July 16, 2020

OIS VIRTUAL PUBLIC COMPANY SHOWCASE

Novel Pharmaceutical Approaches for the Treatment of Ocular Disease

Nasdaq: ALDX

Disclaimers and Forward-Looking Statements

This presentation and various remarks which may be made during this presentation contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 and Section 21E of the Securities Exchange Act of 1934, as amended, including statements regarding Aldeyra's possible or assumed future results of operations, expenses and financing needs, business strategies and plans, research and development plans or expectations, political, economic, legal, social and health risks, including the recent COVID-19 outbreak and subsequent public health measures and other responses to it, that may affect Aldeyra's business or the global economy, the structure, timing and success of Aldeyra's planned or pending clinical trials, expected milestones, market sizing, pricing and reimbursement, competitive position, regulatory matters, industry environment and potential growth opportunities, among other things. The results of earlier preclinical or clinical trials may not be predictive of future results. As a result of the COVID-19 pandemic, clinical site availability, staffing, and patient recruitment have been negatively affected and the timelines to complete Aldeyra's clinical trials may be delayed. Forward-looking statements include all statements that are not historical facts and, in some cases, can be identified by terms such as "may," "might," "will," "objective," "intend," "should," "could," "can," "would," "expect," "believe," "anticipate," "project," "target," "design," "estimate," "predict," "potential," "plan" or similar expressions and the negatives of those terms.

Forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause Aldeyra's actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. These statements reflect Aldeyra's current views with respect to future events and are based on assumptions and subject to risks and uncertainties, including the development, clinical and regulatory plans or expectations for Aldeyra's product candidates and systems-based approaches, later developments with the FDA that may be inconsistent with Aldeyra's expectations and beliefs, including inconsistent expectations regarding FDA acceptance and review of the company's filings and submitted data sets, and Aldeyra's continuing review and quality control analysis of clinical data. Important factors that could cause actual results to differ materially from those reflected in Aldeyra's forward-looking statements are described in Aldeyra's most recent Annual Report on Form 10-K and Quarterly Report on Form 10-Q, as well as Aldeyra's subsequent filings with the Securities and Exchange Commission. All of Aldeyra's development plans and timelines may be subject to adjustment depending on funding, recruitment rate, regulatory review, preclinical and clinical results, and other factors any of which could result in changes to Aldeyra's development plans and programs or delay the initiation, completion, or reporting of clinical trials.

In addition to the risks described above and in Aldeyra's other filings with the SEC, other unknown or unpredictable factors also could affect Aldeyra's results. No forward-looking statements can be guaranteed and actual results may differ materially from such statements. The information in this presentation is provided only as of July 16, 2020, and Aldeyra undertakes no obligation to update any forward-looking statements contained in this presentation on account of new information, future events, or otherwise, except as required by law.

Aldeyra is Developing Technology Designed to Modulate Biological *Systems* … Not Single Targets

Traditional

Most immunological drugs shut down **specific molecules,** obstructing the immune system, and leading to toxicity.

The traditional approach is limited to two outcomes.

Systems-Based

In contrast, **modulation** of the immune **system** maintains immune function, but allows for lower levels of inflammation.

A systems-based approach allows for infinite control.

aldeyra

Innovative Pipeline Addressing Immunological Disease

Disease Area	Compound	Mechanism	Indication	Preclinical	Phase 1	Phase 2	Phase 3
Ocular Diseases	Reproxalap	RASP	Dry Eye Disease				
			Allergic Conjunctivitis				
	ADX-2191	DHFR	Proliferative Vitreoretinopathy				
			Intraocular Lymphoma				
	ADX-103/10X	RASP	Retinal Disease				
	Undisclosed	RASP	Ocular Inflammatory Diseases				
Systemic Diseases	ADX-1612	CHP	Ovarian Cancer				
			SARS-CoV2 Antiviral (COVID-19)				
	ADX-629	RASP	Cytokine Release Syndrome (COVID-19)				
			Autoimmune Disease (Psoriasis)				
			Allergy (Atopic Asthma)				

Research Collaboration (undisclosed)

