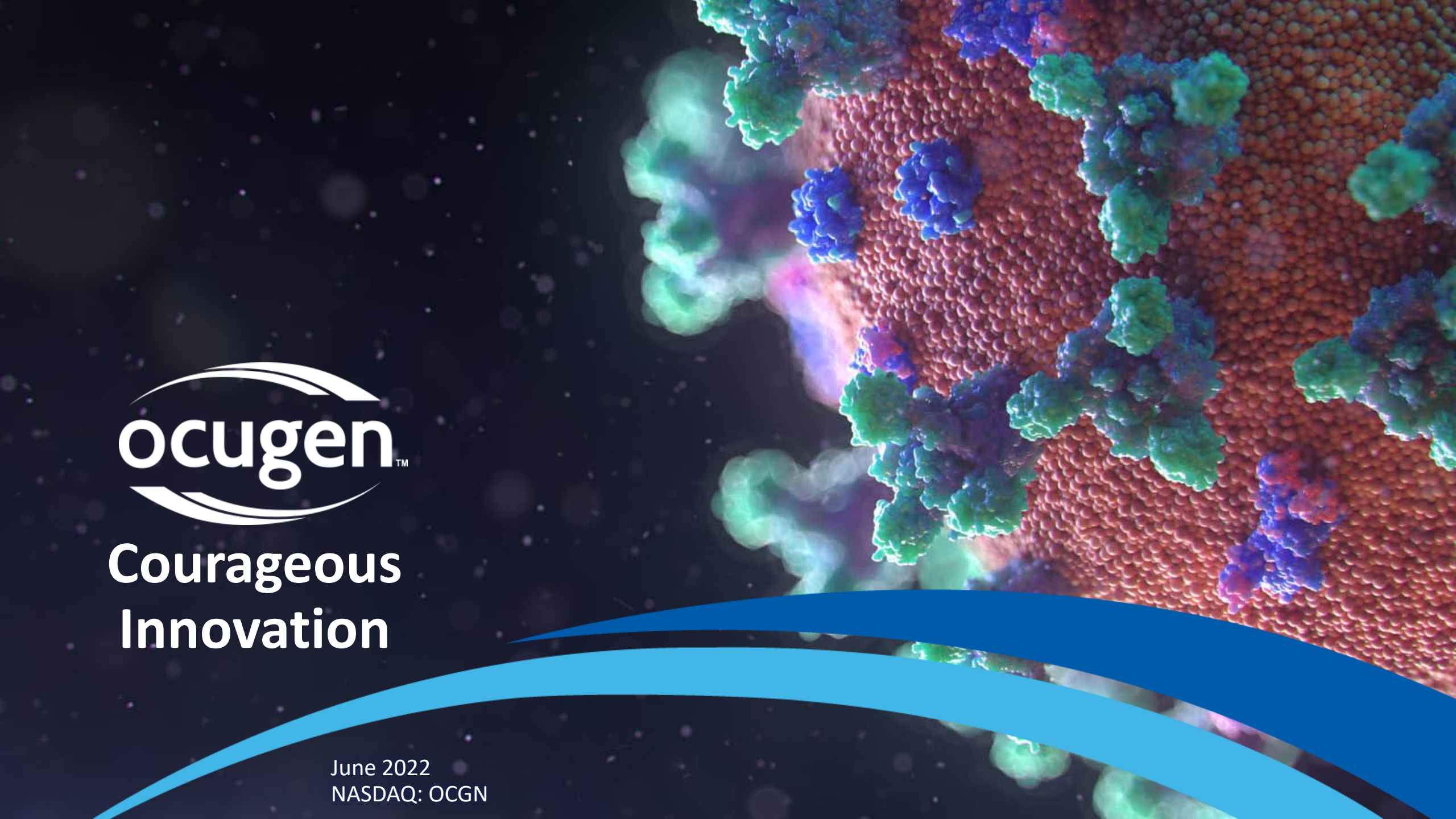


ocugen™

Courageous Innovation

June 2022
NASDAQ: OCGN

Forward Looking Statement

This presentation contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995, 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 forward-looking statements include information about qualitative assessments of available data, potential benefits, expectations for clinical trials, and anticipated timing of clinical trial readouts and regulatory submissions. This information involves risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements. Risks and uncertainties include, among other things, the uncertainties inherent in research and development, including the ability to meet anticipated clinical endpoints, commencement and/or completion dates for clinical trials, regulatory submission dates, regulatory approval dates and/or launch dates, including the risk that such dates are not met due to impacts from the ongoing COVID-19 pandemic, as well as risks associated with preliminary and interim data, including the possibility of unfavorable new clinical trial data and further analyses of existing clinical trial data; the risk that the results of in-vitro studies will not be duplicated in human clinical trials; the risk that clinical trial data are subject to differing interpretations and assessments, including during the peer review/publication process, in the scientific community generally, and by regulatory authorities; whether and when data from Bharat Biotech’s clinical trials will be published in scientific journal publications and, if so, when and with what modifications; whether the data and results from preclinical and clinical studies of COVAXIN™, which have been conducted by Bharat Biotech in India, will be accepted by the U.S. Food and Drug Administration (“FDA”) or otherwise sufficient to support our Investigational New Drug applications (“IND”) or planned Biologics License Applications (“BLA”), as applicable; the size, scope, timing and outcome of any additional trials or studies that we may be required to conduct to support a BLA for COVAXIN™, including our Phase 2/3 immuno-bridging and broadening clinical trial and planned safety-bridging clinical trial, which may not be completed on a timely basis, if at all; the risk that the FDA places a new clinical hold on our Phase 2/3 immuno-bridging and broadening trial in the future, for any reason; any additional chemistry, manufacturing, and controls information that we may be required to submit; whether and when a BLA for COVAXIN™ will be submitted to the