Odylia THERAPEUTICS

Novel Anc80 AAV Platform, and Late-Preclinical Stage Gene Therapy to Treat Inherited Retinal Disorder, LCA6/RPGRIP1

Bringing life changing treatments to people with genetic diseases regardless of prevalence or commercial interest

Non-Confidential Presentation

January 2022

reImagining drug development for rare disease

About Odylia

Independent nonprofit organization founded in 2017

Mission

Utilize a unique, nonprofit business model to accelerate the development of gene therapies for people with rare disease, changing the way treatments are brought from the lab to the clinic

Vision

Bring life changing treatments to people with genetic disease regardless of prevalence or commercial interest

About Odylia Therapeutics, Inc.

Odylia Therapeutics

- Nonprofit rare disease biotech
- Founded through a collaboration between Mass Eye & Ear and Usher 2020 Foundation
- Funding from biopharma partnerships and philanthropy
- Headquarters in Atlanta, Georgia

Odylia Leadership Team

Luk Vandenberghe, PhD, Co-Founder

- Assistant Professor, Harvard Medical School, and Director, Grousbeck Gene Therapy Center, Massachusetts Eye and Ear.
- Has discovered and developed many new technologies in the gene therapy field and started numerous companies (e.g. Akouos) to bring treatments to patients.

Scott Dorfman, Co-Founder & Chief Executive Officer

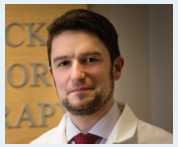
- Fulcrum Equity Partners, Operations Partner
- Usher 2020 Foundation, co-Founder
- Nacuity Pharmaceuticals, Board

Ashley Winslow, PhD, President & Chief Scientific Officer

- PhD in Medical Genetics, University of Cambridge
- Postdoc at Massachusetts General Hospital and Harvard Medical School
- Pfizer R&D, Precision Medicine and Human Genetics and Computational Biomedicine
- Orphan Disease Center at the University of Pennsylvania

Board Members & Advisors

Board of Directors



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Board Member, The RDH12 Fund for Sight

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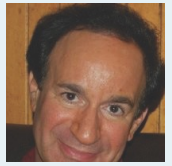

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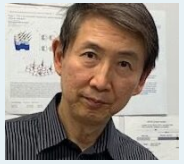

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National Eye Institute, NIH

Alberto Auricchio, Ph.D.
Associate Professor of Medical Genetics
“Federico II” University Napoli
Principal Investigator, TIGEM

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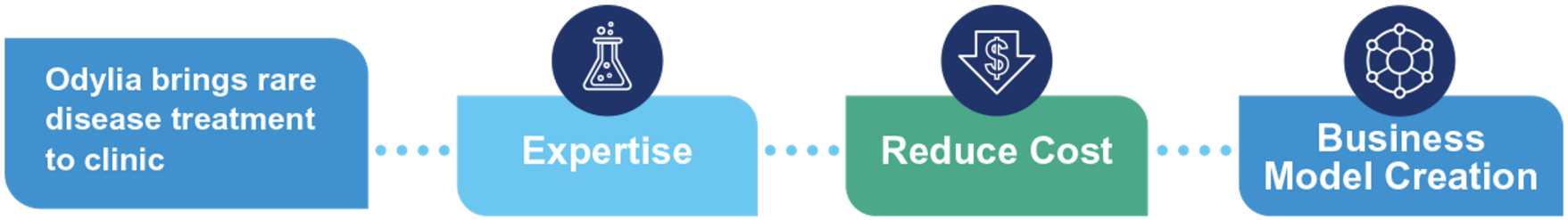
The Future with Odylia

Odylia navigates common obstacles for rare disease and mitigates risk

We do this through:

- a blend of science and business
- a patient-centric model, ensuring outcomes are focused on getting treatments to people, hand-in-hand with the patient community
- strategic research plans to lower costs, save time, and minimize risks
- creative collaboration with patient groups, academics labs, and drug manufacturers to advance treatments in timely, economical, and effective ways

