September 2019

Nasdaq: ALDX

BIOCENTURY NEWSMAKERS 2019

Innovating Transformative Therapies

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Our Mission and Value Proposition

Developing Next-Generation Medicines to Improve the Lives of Patients with Immune-Mediated Diseases

Deep and Innovative Pipeline focused on immune-mediated diseases

Near-Term Development Catalysts support path to commercialization

Solid Track Record of development success

Large Market Potential of late-stage pipeline

Solid Cash Position

Cash, cash equivalents and marketable securities were $69.5 million as of June 30, 2019

Deep and Innovative Pipeline Focused on Immune-Mediated Diseases

Disease Area	Compound	[Mechanism]	Indication	Preclinical / Phase 1 / Phase 2 / Phase 3	Next Anticipated Milestone
Ocular Diseases	Reproxalap	[RASP]	Dry Eye Disease	Phase 3	Phase 3-Part 1 completion Q4 2019
			Allergic Conjunctivitis	Phase 3	
	ADX-2191	[DHFR]	Proliferative Vitreoretinopathy	Phase 3	Phase 3-Part 1 initiation Q4 2019
	ADX-103/10X	[RASP]	Retinal Disease	Phase 1	Phase 1/2 initiation 2020
	Undisclosed		Ocular Inflammation	Preclinical	*Research Collaboration (undisclosed)*
Systemic Diseases	Reproxalap	[RASP]	Sjögren-Larsson Syndrome	Phase 2	
	ADX-1612	[CHP]	PTLD	Phase 2	Phase 2 initiation H2 2019
			Mesothelioma	Phase 2	*Investigator-Sponsored Trial*
			Ovarian Cancer	Phase 2	*Investigator-Sponsored Trial*
	ADX-629	[RASP]	Autoimmune / Metabolic Disease	Phase 1	Phase 1 initiation H2 2019
	ADX-1615	[CHP]	Autoimmune Disease / Cancer	Preclinical	
	Undisclosed	[RASP]	Systemic Inflammatory Disease	Preclinical	*Research Collaboration* Janssen

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RASP Mechanism = Reactive Aldehyde Species Inhibitor
DHFR Mechanism = Dihydrofolate Reductase Inhibitor
CHP Mechanism = Chaperome Inhibitor
PTLD = Post-Transplant Lymphoproliferative Disorder

Trial initiations contingent on funding, regulatory review, and other factors

Our Lead Programs Represent Compelling Commercial Opportunities

Late Stage Programs	Estimated U.S. Population†	Current Standard of Care	Drug Candidate and Dev. Stage	Potential Competitive Advantages†
Ocular Diseases				
Dry Eye Disease	20 million DED	Xiidra®, Restasis®	**Reproxalap: Phase 3**	**Rapid onset, broad activity, reduction in itch**
Allergic Conjunctivitis	Up to 10 million with DED & AC 30 million AC	Antihistamines	**Reproxalap: Phase 3**	**Non-drying, durable activity; Responder superiority vs. vehicle**
Proliferative Vitreoretinopathy	4,000	None (repeat surgeries)	**ADX-2191: Phase 3**	**Clinically demonstrated activity; Currently no FDA- or EMA-approved therapy**
Systemic Diseases				
Sjögren-Larsson Syndrome	1,000	None (manage symptoms)	**Reproxalap: Phase 3**	**Clinically demonstrated activity; Currently no FDA- or EMA-approved therapy**

†Pending clinical data, regulatory discussions, payor negotiations, competition, potential legislative changes, and other factors, which may not be in Aldeyra's control. Preliminary assumptions are subject to change.

Source: Aldeyra internal estimates based on primary and secondary market research; published literature

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Recent and Expected Development Milestones:*
Novel Approaches to Address Immune-Mediated Disease

= Ocular Diseases
= Systemic Diseases

- **Positive** reproxalap allergic conjunctivitis **ALLEVIATE Phase 3 trial results March 2019**
- Reproxalap dry eye disease **RENEW Phase 3 - Part 1 clinical trial initiation April 2019**
- **Positive** reproxalap allergic conjunctivitis **environmental chamber trial results June 2019**
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- Reproxalap allergic conjunctivitis design for potential **second Phase 3 to be confirmed Q4 2019**
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- ADX-629 systemic **Phase 1 clinical trial initiation H2 2019**
- ADX-1612 post-transplant lymphoproliferative disorder **Phase 2 clinical trial initiation H2 2019**

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*Contingent on funding, regulatory review, clinical results and other factors

NDA = New Drug Application

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- **DRY EYE DISEASE**
- ALLERGIC CONJUNCTIVITIS
- PROLIFERATIVE VITREORETINOPATHY

Ocular Disease Area

Dry Eye Disease: A Persistently Disturbing Condition Inadequately Treated with Currently Available Therapy

Dry Eye Disease

20 million or more **adults in the U.S.** suffer from DED

Age 50+ >3x

DED **increases with age**, with those over age 50 three times more likely to suffer from DED

vs

Women are twice as likely to suffer from DED than men

Current Rx options **may require up to six weeks or longer** to achieve even modest efficacy

Up to 75%

Up to 75% of patients with DED **are not satisfied with current prescription options**

Up to 50%

Up to 50% of patients **treated for DED** with current therapies **fail and discontinue**

Significant **negative quality of life** impact

Underserved Patient Population

Reproxalap

Reproxalap in DED

Early and consistent symptom and sign improvements in Phase 2b clinical trial

Broad symptom and sign improvements in Phase 2b clinical trial

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Source: Aldeyra internal estimates based on primary and secondary market research; published literature