FDA; whether and when a BLA may be approved by the FDA, whether a New Drug Submission application may be approved by Health Canada, and whether the additional information that we provide to Health Canada will be sufficient to support an approval by Health Canada of COVAXIN™ and any delays associated therewith; our ability to successfully commercialize COVAXIN™ in Mexico for adults over the age of 18 pursuant to our agreement with Bharat Biotech, and whether and when we will obtain Emergency Use Authorization approval for COVAXIN™ in Mexico for children between 2 and 18 years of age; the authorizations or approvals will depend on myriad factors, including making a determination as to whether the vaccine candidate’s benefits outweigh its known risks and determination of the vaccine candidate’s efficacy and, if authorized or approved, whether it will be commercially successful; whether developments with respect to the COVID-19 pandemic will affect the regulatory pathway available for vaccines in the United States, Canada, Mexico or other jurisdictions; manufacturing capabilities, manufacturing capacity, and supply restrictions, including whether sufficient doses of COVAXIN™ can be manufactured or supplied within our projected time periods; market demand for COVAXIN™ in the United States, Canada or Mexico; decisions by the FDA, Health Canada or the Federal Commission for Protection against Sanitary Risks in Mexico impacting labeling, manufacturing processes, safety, and/or other matters that could affect the availability or commercial potential of COVAXIN™ in the United States, Canada or Mexico, including development of products or therapies by other companies; whether we are able to utilize accelerated FDA review designations, such as the Regenerative Medicine Advanced Therapy designation granted to NeoCart® (autologous chondrocyte-derived neocartilage), which does not guarantee an accelerated pathway or timeline for regulatory approval of any such product candidates or increase the likelihood of any such approvals. 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. 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 presentation whether as a result of new information, future events, or otherwise, after the date of this presentation.

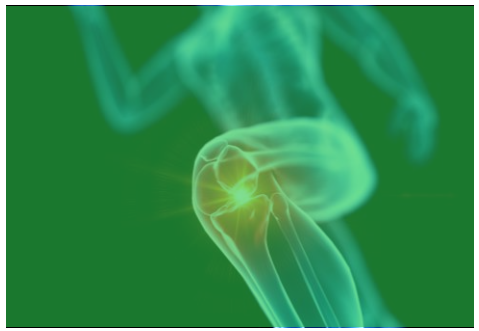
We’re Here to Make an Impact Through *Courageous Innovation*

Mission: At Ocugen, we are developing novel solutions to medical challenges, approaching healthcare innovation with purpose and agility to deliver new options for people facing serious disease and conditions.