Investigator-Sponsored Trial

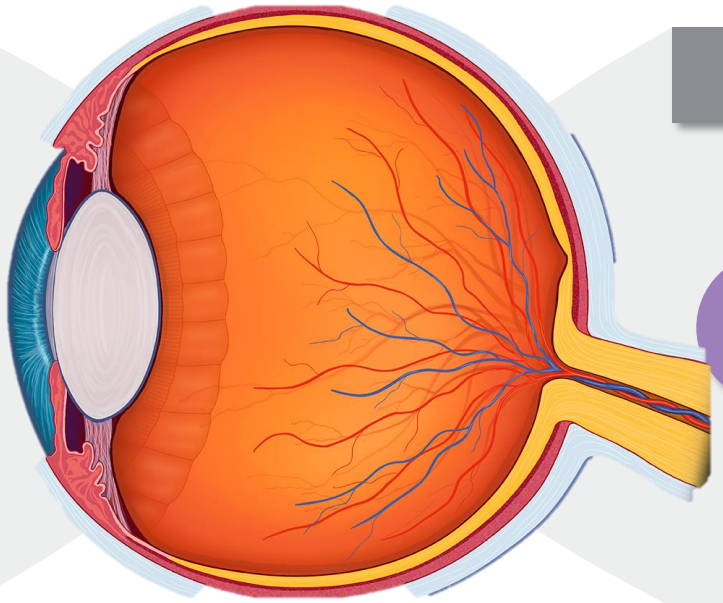
RASP Mechanism = Reactive Aldehyde Species Inhibitor
DHFR Mechanism = Dihydrofolate Reductase Inhibitor
CHP Mechanism = Chaperome Inhibitor