Odylia remains nimble in order to create opportunities for treatments



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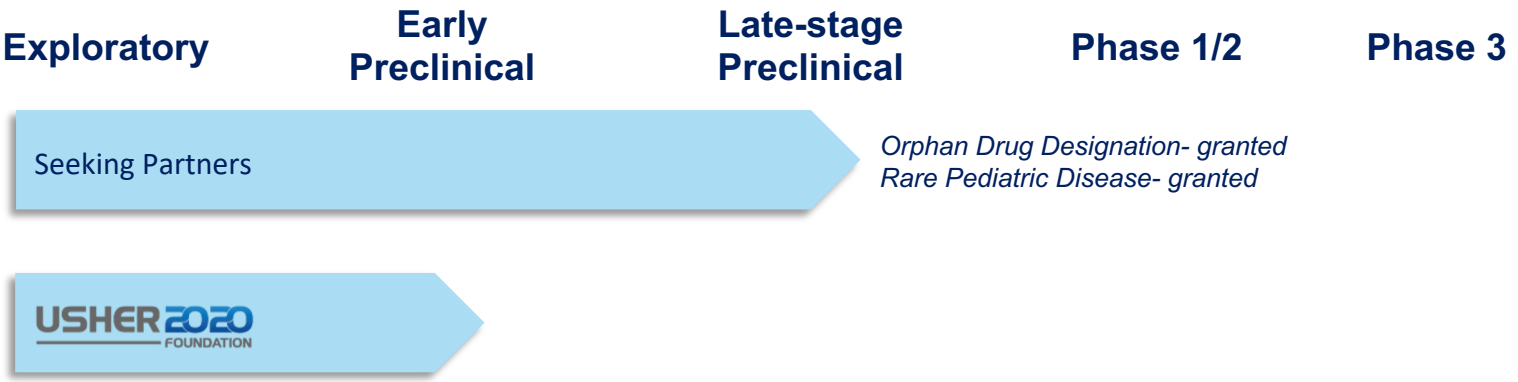
Rare Disease Portfolio

Gene Therapy Pipeline (disclosed)



Brydge Solutions- 2021 Patient Group Partnerships

SATB2 Gene Foundation	RDH12 Fund for Sight	Usher 2020 Foundation	CLOVES Foundation	Open Treatments

Gene Therapy Programs for Inherited Retinal Disorders

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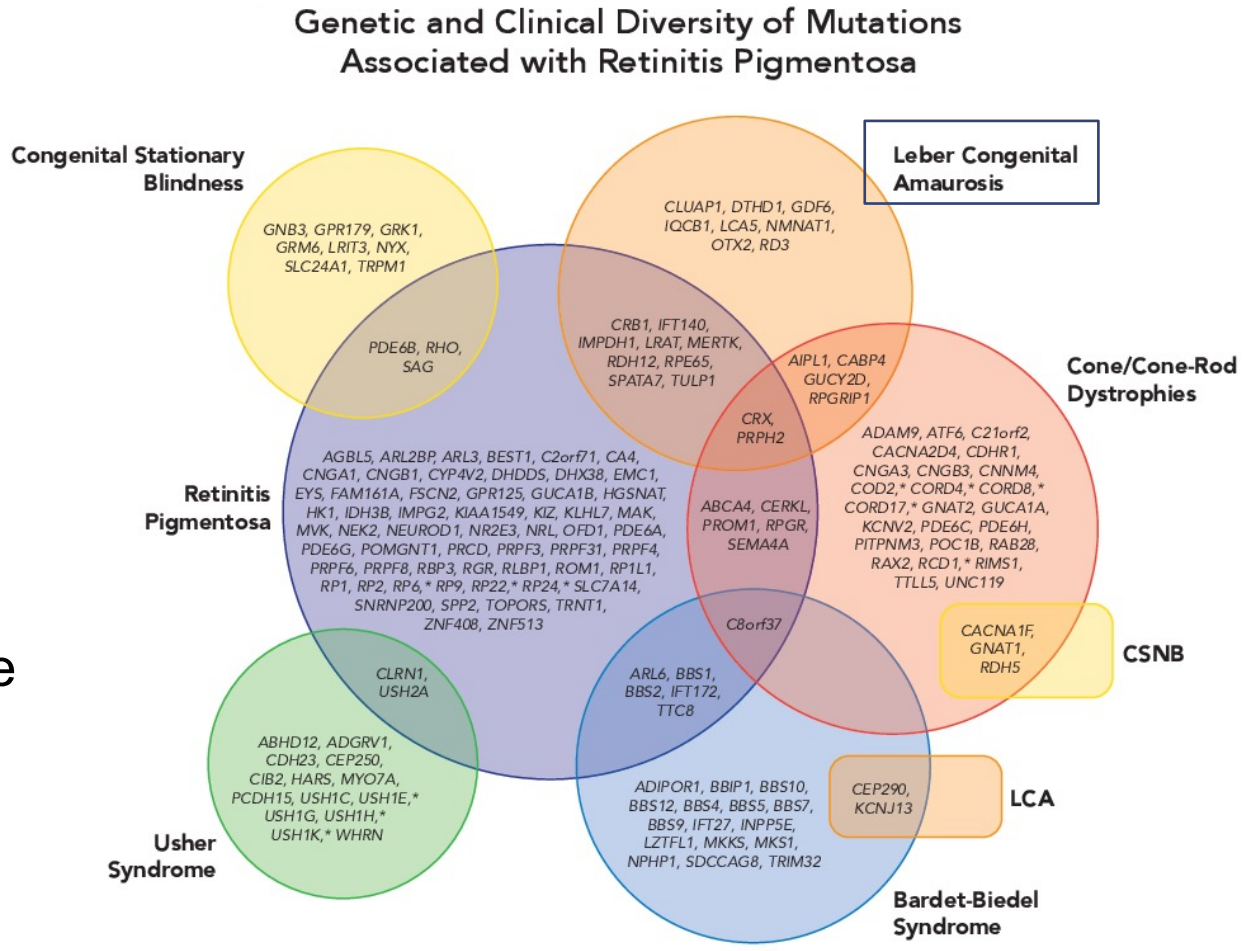
Gene Therapies for Inherited Retinal Disorders (IRDs)