Pioneering a breakthrough modifier gene therapy for several genetic forms of vision impairment

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

Co-developing a COVID-19 vaccine



Creating a restorative cell therapy (RCT) platform to treat serious conditions like articular cartilage lesions

Pipeline Overview

	Asset/Program	Indication	Status
Vaccine	**COVAXIN™ (BBV152)** Whole-Virion Inactivated Vaccine	**COVID-19**	• EUA for adults in Mexico; EUA for 2–18 year olds pending* • US Phase 2/3 Immuno-bridging and broadening clinical trial in-progress • Health Canada NDS under review*
Cell therapy	**NeoCart®** (Autologous chondrocyte-derived neocartilage)	**Repair of full-thickness articular cartilage lesions of the knee in adults**	US Regenerative Medicine Advanced Therapy (RMAT) designation; Phase 3 clinical trial under development
Modifier Gene Therapy Platform	**OCU400 ***** AAV-hNR2E3	**Gene mutation-associated retinal degeneration****	
		NR2E3 Mutation	Phase 1/2
		RHO Mutation	Phase 1/2
		CEP290 Mutation	To be submitted
		PDE6B Mutation	To be submitted
	OCU410 AAV-hRORA	**Dry Age-Related Macular Degeneration (Dry AMD)****	Preclinical
Novel Biologic	**OCU200** Transferrin – Tumstatin	**Diabetic Macular Edema**	Preclinical
		Diabetic Retinopathy	Preclinical
		Wet Age-Related Macular Degeneration (Wet AMD)	Preclinical

ocugen

* Based on Bharat Biotech-sponsored clinical trials in India

** 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

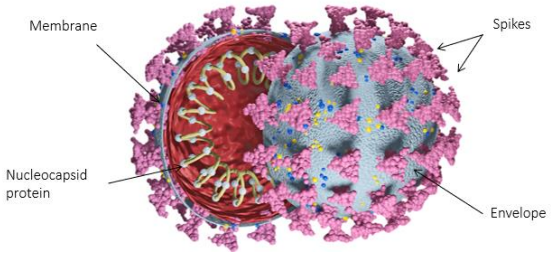
Image for illustrative purposes only

KNOWN SAFETY PROFILE USING VERO CELL PLATFORM

- Data demonstrate strong safety profile within adult and pediatric populations
- 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



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

ocugen

Source: Ella, Reddy, Blackwelder, Potdar, Yadav, Sarangi et al. (2021) Efficacy, safety, and lot-to-lot immunogenicity of an inactivated SARS-CoV-2 vaccine (BBV152): interim results of a randomised, double-blind, controlled, phase 3 trial*; The Lancet.* https://doi.org/10.1016/S0140-6736(21)02000-6

Source: Vadrevu K, Reddy S, Jogdand H, et al. (2022) Immunogenicity and reactogencity of an inactivated SARS-CoV-2 vaccine (BBV152) in children aged 2 - 18 years: interim data from an open-label, non-randomised, age de-escalation phase 2/3 study; *The Lancet.* https://doi.org/10.1016/S1473-3099(22)00307-3