Novel Ocular Phase 3 Programs Targeting Unmet Medical Needs

Anterior Innovation

Reproxalap 0.25%

- Dry Eye Disease
- Allergic Conjunctivitis



Posterior Innovation

ADX-2191

- Proliferative Vitreoretinopathy

July 16, 2020

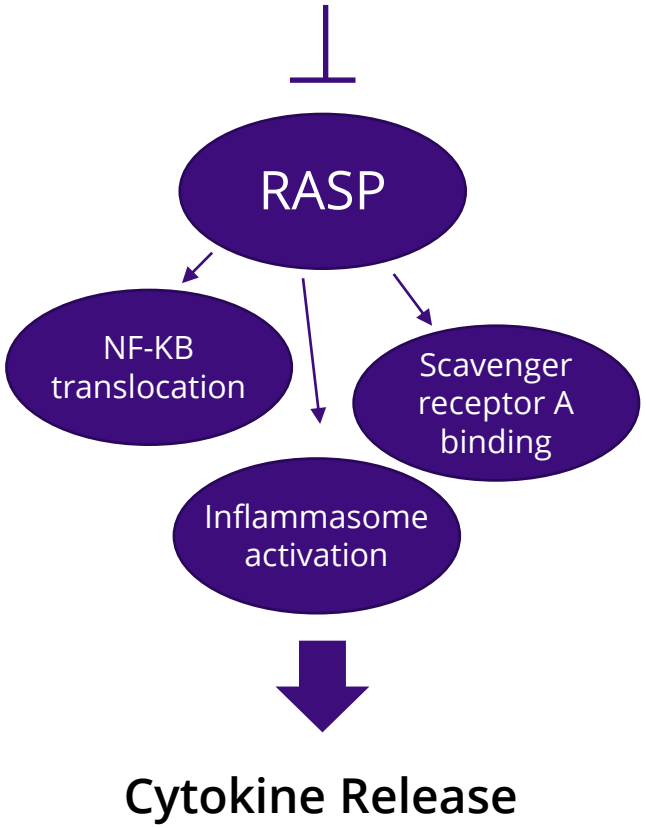
OIS VIRTUAL PUBLIC COMPANY SHOWCASE

Reactive Aldehyde Species (RASP) Inhibition

Nasdaq: ALDX

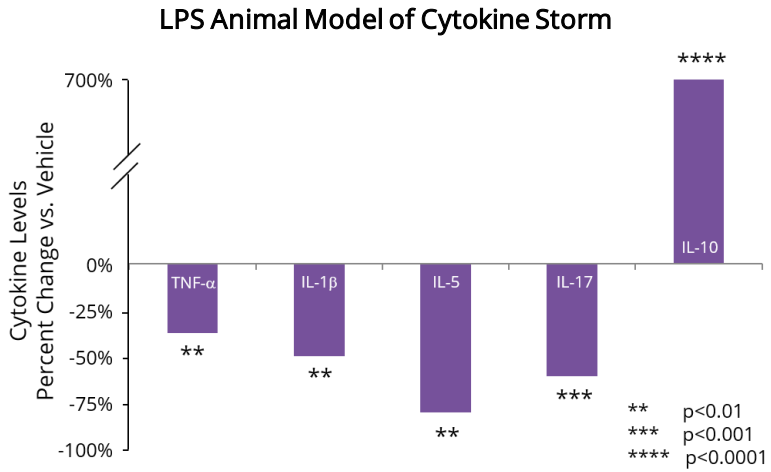
RASP Inhibition is a Pre-Cytokine, Systems-Based Approach that Has Been Clinically Validated in Late-Stage Trials

Reproxalap, ADX-629



Cytokine Release

Preclinical broad-based cytokine reduction



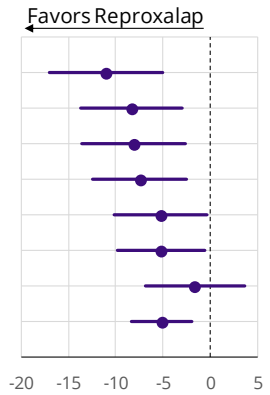
Broad-based symptom reduction

RENEW-Part 1 Phase 3 Dry Eye Disease Trial

Symptom Treatment Difference‡ (Reproxalap-Vehicle) Over Weeks 2 to 12

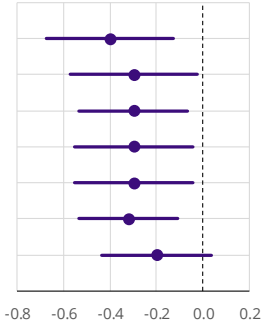
0-100 Ocular Symptom Scales

	p-value
VAS: Ocular Dryness (Co-Primary)	0.0004
VAS: Eye Discomfort	0.0025
VAS: Photophobia	0.0041
VAS: Foreign Body Sensation	0.0035
VAS: Itching	0.0346
VAS: Pain	0.0268
VAS: Burning/Stinging	NS
OSDI (Total)	0.0020



0-4 & 0-5 Ocular Symptom Scales

OD4S: Grittiness	0.0025
OD4S: Dryness	0.0134
OD4S: Ocular Discomfort	0.0268
OD4S: Burning	0.0306
OD4S: Stinging	0.0239
CAC Ocular Itching Scale	0.0034
Ocular Discomfort Scale	NS



RASP = Reactive Aldehyde Species
‡Treatment Difference of induction-maintenance dosing, defined as the difference between the changes from baseline for the evaluated drug vs. vehicle (LS Mean Difference ± 95% CI). Ocular Dryness Score co-primary endpoint assessed in pre-specified patient population having an OD4S dryness baseline score of ≥ 3 (N=170).

VAS = Visual Analog Scale
OSDI = Ocular Surface Disease Index

NS = Not Significant
OD4S = Ocular Discomfort & 4-Symptom
CAC = Conjunctival Allergen Challenge

Lead RASP Inhibitor Reproxalap, a Novel Topical Ocular Drug, Now in Two Phase 3 Programs for Ocular Inflammation

Dry Eye Disease

Often months to demonstrate even modest efficacy with current Rx

34 million or more adults in the U.S.

Allergic Conjunctivitis

Unchecked growing disease burden and limited options beyond OTC/Rx antihistamines