Expanded Possibilities of New Breakthrough Treatments

- At least 5 million people worldwide suffer from inherited and incurable retinal disorders
- Genetically heterogeneous Mendelian disorders with 270+ disease-causing genes identified to date
- Leber Congenital Amaurosis (LCA) accounts for about 4-6% of all IRDs. LCA causes severe vision loss early in life



Pennesi, E.. "Brave New World : GENE THERAPY FOR INHERITED RETINAL DISEASE." (2018).

Gene Therapies for Inherited Retinal Disorders (IRDs)

Of 45+ clinical-stage programs for IRDs and AMD, some listed here

Company	Molecule	Disorder	Dev. Stage
Spark/Roche	Luxturna, voretigene AAV-RPE65	LCA2/RPE65	Mkt
Gensight Biologics	GS010, AAV2 7m8	Leber Hereditary Optic Neuropathy	3
Nightstar/Biogen	BIIB111	Chorioideremia (REP1), NSR-REP1	3
RegenxBio	RGX-314	Wet AMD	2/3
Gyroscope	GT005, Complement Factor 1	AMD (dry)	2
Nightstar/Biogen	BIIB-111	X-linked RP (RPGR)	2/3
Tubingen Hospital	rAAV2.REP1	Choroideremia (REP1)	2
MeiraGTx/Janssen	ACHM, AAV-CNGA3	Achromatopsia (ACHM)	1/2
MeiraGTx	AAV-RPE65	RP-Associated Retinal Dystrophy	1/2
Atsena	GUCY2D	LCA1, GUCY2D	1/2
MiraGTx/Janssen	MGT009. XLRP	LCA and RP (RPE65)	1/2
Editas Medicine	Edit-101	LCA10, CRISPR/Cas9 gene editing of CEP290	2

LCAs are in pink font

Odylia's RPGRIP1 program, a unique opportunity to invest early in a low-risk, late-stage preclinical program

Commercial Projection of RPGRIP1 Gene Therapy for LCA6

Using Luxturna as benchmark RPGRIP1 is an Attractive Commercial Opportunity

1. Luxturna for LCA2 (RPE65) received FDA approved in 2017 and was launched 2018
2. LCA2 has prevalence of 1,000 - 2,000 in US, 6,000 WW (Spark IPO S-1)
3. Studies estimate that RPGRIP1 or LCA6, has a prevalence range of 600-1200 in the US, and 10,000-20,000 WW (Hanany, 2020) or 5-12% of all LCAs
4. Price of Luxturna treatment – About $410,000 per eye or $820,000 per individual (*WAC, USA); Price would approx be same WW. One injection for lifetime correction. Good durability of effect
5. When this RPGRIP1 product is approved, more knowledge of benefits will be available, and the new pricing/payer/usage uptake models should be favorable
6. Health economics to prevent permanent vision loss in youth for life has clear payer return
7. 10% to 40% US market penetration is expected in years 1 through 5

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Gene Therapy Competitive Landscape for Leber Congenital Amaurosis (LCA)

- LCA most severe and common form of blindness in children with incidence of 10,000+ in US
- Evidence suggests LCA6 is underdiagnosed
- No known competition for LCA6 gene therapy

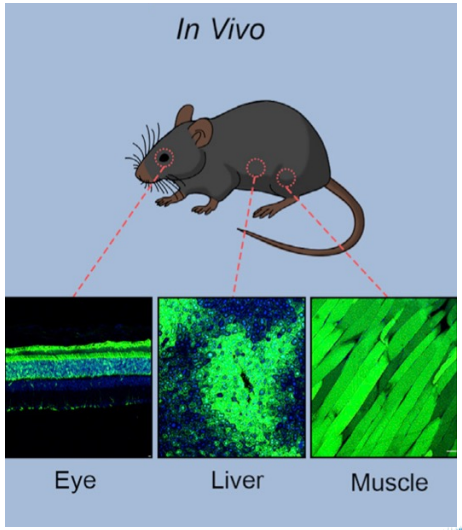
LCA	Mutations	Companies	Therapeutic Name	% of LCA
LCA6	**RPGRIP1**	**Odylia**	**RPGRIP1-Anc80 AAV**	**5-12%**
LCA1	GUCY2D	Atsena/Janssen	Dual AAV GT	10-20%
LCA10	CEP290	Editas/Allergan	AGN-15187 (EDIT-101)	15-20%
LCA10	CEP290	3 RNAi programs	-	15-20%
LCA2	RPE65	Spark/Roche	AAV2-hRPE65v2	3-16%