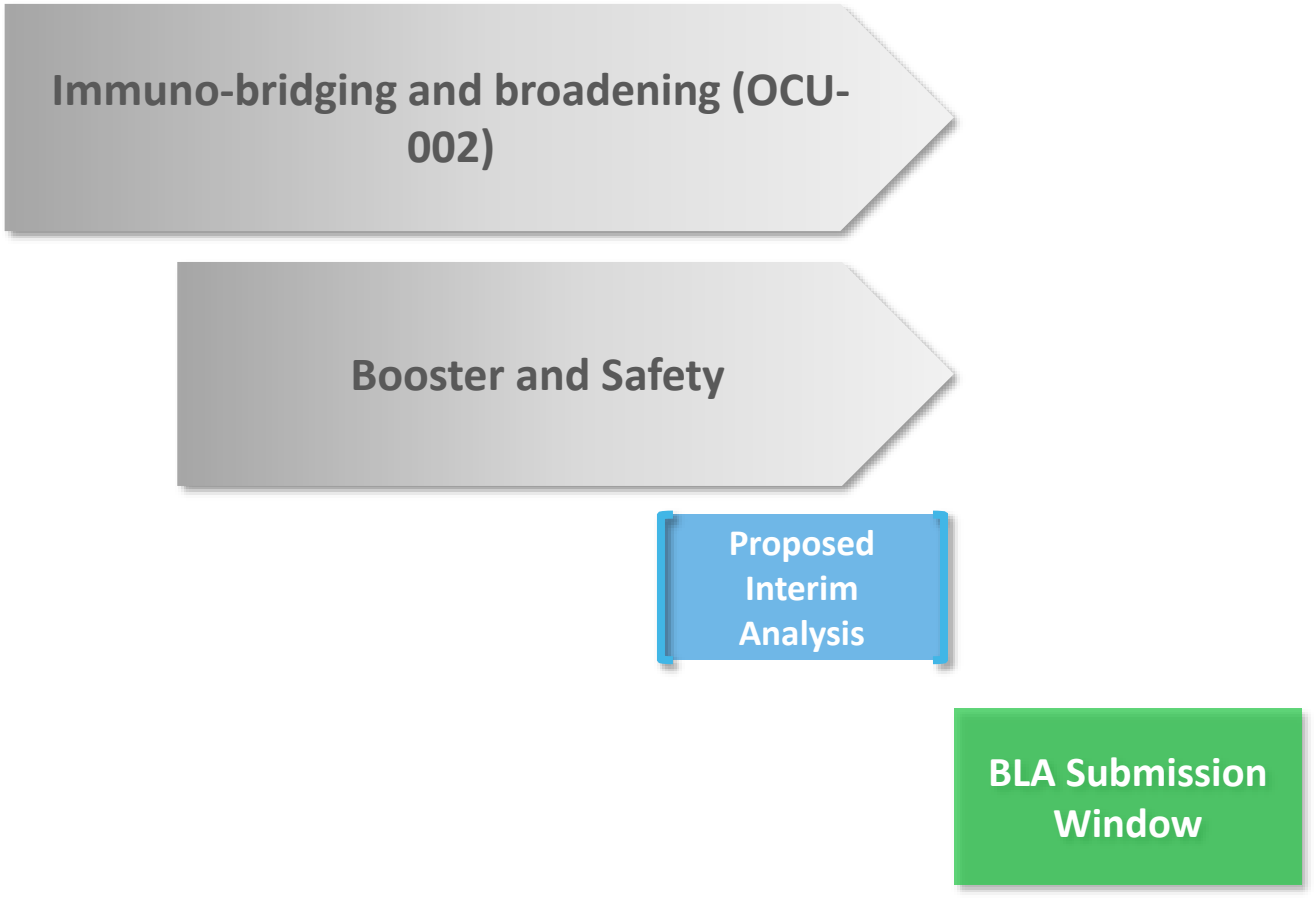
Pathway for COVAXIN™ (BBV152) development