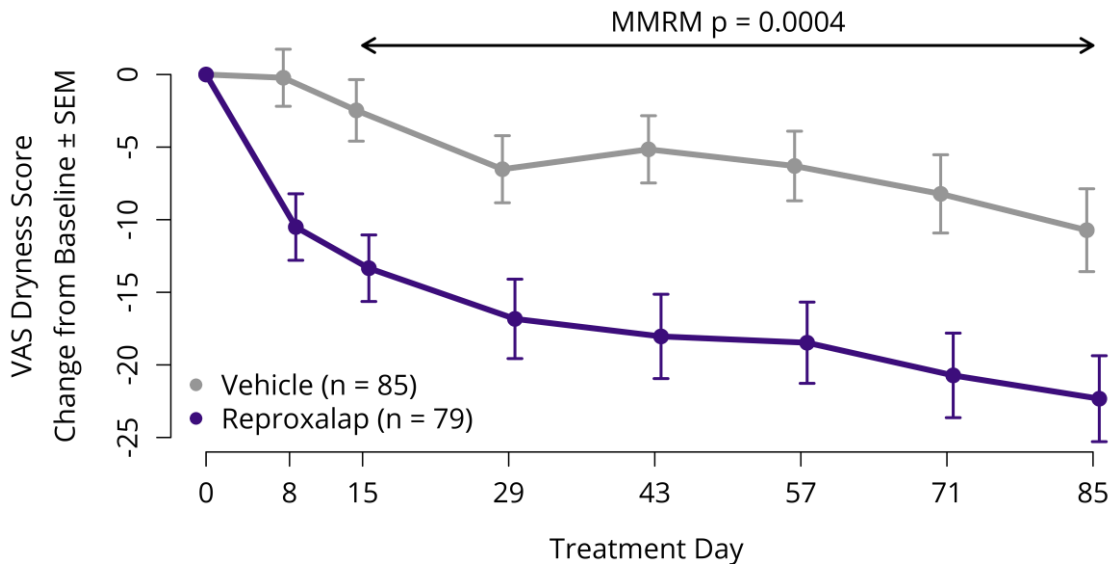
66 million or more adults in the U.S.

Reproxalap poised to potentially be the next novel entrant in the dry eye disease and allergic conjunctivitis markets.

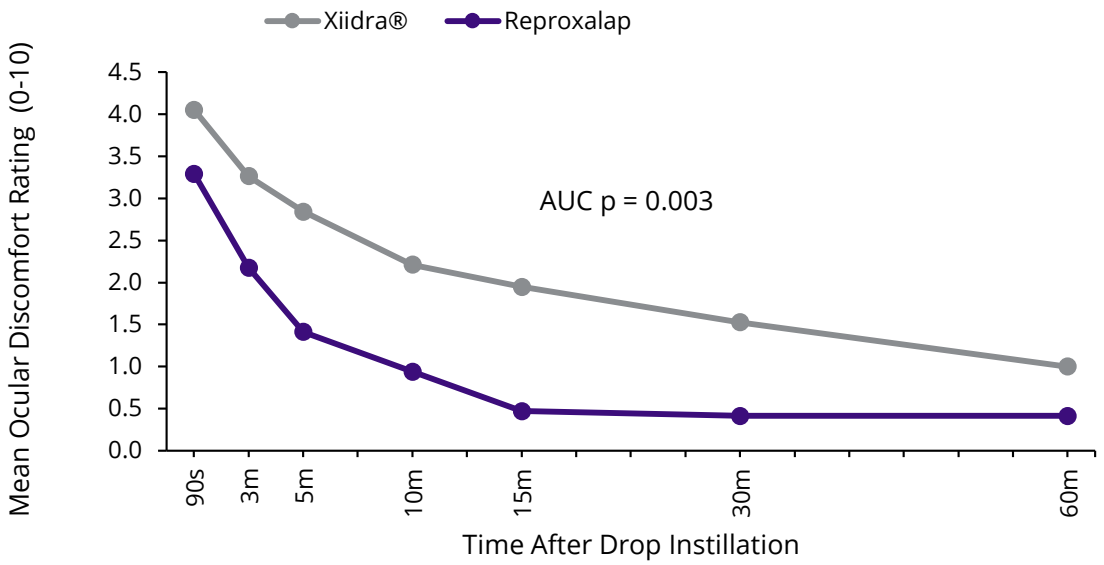
aldeyra

Reproxalap Exhibited First-Line Symptom Control and Tolerability in Dry Eye Disease Clinical Trials

RENEW-Part 1 Phase 3 Trial
(Induction-Maintenance Dosing)