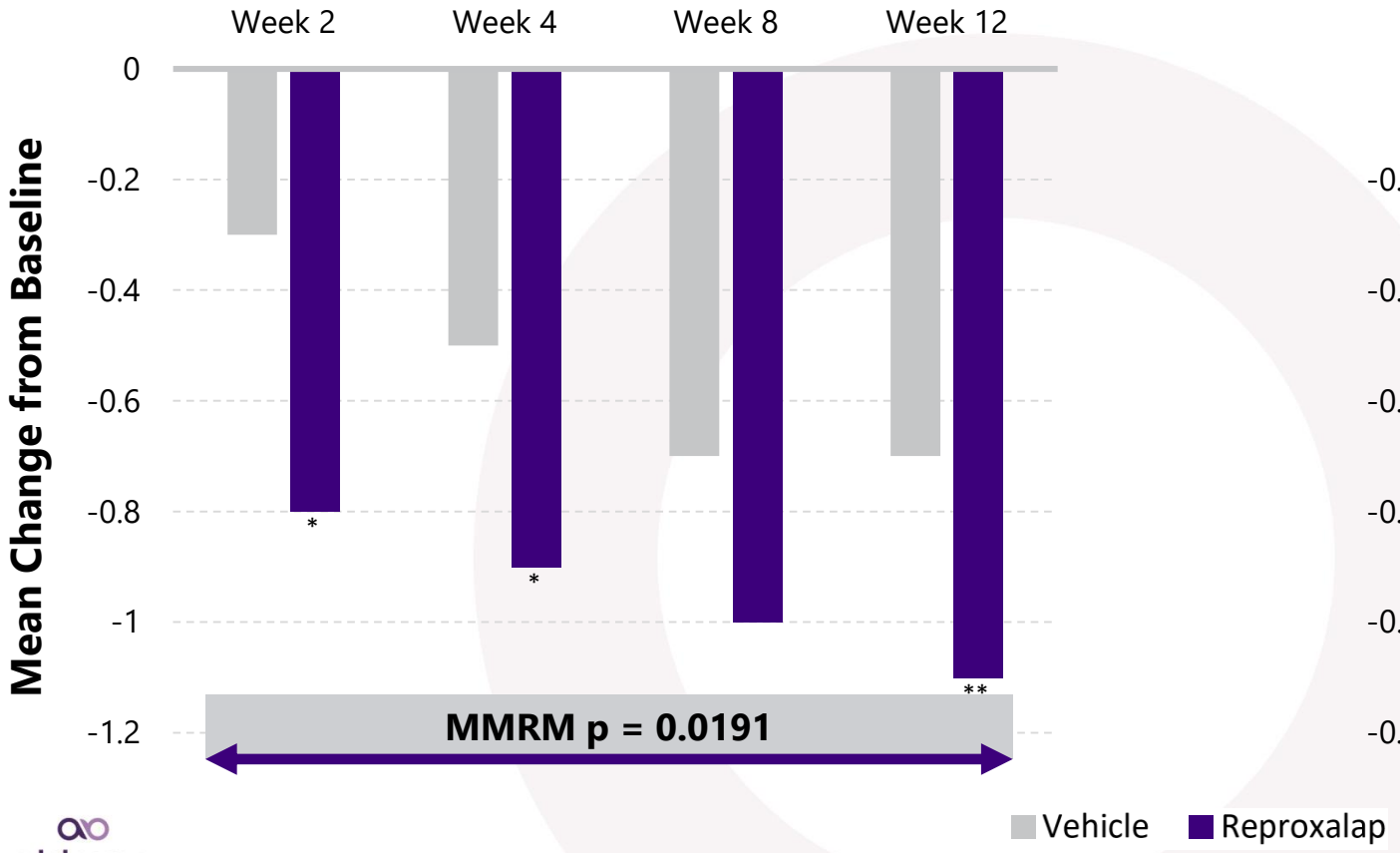
DED = Dry eye disease

Phase 3 Dry Eye Disease Symptom and Sign Endpoints Achieved in Phase 2b Clinical Trial

Primary Symptom Endpoint for Phase 3

OD & 4-Symptom Questionnaire: Dryness (0-5)

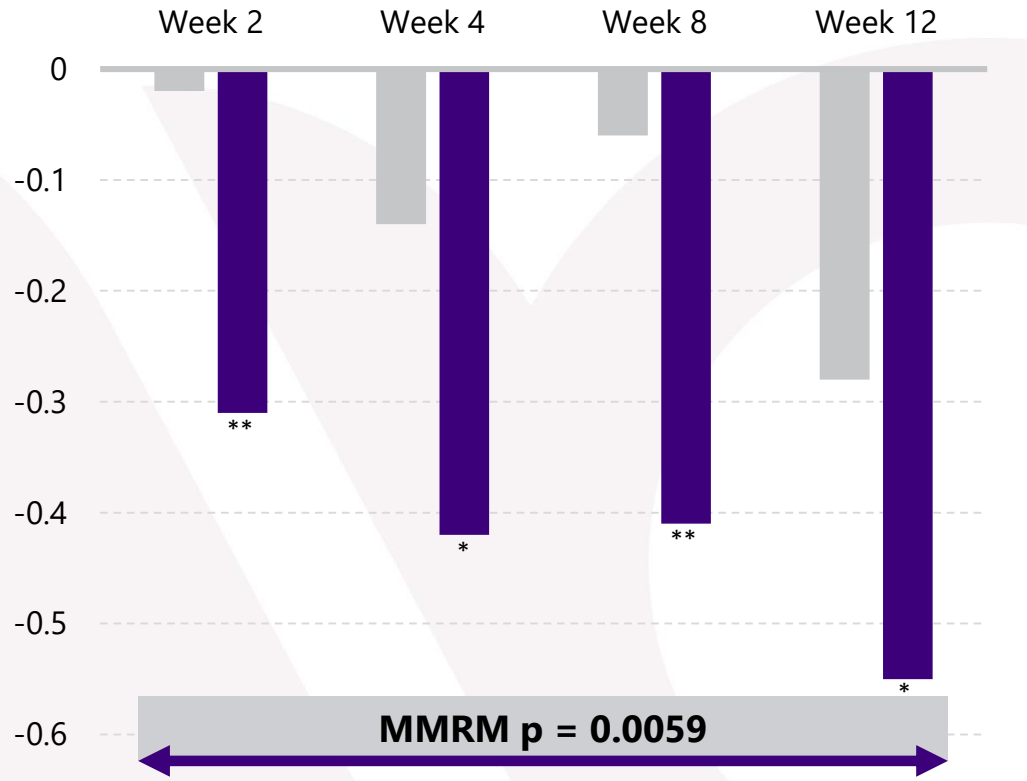
Baseline Score ≥ 3 (N=69|69)



Primary Sign Endpoint for Phase 3

Fluorescein Staining: Nasal (0-4)

Baseline Score ≥ 2 (N=62|56)