NCT: 05258669

OCU-002

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



MODIFIER GENE THERAPY PLATFORM

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

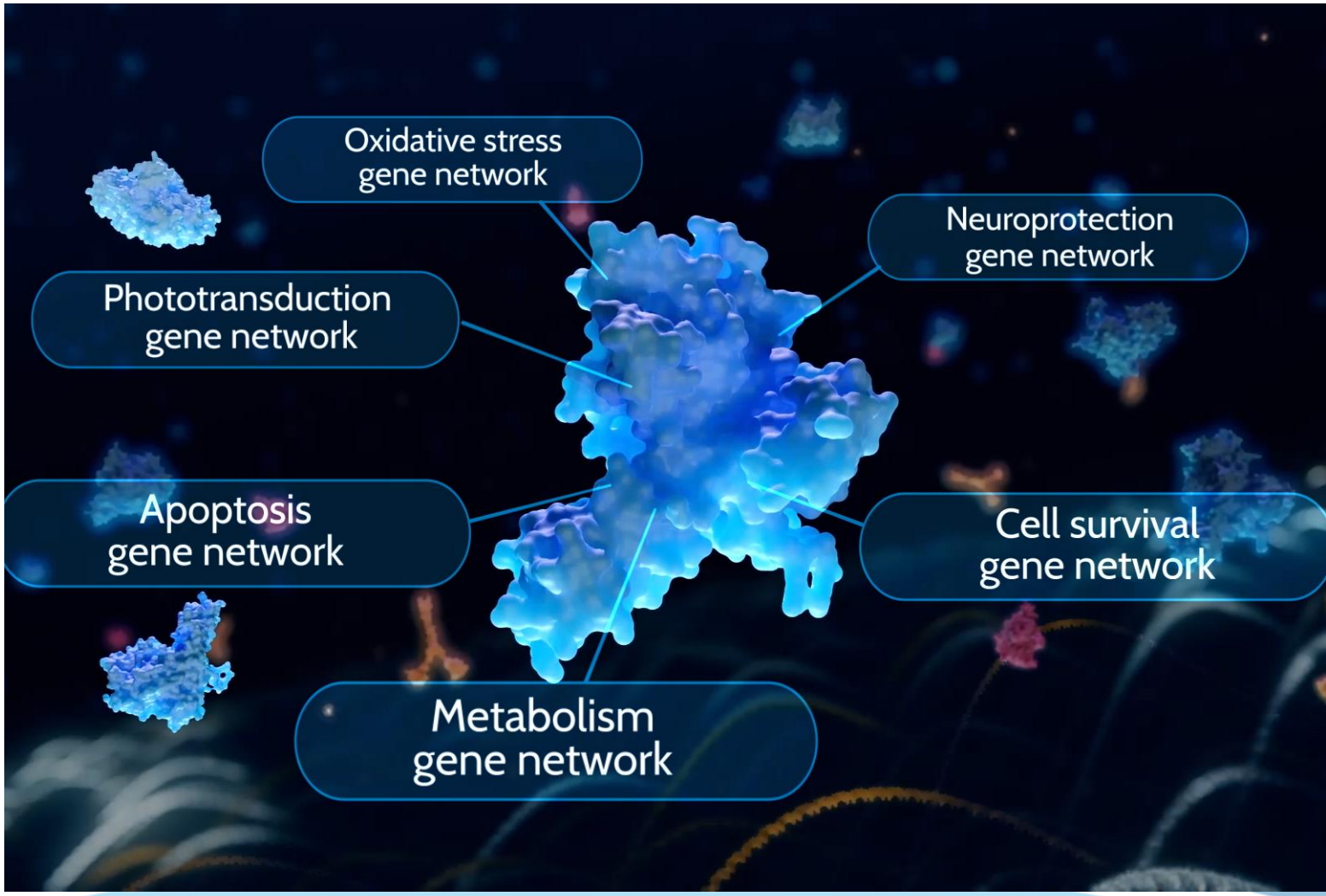
ocugen

Our Focus: Nuclear Hormone Receptor Genes (NHRs)

NHRs are modulators of retinal development & function, acting as “master genes” in the retina

Molecular reset of key transcription factors and associated gene networks – retinal homeostasis

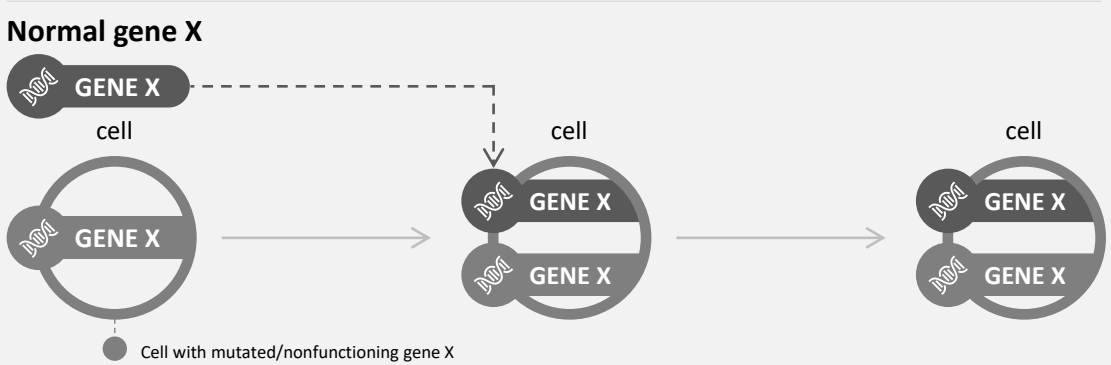
Gene modifier concept including, its impact on clinical phenotypes, is well known in other disease areas, such as cystic fibrosis and spinal muscular atrophy



*References:
https://pubmed.ncbi.nlm.nih.gov/28556246/ | https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5409218/
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4339951/ |
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0183526

Our Vision:
Modifier Gene Therapy vs Traditional Gene Augmentation

Gene Augmentation: Transfer functional version of a non-functional gene into the target cells.