Head-to-Head Tolerability Trial vs. Xiidra®



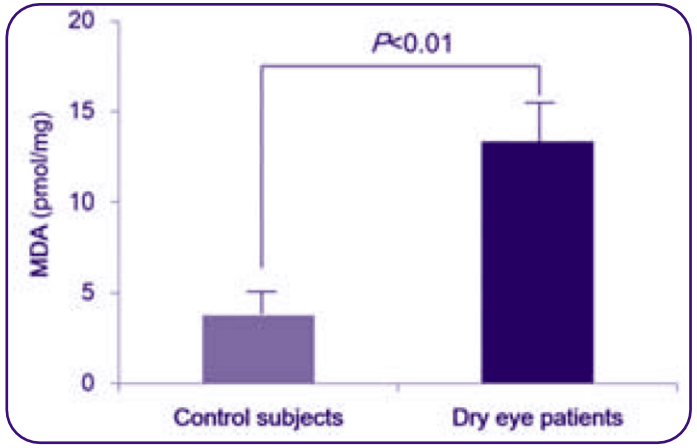
Topical ocular reproxalap has been studied in over 1,100 patients with no observed safety concerns; mild instillation site irritation is the most commonly reported adverse event in clinical trials.
Source: Reproxalap RENEW-Part 1 and Drop Experience clinical trial results.

VAS = Visual Analog Scale
MMRM = Mixed Effect Model Repeated Measures
AUC = Area Under The Curve

Reproxalap's Mechanism of Action Reduces RASP, a Novel Dry Eye Disease Sign

RASP in Dry Eye Disease

- RASP markers are upregulated in dry eye disease.
- RASP levels have been shown to correlate with worsening symptoms and signs.

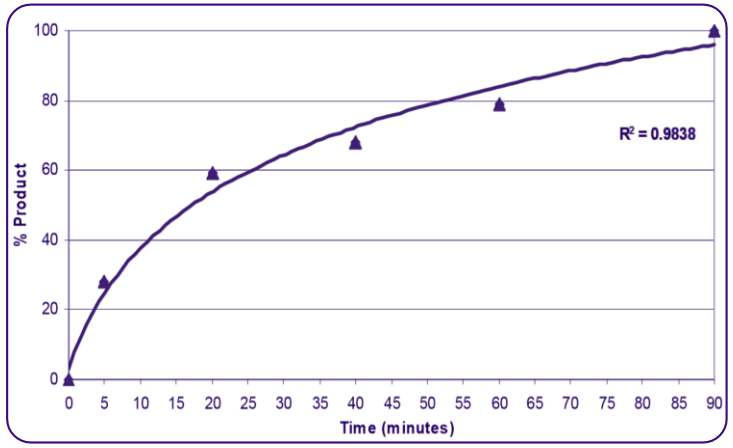


Source: Curr Eye Res. 2016, 41(9):1143-9

Reproxalap

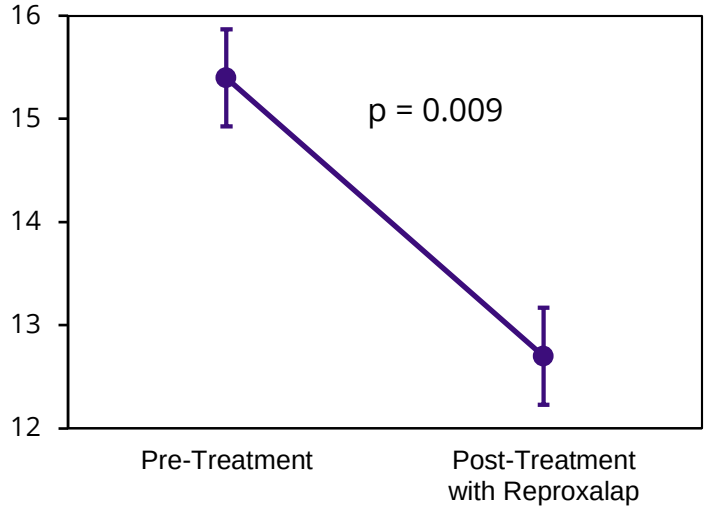
Preclinical rapid and complete RASP binding

In vitro Reproxalap-Malondialdehyde (MDA) adduct formation over time
(% of MDA bound by reproxalap)



Clinical reduction in RASP adducts

Phase 2a
Tear RASP Levels in Dry Eye Disease Patients
(µM Malondialdehyde Adduct; Mean ± Within-Subject SEM)