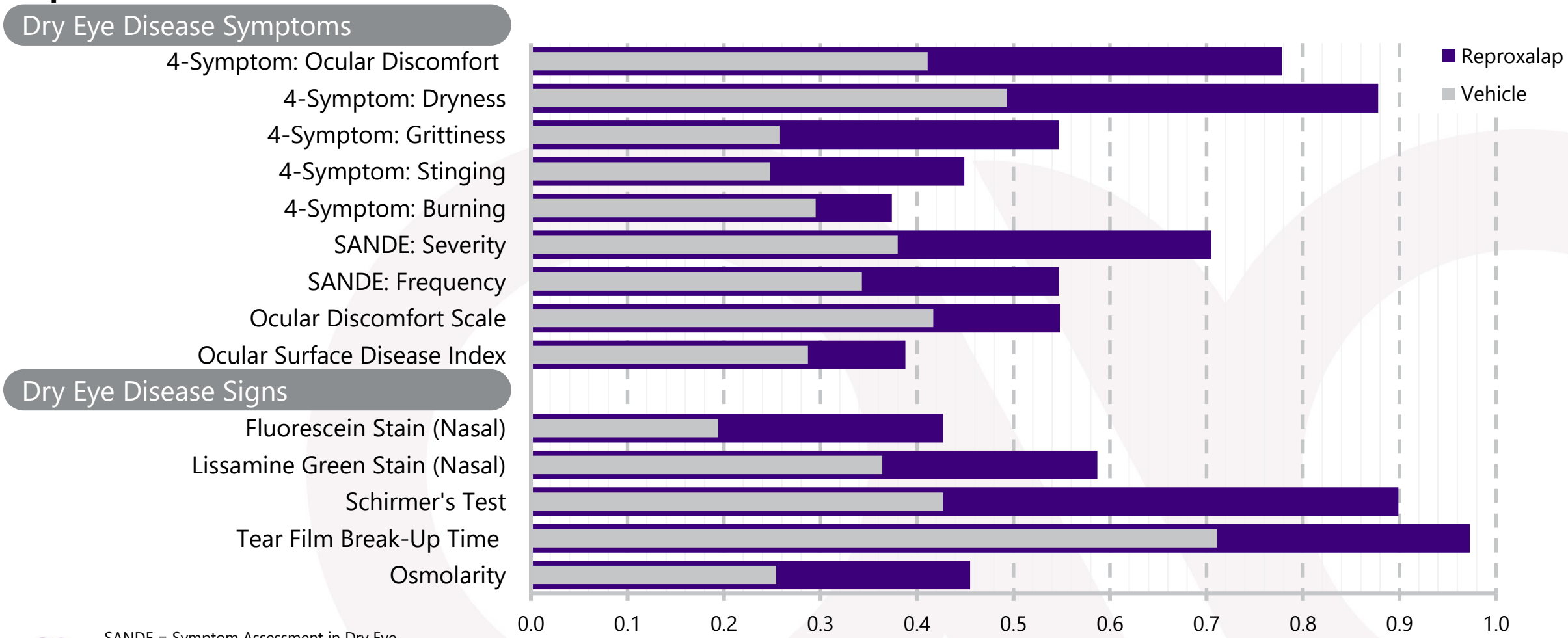


Source: Reproxalap DED Phase 2b clinical trial results (reproxalap 0.25%); p values shown represent reproxalap effect versus vehicle.

*p<0.05 **p<0.01
OD = Ocular Discomfort
MMRM = Mixed Effect Model Repeated Measures (across 12 weeks)

Broad Drug Activity Across All Measured Dry Eye Disease Symptoms and Signs in Phase 2b Clinical Trial Supports Differentiated Product Profile

Improvement Effect Size at Week 12



SANDE = Symptom Assessment in Dry Eye
Average improvement effect size across both eyes for tear quality and tear quantity measures (Schirmer's Test, Tear Film Break-Up Time, and Osmolarity)

Improvement Effect size = Change from Baseline / Standard Deviation at Baseline
Source: Reproxalap DED Phase 2b clinical trial results (reproxalap 0.25%)

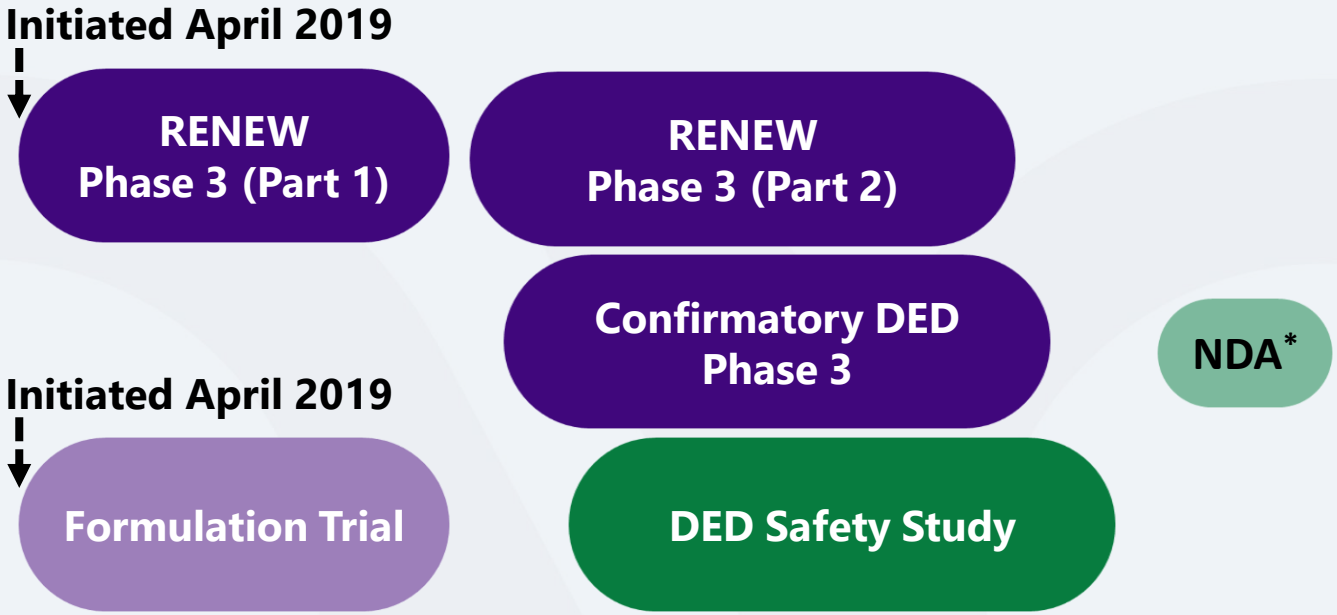
Adaptive Phase 3 Dry Eye Disease Clinical Program

Adaptive Phase 3 Program

- Confirm symptom and sign endpoints from Phase 2b trial
- Confirm dosing regimen (QID vs. QID to BID taper)
- Confirm sample size for subsequent trial

Dry Eye Disease

Clinical Program to NDA Submission



Adaptive design, co-primary endpoints, and innovative analysis strategy confirmed with FDA at EOP2 Meeting