Novel Anc80 Capsid

Anc80 Capsid profile and tissue tropism

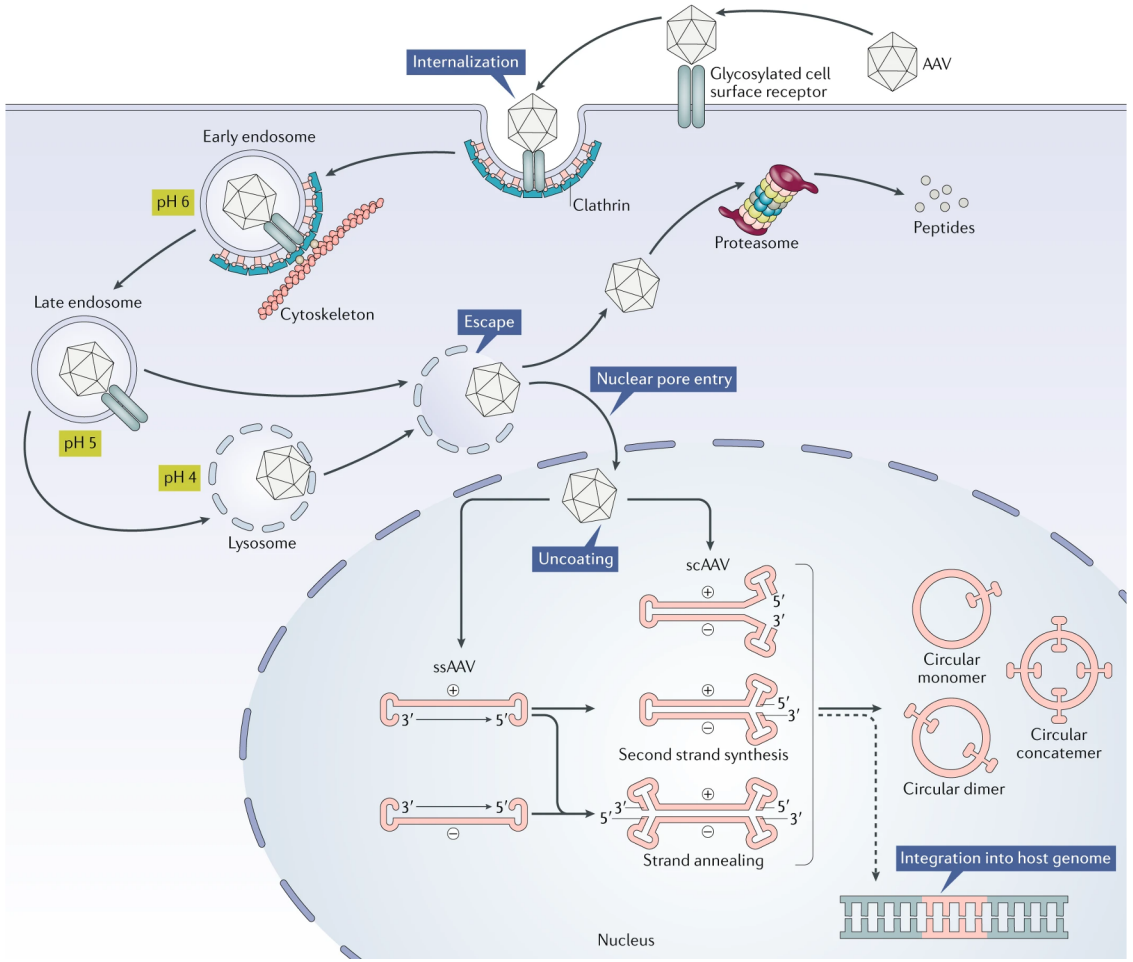
Anc80 Tropism: retina, CNS, liver, muscle, cochlea

- Anc80 AAV capsid:
  - Anc80 is an ancestral AAV serotype developed by Luk Vandenberghe's lab using ancestral sequence reconstruction; the predicted ancestor of AAV serotypes 1, 2, 8, and 9 and shows broad tissue tropism
  - Superior expression & kinetics (NHP, pig, murine testing) with onset of expression as early as day 3 post injection
  - Preliminary data sets from collaborators show more favorable immune profile compared to commonly used AAVs
  - 14-year patent life remaining (WO15054653)
- Tropism - multiple tissues:
  - Central Nervous system tropism in mouse: Hudry et al., 2018
  - Eye: Zinn, 2015; Carvalho, 2017; Carvalho, 2018
  - Liver: Zinn, 2015
  - Muscle: Zinn, 2015
  - Kidney: Ikeda, 2018
  - Inner Ear: Landegger, 2015; Pan 2017; Suzuki, 2017; Tao, 2018



