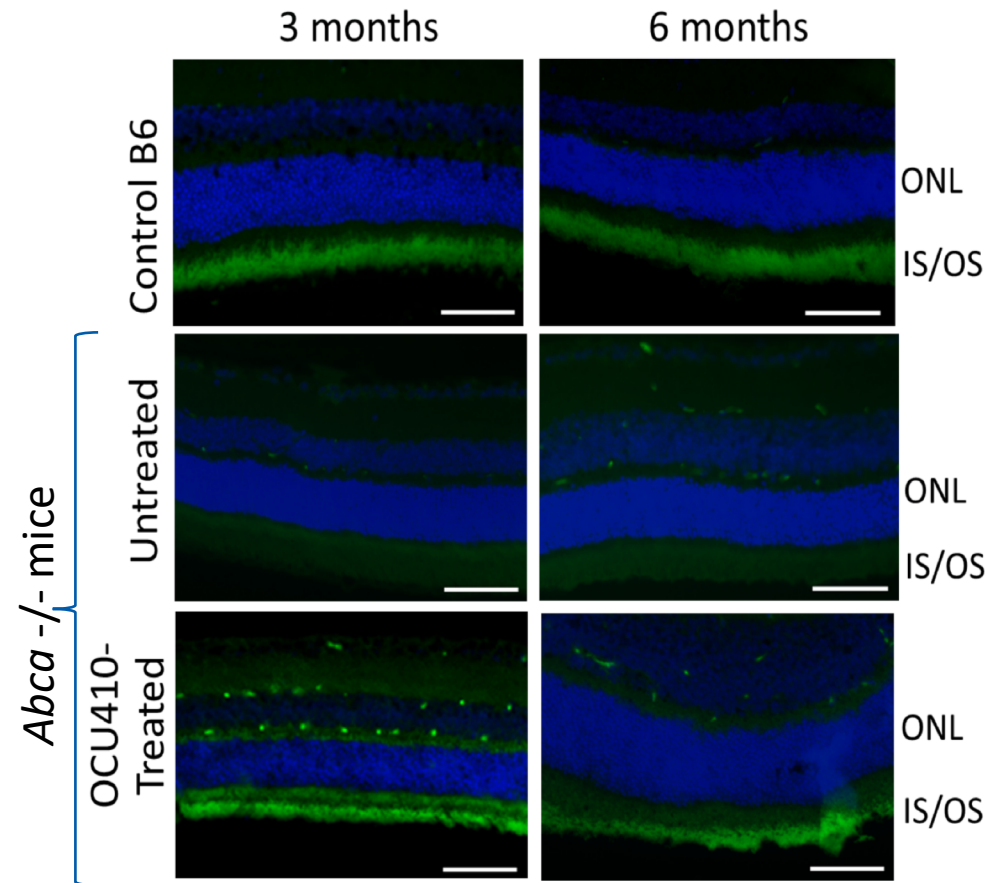
# RORA Regulated Gene Networks are Relevant in AMD & Stargardt Disease

RORA regulated gene networks are relevant in AMD and Stargardt disease



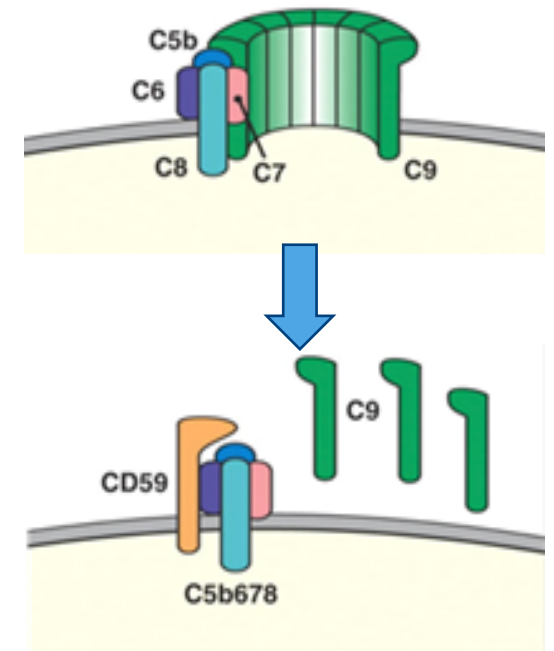
# OCU410 Restores Cd59 Expression in Abca4<sup>-/-</sup> mice

- ABCA4 transports oxidized retinol compounds from photoreceptors to RPE cells for detoxification
- Gene variants of ABCA4 are associated with both Stargardt disease and AMD. *ABCA4*<sup>-/-</sup> mice show very low CD59 expression in their retinas
- OCU410 CD59 expression in the RPE cells
- CD59 prevents the formation of the complement membrane attack complex (MAC)