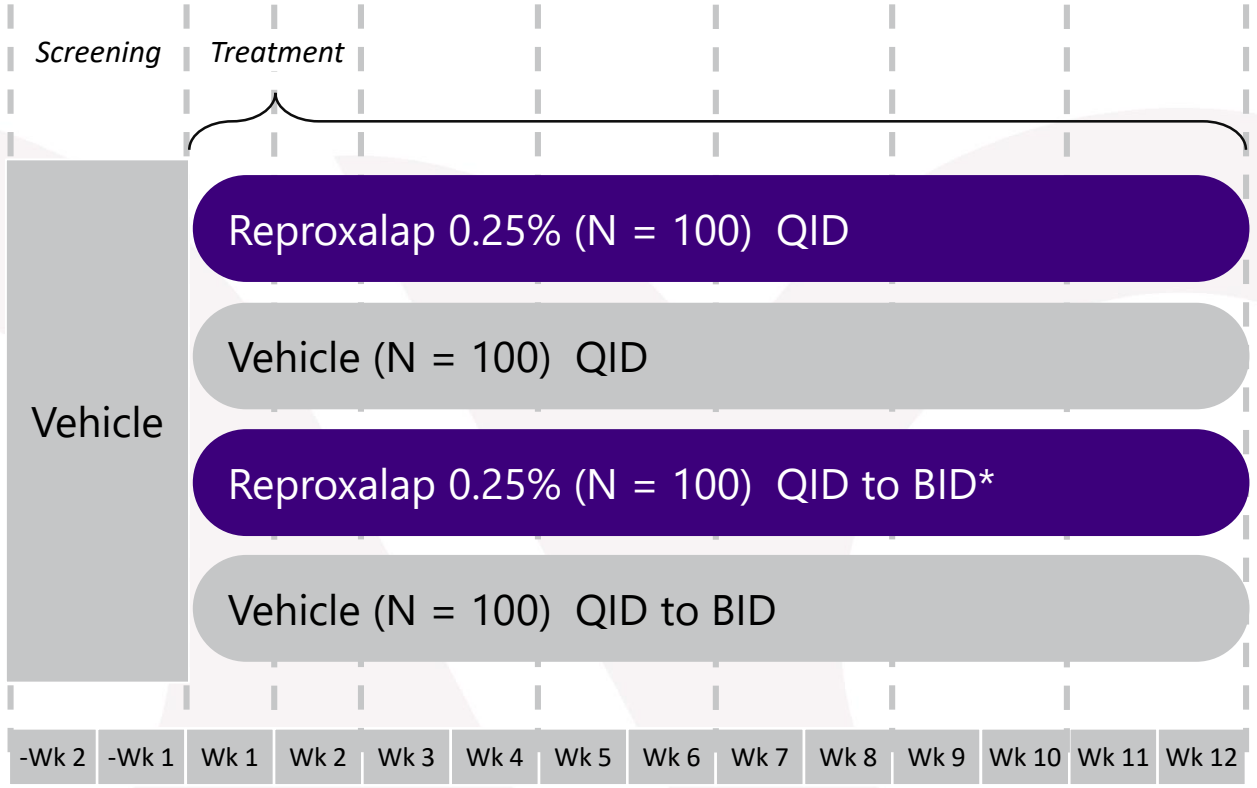
*Subject to regulatory discussions following Phase 3 trial completion.
Contingent on funding, clinical results, regulatory review, and other factors.

DED = Dry eye disease
BID = Two times daily
QID = Four times daily
EOP2 = End of Phase 2

The RENEW Phase 3 Clinical Trial in Dry Eye Disease Part 1 Initiated April 2019

- **Primary objective:**
  - Evaluate efficacy of reproxalap ophthalmic solution (0.25%) vs. vehicle to confirm dosing regimen and sample size for Part 2
- **Inclusion/exclusion criteria:**
  - Same as used for Phase 2b
  - Moderate to severe dry eye disease
- **Co-primary endpoints:**
  - Ocular dryness score (0-100mm VAS) and fluorescein nasal region staining
- **Analysis strategy:**
  - Both co-primary endpoints will be assessed using Mixed Model Repeated Measures (MMRM) from week 2 to 12
  - Both co-primary endpoints will be assessed in separate pre-specified patient populations
    - Ocular dryness score (OD4SS): baseline score of $\geq$ 3
    - Fluorescein nasal staining: baseline score $\geq$ 2

Phase 3 Dry Eye Disease Clinical Trial: Part 1



Further information can be found on www.clinicaltrials.gov: Trial #NCT03879863.

*QID for weeks 1-4 and BID for weeks 5-12

VAS = Visual analog scale
OD4SS = Ocular Discomfort 4-Symptom Score

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- **ALLERGIC CONJUNCTIVITIS**
- PROLIFERATIVE VITREORETINOPATHY

Ocular Disease Area

Allergic Conjunctivitis:
A Common Disease with Unmet Medical Need

Allergic Conjunctivitis

30 million

Up to 30 million of **AC sufferers** in the U.S. **do not respond adequately** to or are **dissatisfied with antihistamines**