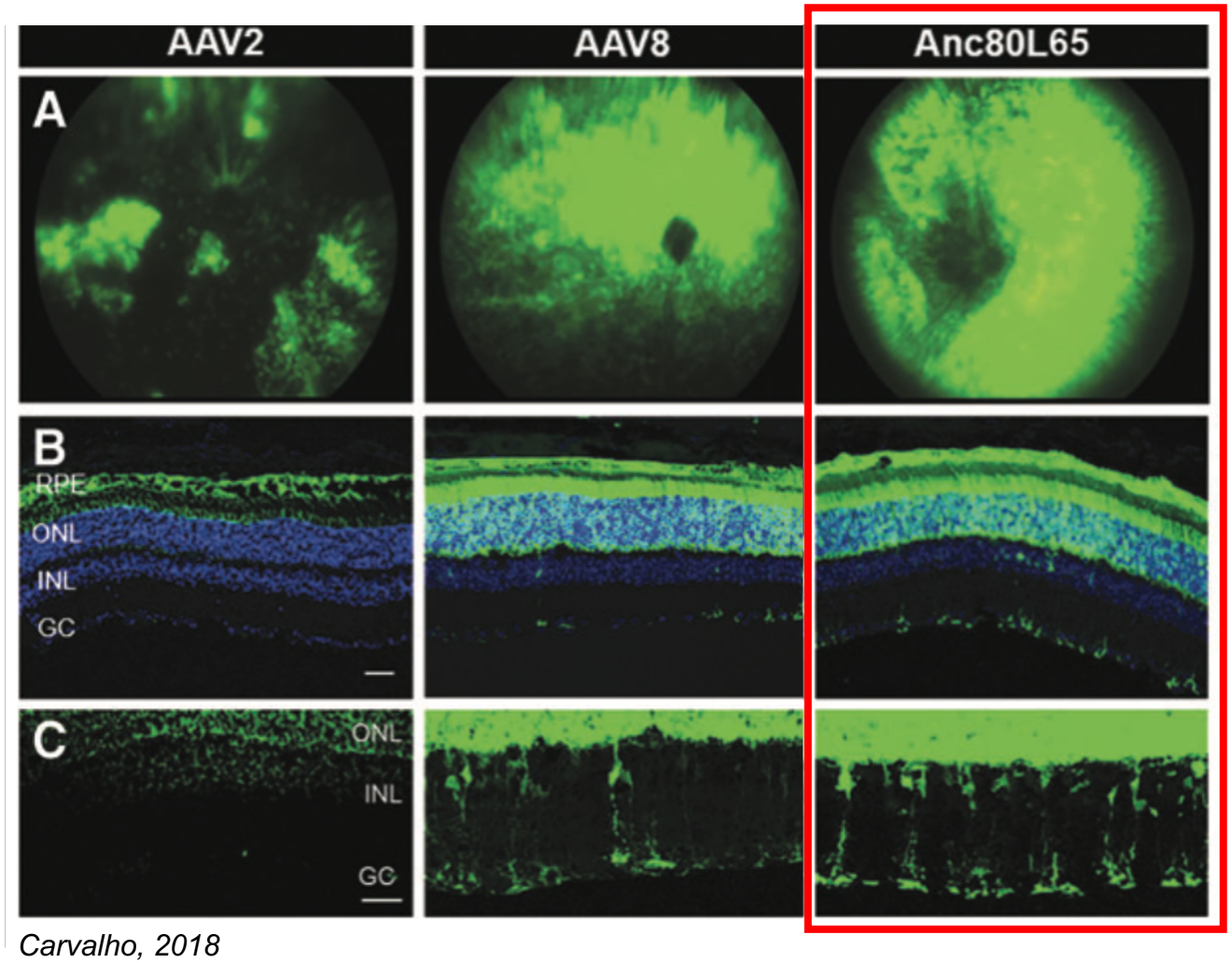
Anc80 AAV Vector

- Mass Eye & Ear developed Anc80 AAV technology
- Odylia licensed worldwide exclusively for rare retinal diseases
- Option to expand into additional genetic diseases and organ systems
- Sensorimotor (hearing) exclusively licensed to Akous
- PCT (WO/2015/054653) United States
- A highly favorable license. Sub-licensor to Odylia pays no license fee or royalties to ME&E
- Vector deeply characterized by Akous, that has advanced anc80 based products into clinicals