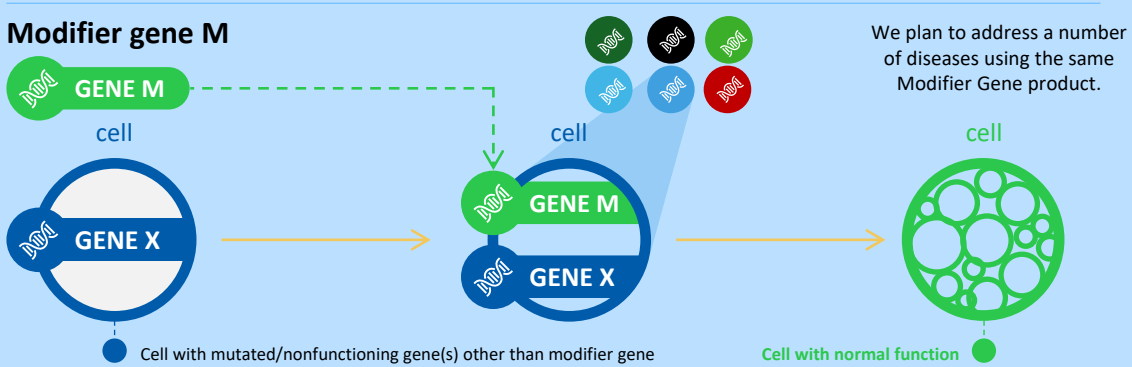


Traditional Gene Therapy

ONE Disease

- Traditional approach that targets one individual gene mutation at a time
- Regulatory pathway focused on specific product for one disease
- Longer time to recoup development costs

Modifier Gene Therapy: Designed to introduce a functional gene to modify the expression of many genes, gene-networks and regulate basic biological processes in retina.



OCU400

- *NR2E3* Mutation-Associated Retinal Disease
- *Rhodopsin* Mutation-Associated Retinal Disease
- *CEP290* Mutation-Associated Retinal Disease
- *PDE6B* Mutation-Associated Retinal Disease

Broad Spectrum Therapy for RP

- Novel approach that targets nuclear hormone genes (NHRs), which regulate multiple functions within the retina
- Smoother regulatory pathway due to ability to target multiple diseases with one product
- Ability to recoup development costs over multiple therapeutic indications

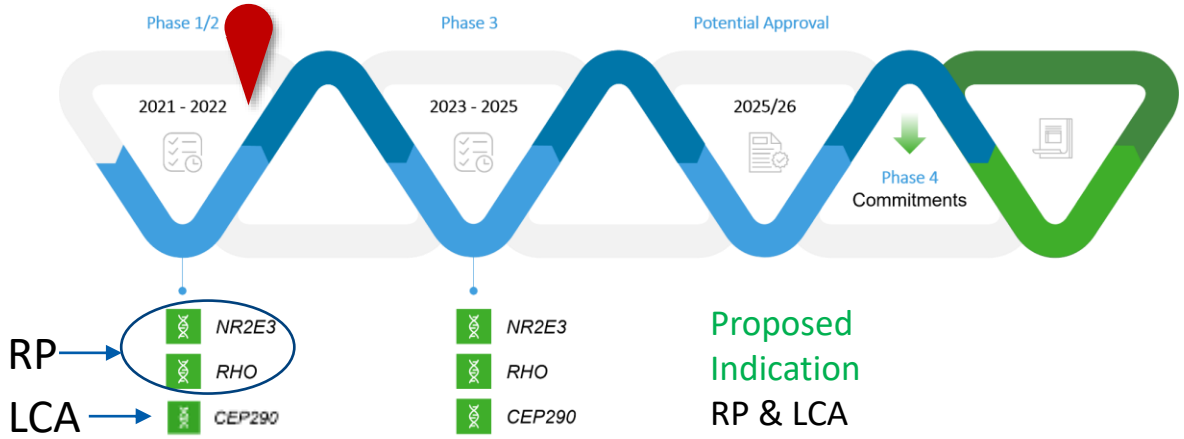
OCU400 – Pathway to Phase 3 Clinical Trials