AC patients experience symptoms throughout **all decades of adult life**

AC can result in **acute, intermittent, and chronic** symptoms

Significant **negative quality of life** impact

Many AC **patients make significant sacrifices** due to lack of drug activity

24%

Antihistamines are not effective in an estimated 24% of treated AC patients

2%

~2% of AC patients have severe symptoms and **may be corticosteroid-dependent**

Underserved Patient Population

Reproxalap

Reproxalap in AC

Clinically significant and durable symptom response in Phase 3 clinical trial

Active in post-histaminic allergy, for which no drug is approved

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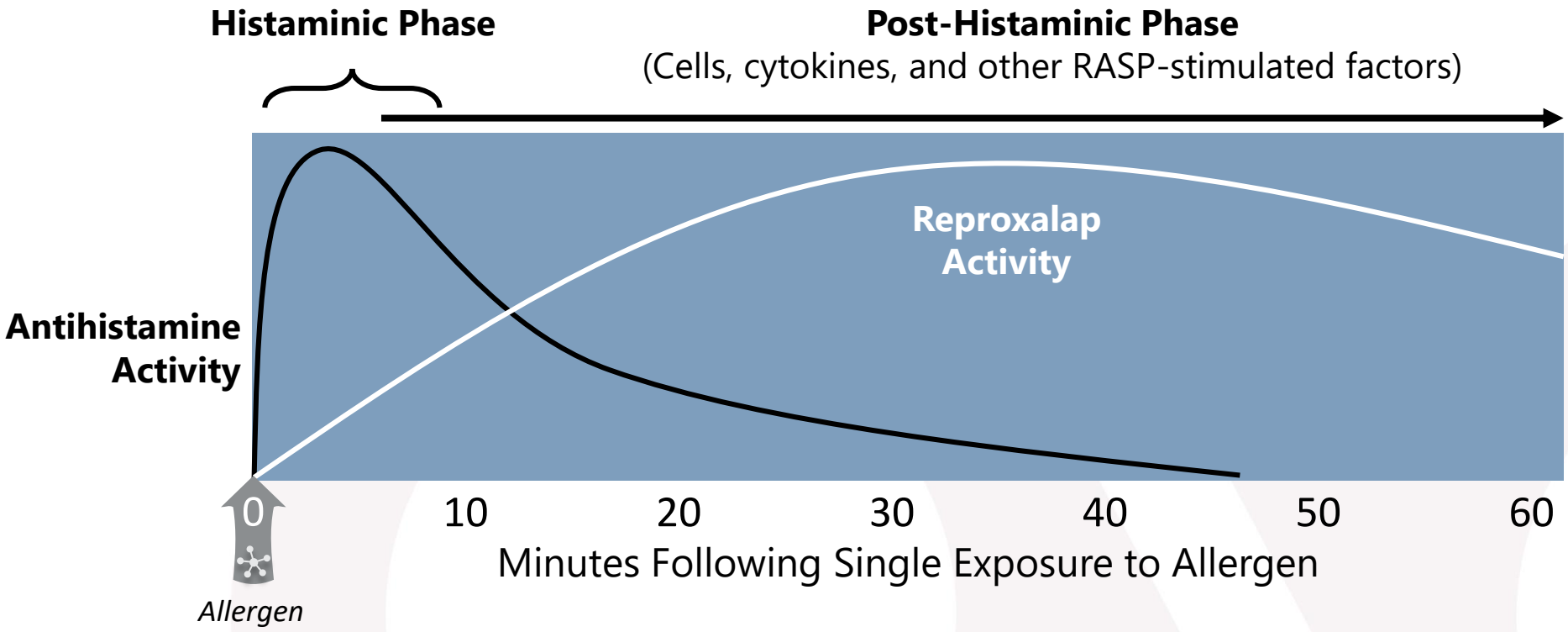
Source: Aldeyra internal estimates based on primary and secondary market research; published literature

AC = Allergic conjunctivitis

Reproxalap's Novel Mechanism of Action has the Potential to Provide Differentiated Activity Versus Antihistamines



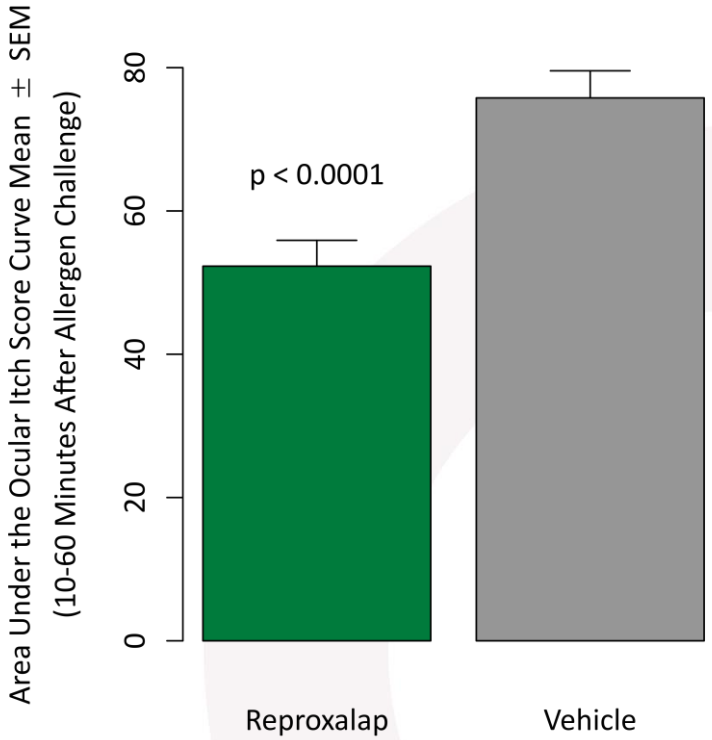
Reproxalap has the potential to be uniquely effective in post-histaminic allergy, which affects all allergic conjunctivitis patients

RASP = Reactive Aldehyde Species
Illustrative only, based on published literature and internal estimates

Reproxalap Achieved Primary and Key Secondary Endpoints in ALLEVIATE Phase 3 Clinical Trial

Primary Endpoint

Area Under the Curve: Ocular Itch Score (0-4) 10 to 60 Minutes After Allergen Challenge

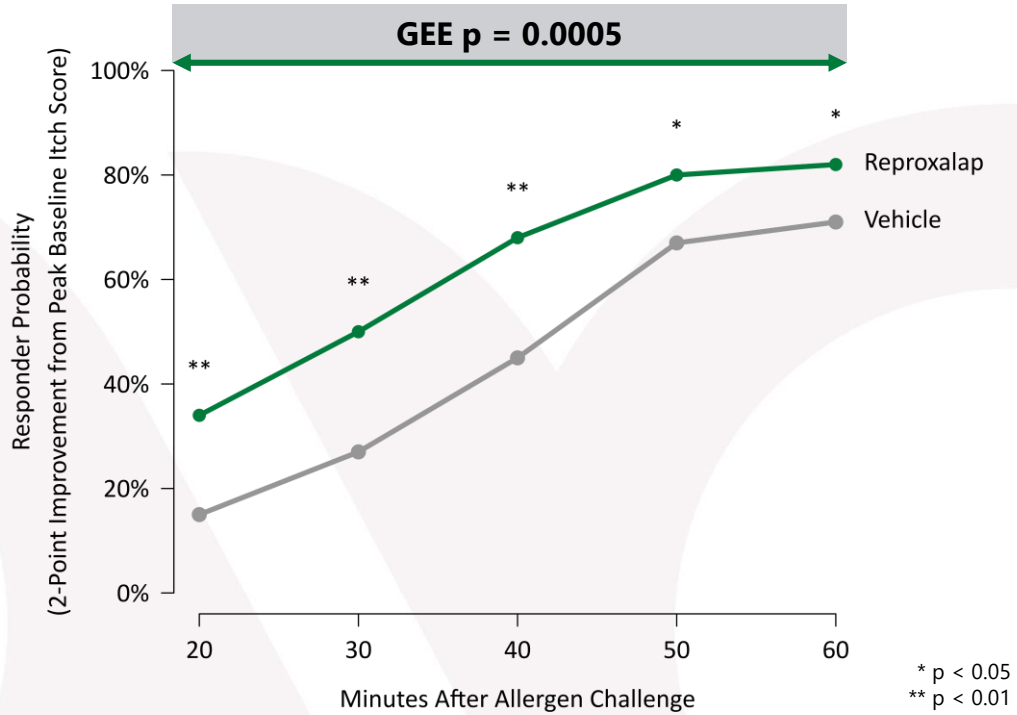


Improvement in itch score over one hour after allergen exposure statistically greater for reproxalap vs. vehicle