Delivery of RPGRIP1 via the Anc80 capsid

Anc80 shows high levels of expression in multiple retinal layers



Carvalho, 2018

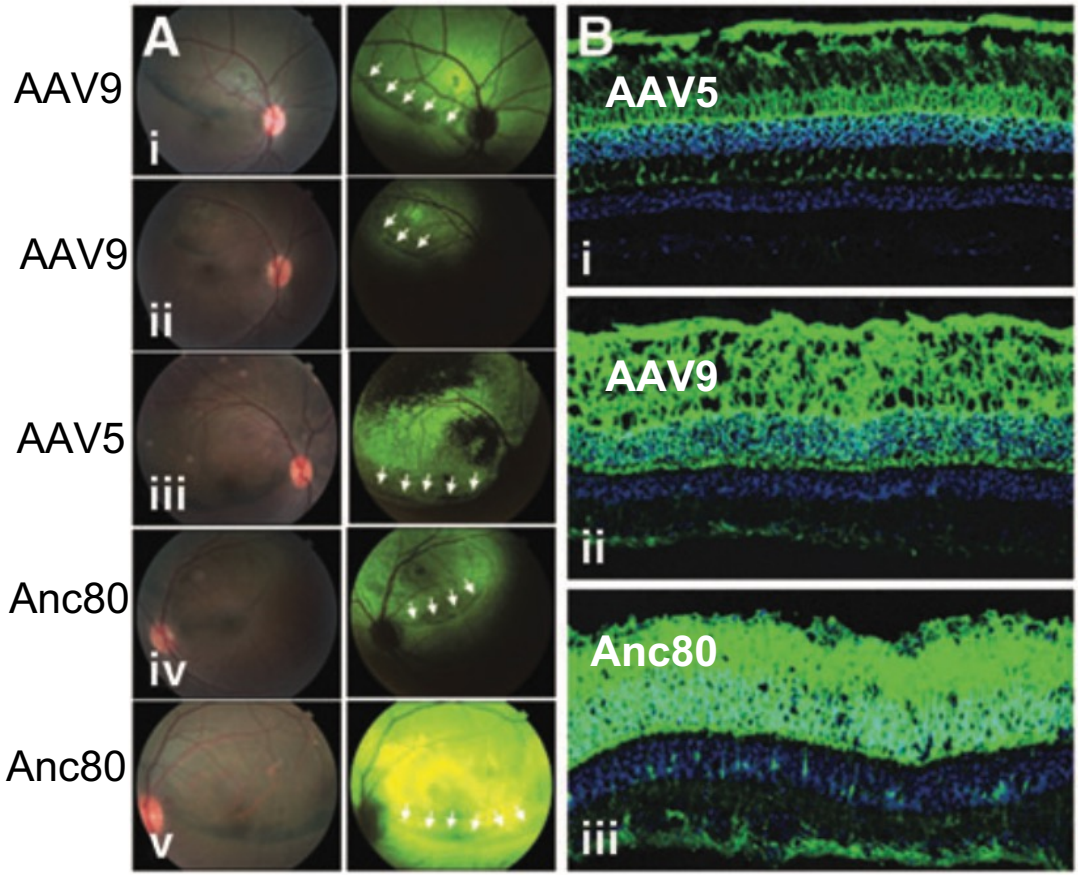
Anc80 shows increased expression across different retinal layers.

Expression is higher than other capsids tested: AAV2, AAV8, AAV9, AAV5

Ultimately higher expression of the transgene can mean lower doses in patients.

Anc80 Tropism (NHP retina)

Anc80 retinal tropism in NHP retina: expression in multiple cell types and layers