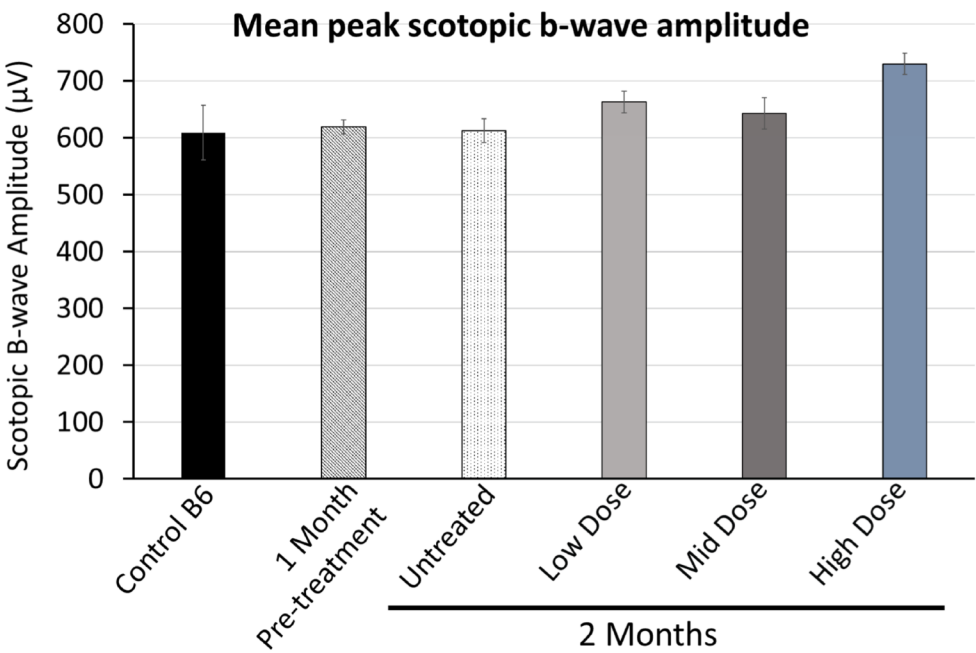
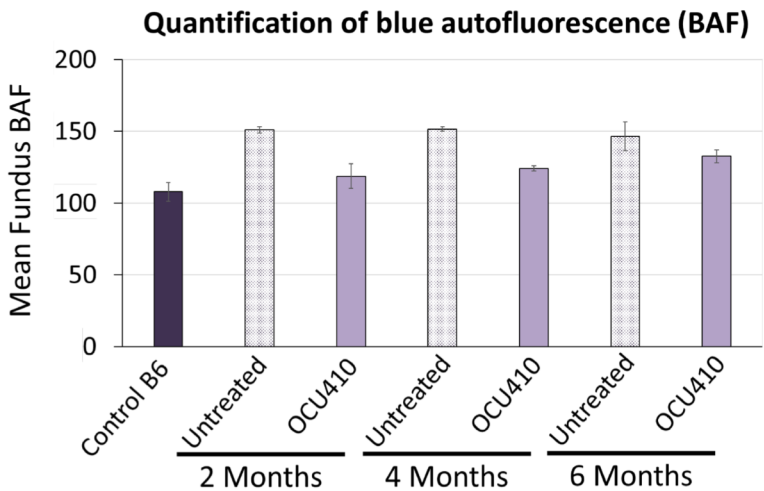
Immunohistochemistry of retina showing CD59 and DAPI

CD59 prevents the formation of the complement membrane attack complex



# OCU410: Restoring Retinal Function in *ABCA4* <sup>-/-</sup> Mice

## Fundus Blue Autofluorescence is restored by OCU410

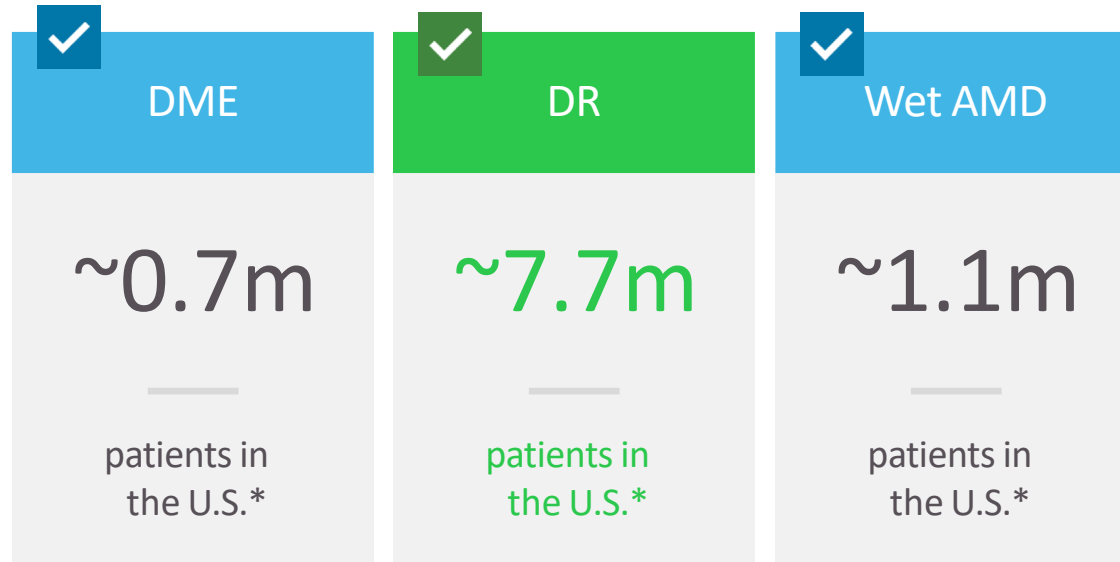


# OCU200

**Novel biologic for treating Diabetic Macular Edema (DME), Diabetic Retinopathy (DR) and Wet Age-Related Macular Degeneration (Wet AMD)**