SEM = Standard error of the mean

Key Secondary Endpoint

Probability of Two-Point Response: Ocular Itch Score (0-4)



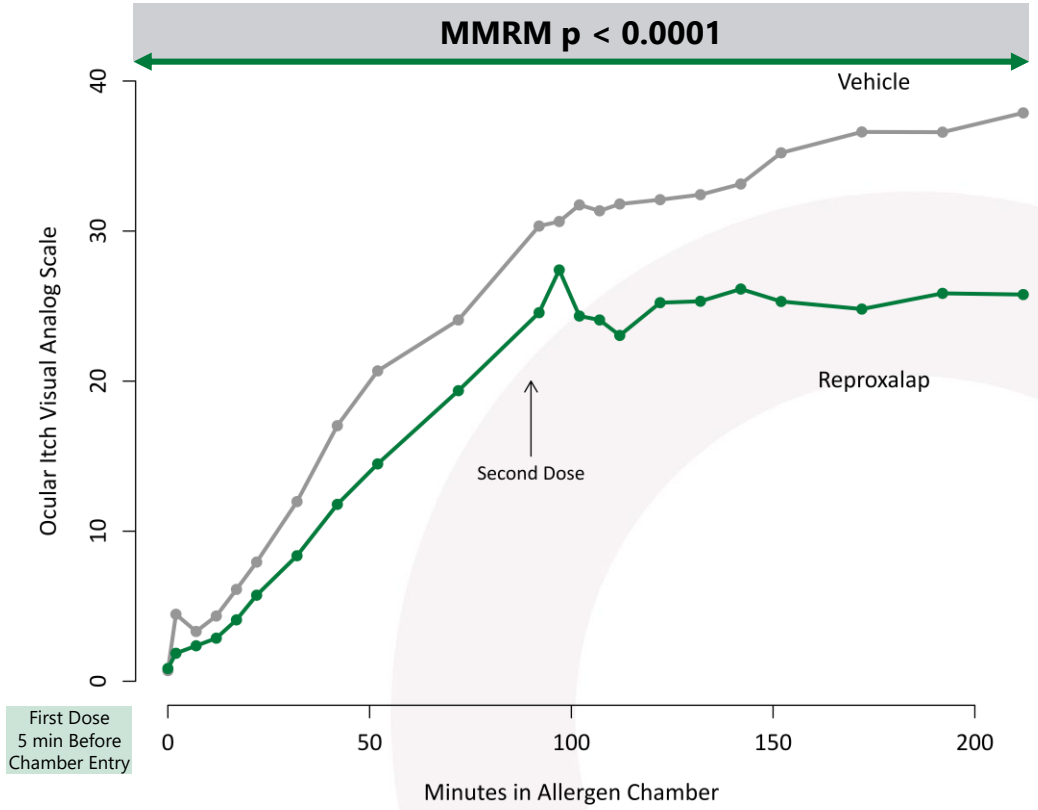
Clinically significant response rate of reproxalap statistically higher than that of vehicle

GEE = Generalized estimating equation analysis

Source: ALLEVIATE allergic conjunctivitis Phase 3 clinical trial results (reproxalap 0.25%); Ocular itch scale 0 (no itch) to 4 (incapacitating itch)

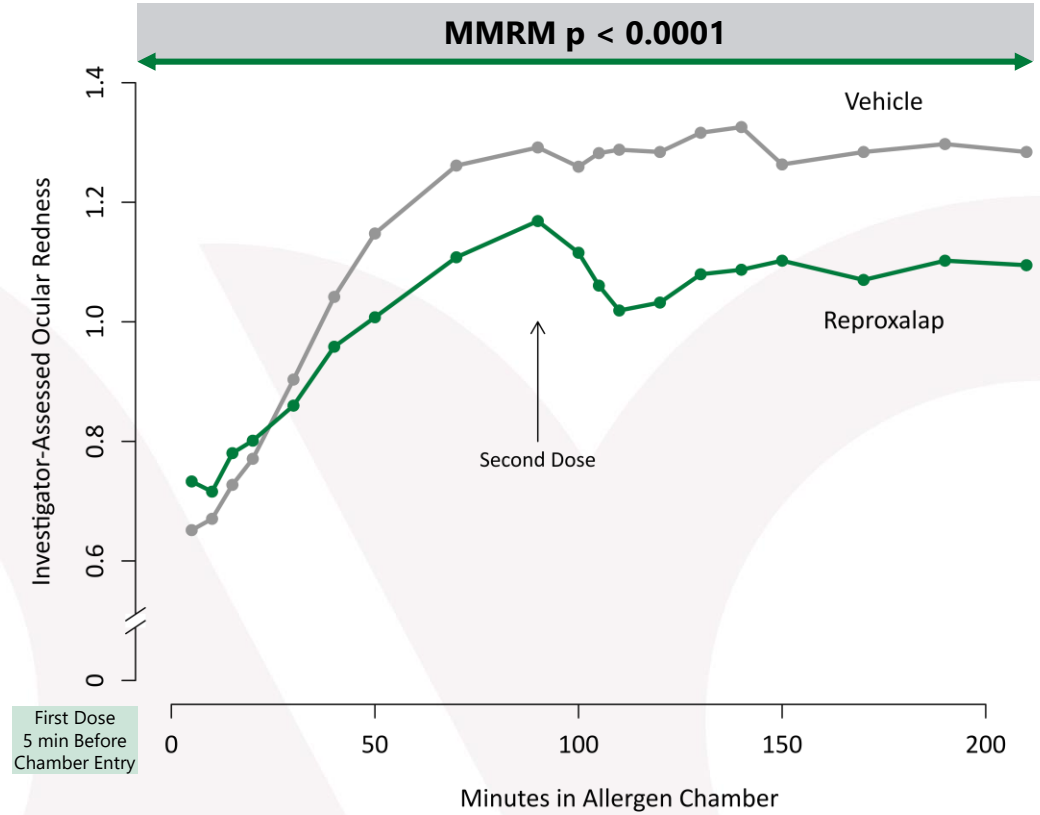
Reproxalap Treatment Led to Durable Reduction in Ocular Itch and Redness in Allergen Chamber Clinical Trial