Carvalho, 2018

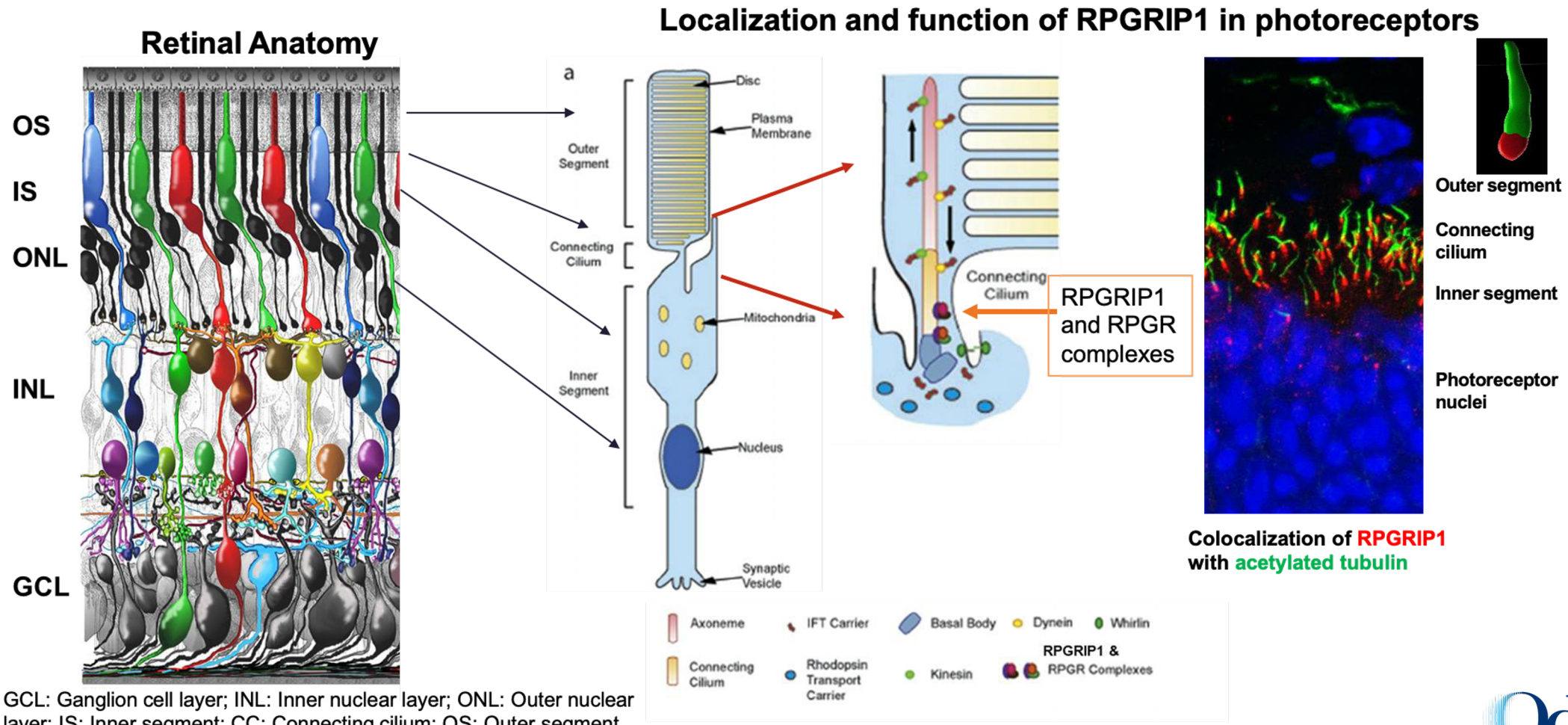
Anc80 expression in the NHP retina compared to AAV9 and AAV5:

- Anc80 expression started earlier in NHP, similar to mice
- Expression seen beyond the bleb in Anc80 and AAV9 but not in AAV5
- High expression with Anc80 in ONL and RPE

RPGRIP1 Gene Therapy

RPGRIP1

RPGRIP1 localizes to the cilia in photoreceptors and is necessary for normal function



GCL: Ganglion cell layer; INL: Inner nuclear layer; ONL: Outer nuclear layer; IS: Inner segment; CC: Connecting cilium; OS: Outer segment

RPGRIP1 Gene Therapy

Clinical Overview: Biallelic RPGRIP1 mutations can result in diagnoses of ***LCA6, CORD13, or juvenile Retinitis Pigmentosa***.

Clinical Symptom	RPGRIP1-mediated LCA6
Symptoms reported in clinical publications specific to RPGRIP1 mutations	• Reduced ERG • Nystagmus • Macular Degeneration/blurred vision • Reduced visual acuity • Fundus pigmentary deposits (bone spicule, granularity) • Photophobia • Night blindness • Hyperopia • Vascular attenuation • Reduced visual acuity (limited to light perception) • Eye poking in infants • Drusen-like deposits • Peripheral vision loss • Disc pallor • Chorioretinal atrophy • Keratoconus/keratoglobus
Age at onset	• Usually in early infancy but before 1 year of age • Can be variable
Age at major decline points	• Visual loss onset within first year of life • Potential treatment windows exist in pediatric and young adult populations

Of Note: while RPGRIP1 mutations are predominately diagnosed as LCA6, there are reports of both retinitis pigmentosa (RP) and cone-rod dystrophy (CORD13) clinical diagnoses

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RPGRIP1 Clinical Advisory Group

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Director of the Laboratory for Retinal Genetics and Therapeutics
Chief Paediatric Ophthalmology

Montreal Children's Hospital

Jiong Yan, MD

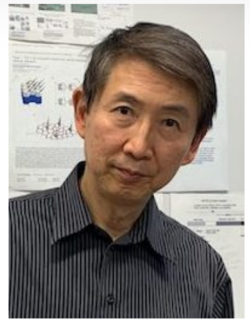
Associate Professor of Ophthalmology
Director, Vitreo-Retina Surgery Fellowship

Emory University School of Medicine

Thaddeus (Ted) Dryja, MD

Professor of Ophthalmology, Harvard Medical School
Physician and Surgeon, Massachusetts Eye and Ear Infirmary

Massachusetts Eye and Ear Infirmary



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National Eye Institute

Eric A. Pierce, MD, PhD

Director, Inherited Retinal Disorders Service, Massachusetts Eye and Ear
William F. Chatlos Professor of Ophthalmology, Harvard Medical School