# OCU200 Potential to Treat DME, DR & Wet AMD

OCU200 Provides hope to ALL patients with DME, DR, or Wet AMD



~50% of Patients DO NOT Respond to Anti-VEGF/Corticosteroids Therapies

- ✓ OCU200 is a Transferrin-Tumstatin Fusion Protein
  - Tumstatin: Multiple Mechanisms of Action (MOAs) for treatment and prevention of macular edema and neovascularization
  - Transferrin: Targets the site of action and improves uptake (better target engagement)
- ✓ Integrin Targeting provides hope to these patients who are non-responders to current therapies
- ✓ Distinct MOA through targeting Integrin pathways can potentially also help reduce number of injections for patients who do respond to Anti-VEGF & corticosteroids therapies
- ✓ We are executing IND-enabling studies and plan to submit an IND application in the first quarter of 2023



# NeoCart<sup>®</sup>

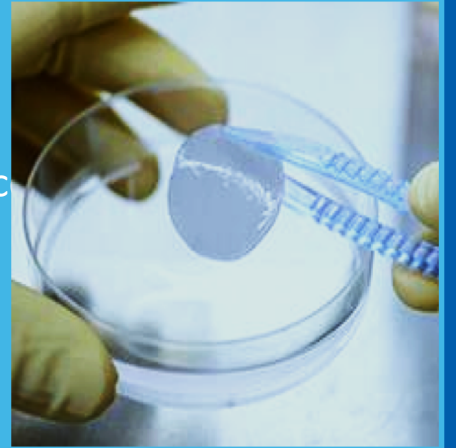
(Autologous chondrocyte-derived neocartilage)

# NeoCart<sup>®</sup> Regenerative Cell Therapy

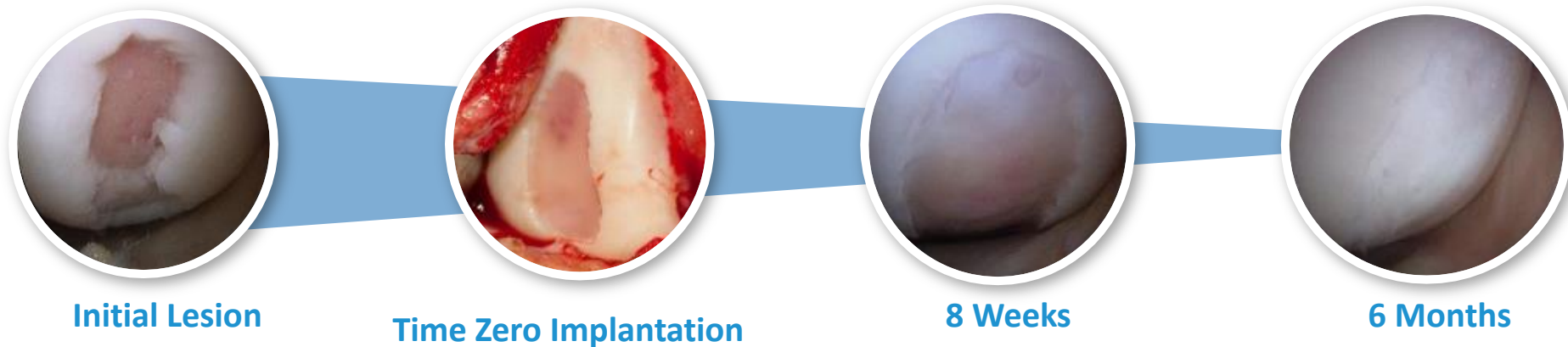
*Knee injury increases risk of developing OA by more than 5x  
1MM+ annual arthroscopic procedures of the knee\**

## Attributes:

- Designated by FDA as “Regenerative Medicine Advanced Therapy”
- Combines breakthroughs in bio-engineering and cell processing to enhance the autologous cartilage repair process
- Merges a patient’s own cells with a fortified 3-D scaffold designed to accelerate healing and reduce pain
- **Patients receive functional cartilage at the time of treatment**



## Follow-up Arthroscopy Demonstrates NeoCart<sup>®</sup> Progression and Integration\*\*



# Ocugen™ Vision

Fully integrated, patient-centric biotech company focused on vaccines in support of public health and gene and cell therapies targeting unmet medical needs through **Courageous Innovation**







November 2022  
NASDAQ: OCGN