Ocular Itch Score (0-100) During 3.5 Hours of Allergen Exposure



Statistically significant reduction in ocular itch vs. vehicle for more than three hours of exposure to allergen

Ocular Redness Score (0-4) During 3.5 Hours of Allergen Exposure

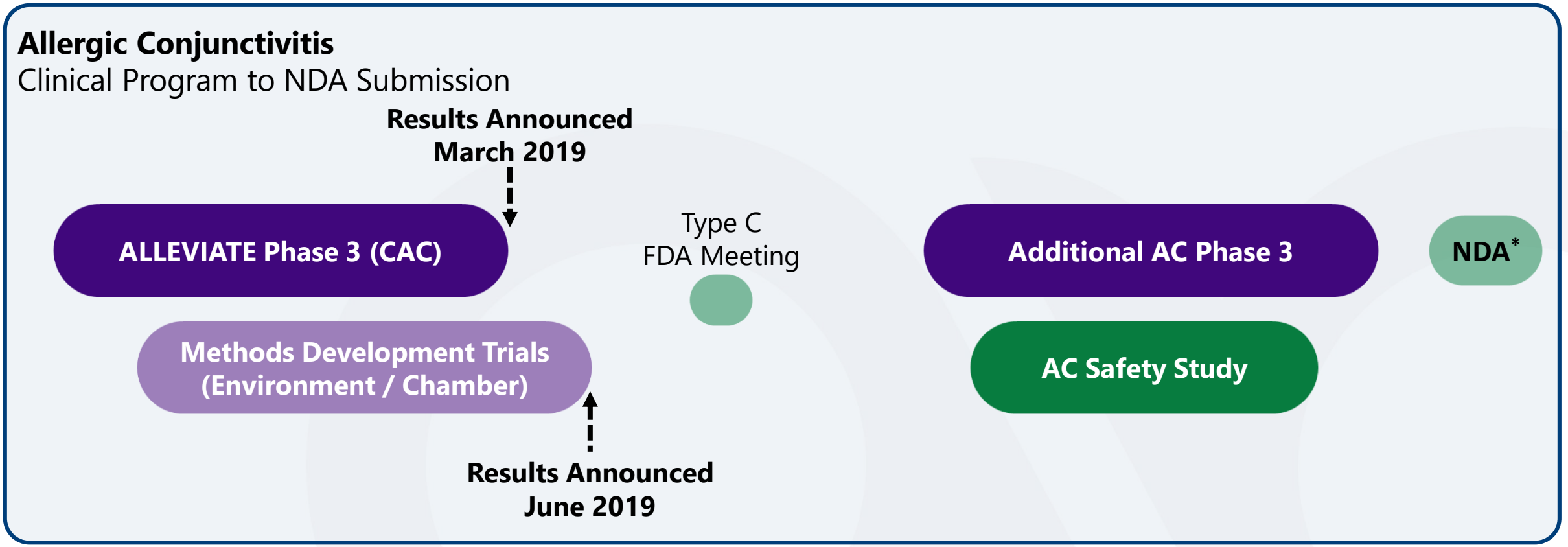


Statistically significant reduction in ocular redness vs. vehicle for more than three hours of exposure to allergen

MMRM = Mixed Effect Model Repeated Measures

Source: Aldeyra Therapeutics methodology development clinical trial (reproxalap 0.25%; ClinicalTrials.gov #NCT03709121); n=66

Allergic Conjunctivitis Phase 3 Clinical Program



*Subject to regulatory discussions following Phase 3 trial completion.
Contingent on funding, clinical results, regulatory review, and other factors.

AC = Allergic conjunctivitis
CAC = Conjunctival Allergen Challenge

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- DRY EYE DISEASE
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- **PROLIFERATIVE VITREORETINOPATHY**

Ocular Disease Area

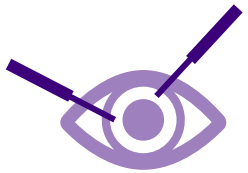
Proliferative Vitreoretinopathy:
A Rare Sight-Threatening Retinal Disease With No Approved Therapy

Proliferative vitreoretinopathy

PVR is a **rare disease**, with ~4,000 patients per year in the U.S. and nearly twice as many in Europe and Japan.

Left untreated, retinal detachment due to **PVR can progress to permanent blindness**.

No FDA- or EMA-approved therapy



Repeat surgery, which can lead to **vision loss**, is currently the only possible course of action.