Massachusetts Eye and Ear

RPGRIP1 Gene Therapy: Pre-clinical data

RPGRIP1 Expression in LCA6 mouse model

- RPGRIP1 protein localizes to the appropriate part of the photoreceptor subcellular structure
- There is a clear dose-dependent increase in expression of RPGRIP1

Effectiveness of RPGRIP1 gene therapy in a mouse model of LCA6

- Protection against retinal degeneration and preservation of outer nuclear layer and inner nuclear layer thickness
- Improved ERG (functional outcome)

Feasibility in non-human primates

- Well-tolerated, no clinical findings related to the gene therapy
- Dose-dependent increase in gene therapy delivery and RPGRIP1 expression

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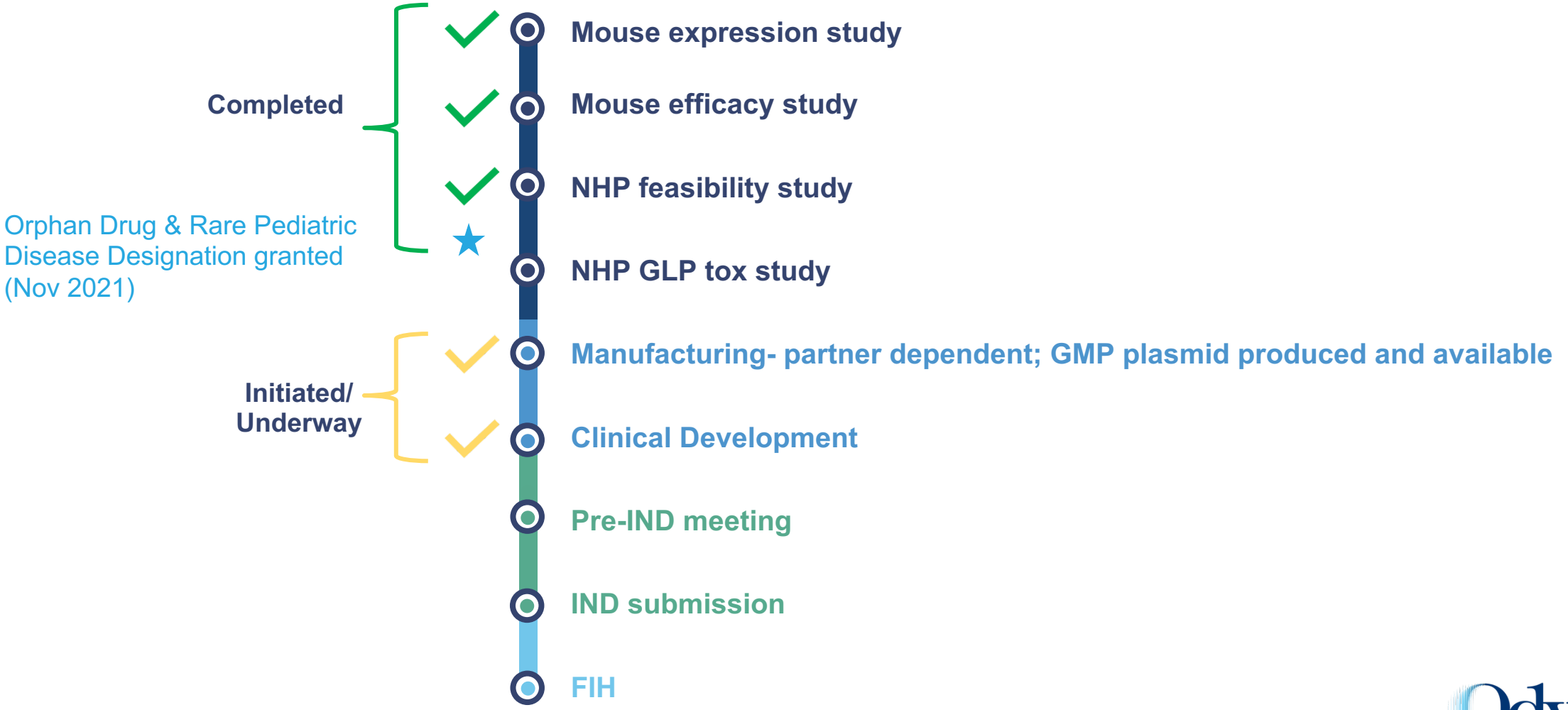
RPGRIP1 Program Milestones



Types of Partnership We Are Seeking

- Programmatic funding: donations, venture philanthropy, grants
- License and commercialization options for single program or portfolio options
- Co-development opportunities
- Additional Anc80 programs on a gene-by-gene basis
- Odylia R&D team can handle, share, or hand-off preclinical through Phase I/II trial work for these or other programs
- Co-discovery for other rare diseases. Not restricted to retinal diseases or gene therapy or Anc80

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Confidential deck available upon request


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