Just 30 days to receive FDA clearance for Phase 1/2 gene therapy clinical trial

OCU400

*A Phase 1/2 Study to Assess the Safety and Efficacy of **OCU400** for Retinitis Pigmentosa Associated With NR2E3 (Nuclear Receptor Subfamily 2 Group E Member 3) and RHO (Rhodopsin) Mutations*

Study Type	Interventional (Clinical Trial)
Estimated Enrollment	18 participants
Allocation	Non-randomized
Intervention Model:	Sequential assignment
Masking:	None (Open Label)
Primary Purpose:	Treatment



- NCT: 05203939
- Seven clinical trial sites being activated
- Escalation study involving low, medium, high doses
- Multiple patients dosed
- Periodic updates available starting in Q3 2022
- Enrollment concludes by YE 2022

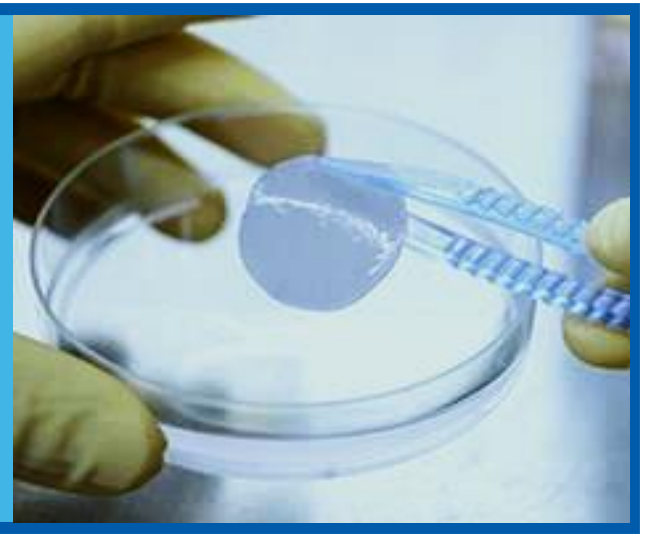
NeoCart®

(Autologous chondrocyte-derived neocartilage)

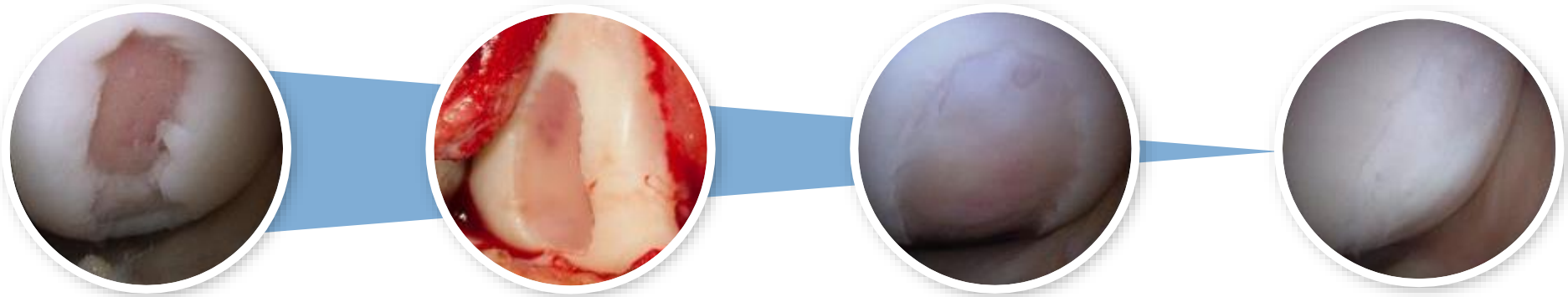
NeoCart®: Restorative Cell Therapy

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® Progression and Integration



Initial Lesion | **Time Zero Implantation** | **8 Weeks** | **6 Months**

ocugen

Phase 3 patient follow-up arthroscopies unrelated to NeoCart implant.

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

Courageous Innovation

Thank you!

June 2022
NASDAQ: OCGN