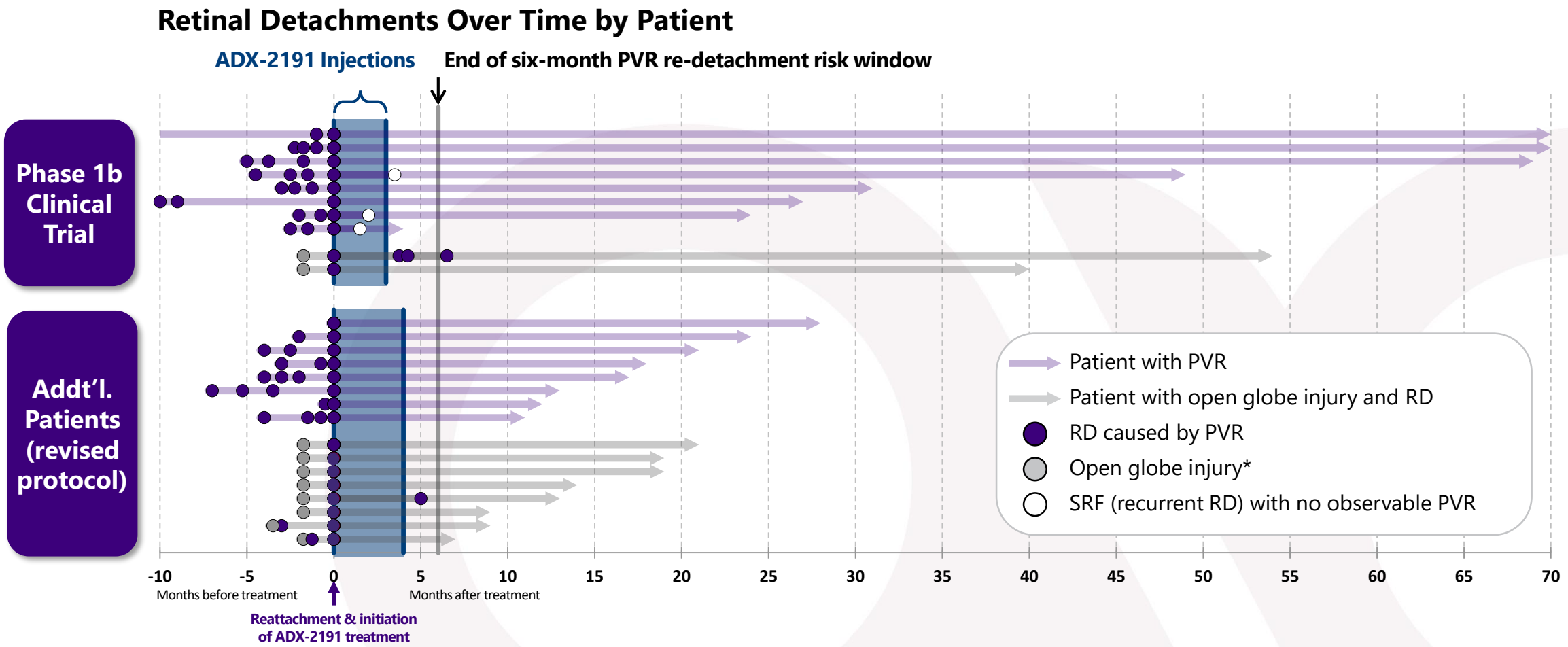
ADX-2191

ADX-2191

- A **novel approach and potential therapeutic breakthrough** in PVR treatment
- **Granted U.S. orphan designation** for the prevention of PVR
- **Tolerability and reattachment success** during study period **demonstrated in Phase 1b** open-label investigator sponsored clinical trial
- GUARD adaptive Phase 3 clinical trial **expected to initiate Q4 2019**

Source: Aldeyra internal estimates based on primary and secondary market research; published literature

ADX-2191 Reduced Recurrent Retinal Detachment in Investigator Sponsored Phase 1b Clinical Trial and in Additional In-Practice Use



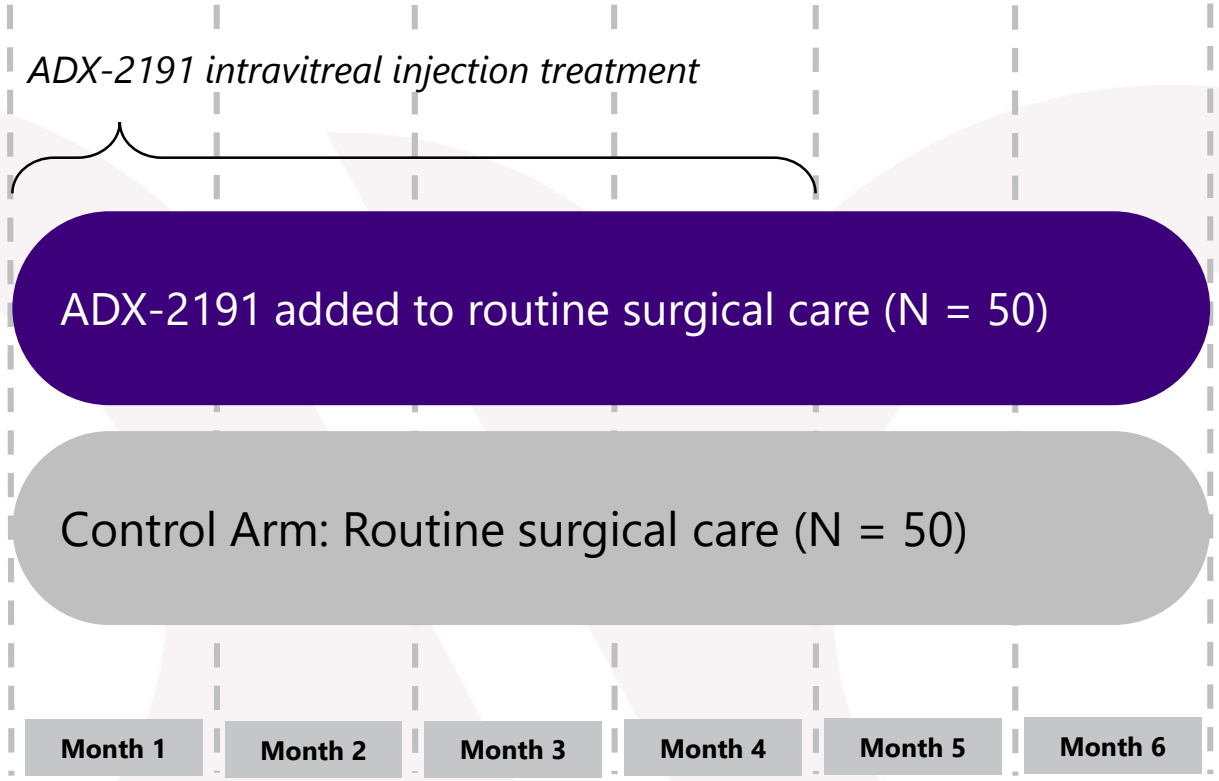
*Timing of open globe injury as shown is estimated. Typically 6-8 weeks prior to reattachment & initiation of ADX-2191.
There is no assurance that prior results, such as signals of safety, activity or durability of effect, observed from this open label investigator sponsored trial will be replicated in more rigorous trials involving ADX-2191.
Source: ADX-2191 PVR Phase 1b investigator sponsored clinical trial (n=10) results and additional in-practice use (n=16)

RD = Retinal detachment
PVR = Proliferative vitreoretinopathy
SRF = Subretinal fluid

ADX-2191: GUARD Trial Design in Proliferative Vitreoretinopathy Adaptive Phase 3 (Part 1) Clinical Trial Design*

- **Primary objective:**
  - Evaluate efficacy of intravitreal ADX-2191 injections for prevention of recurrent retinal detachment due to proliferative vitreoretinopathy (PVR)
- **Design:**
  - Multi-center, randomized, controlled, two- part, adaptive Phase 3 clinical trial
- **Inclusion highlights:**
  - Recurrent retinal detachment due to PVR, or
  - Retinal detachment associated with open-globe injury
- **Dosing regimen:**
  - At surgery, weekly (x8), and then every other week (x4) intravitreal ADX-2191 injections
- **Endpoint:**
  - Retinal re-detachments due to PVR requiring re-operation within 6 months:
    1. OCT demonstrating fovea-off retinal detachment
    2. Photographic documentation retinal detachment

Adaptive Phase 3 PVR Clinical Trial Design: Part 1



OCT = Optical Coherence Tomography
*Contingent on funding, regulatory review, and other factors

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Recent and Expected Development Milestones

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Novel Approaches to Address Immune-Mediated Disease

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