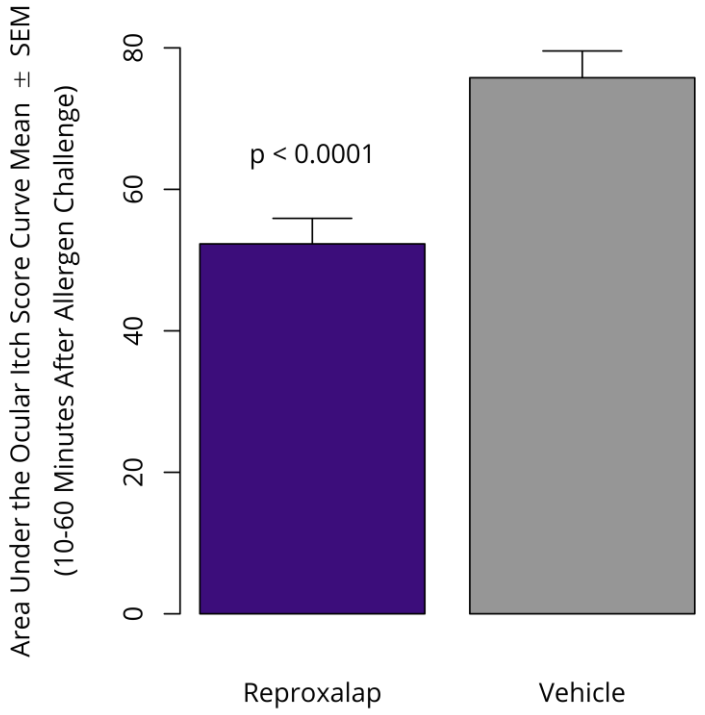


RASP is a novel and FDA approvable dry eye disease sign

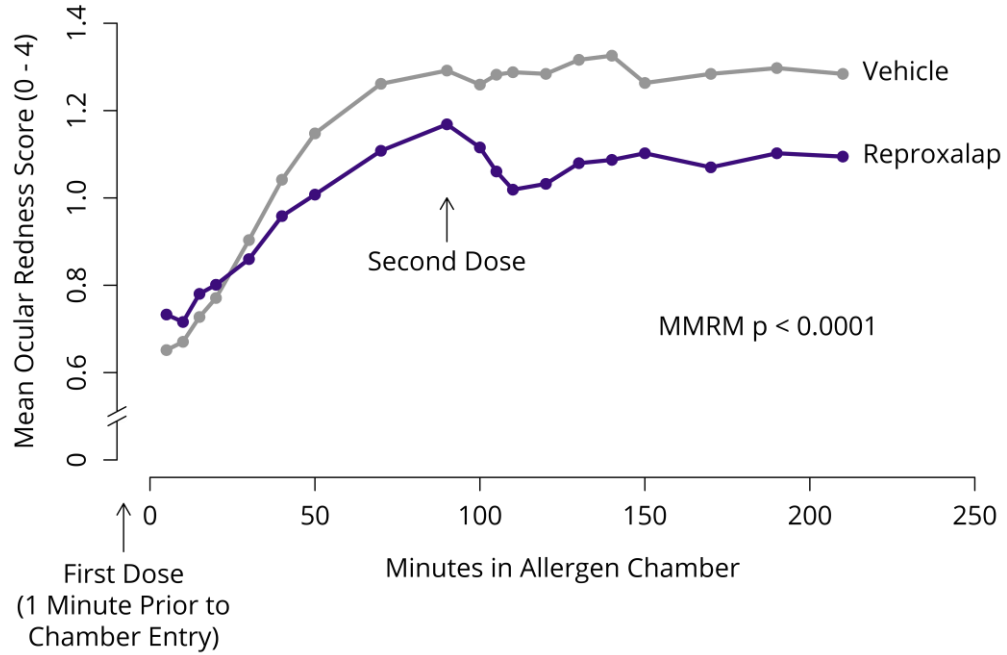
Source: Choi W., et al. Expression of Lipid Peroxidation Markers in the Tear Film and Ocular Surface of Patients with Non-Sjogren Syndrome: Potential Biomarkers for Dry Eye Disease. Curr Eye Res. 2016, 41(9):1143-9; Reproxalap preclinical and Phase 2a in dry eye disease clinical trial results on file.

Reproxalap Reduced Itching and Redness in Late-Stage Clinical Trials for Allergic Conjunctivitis

ALLEVIATE Phase 3 Trial



Phase 2 Allergen Chamber Trial



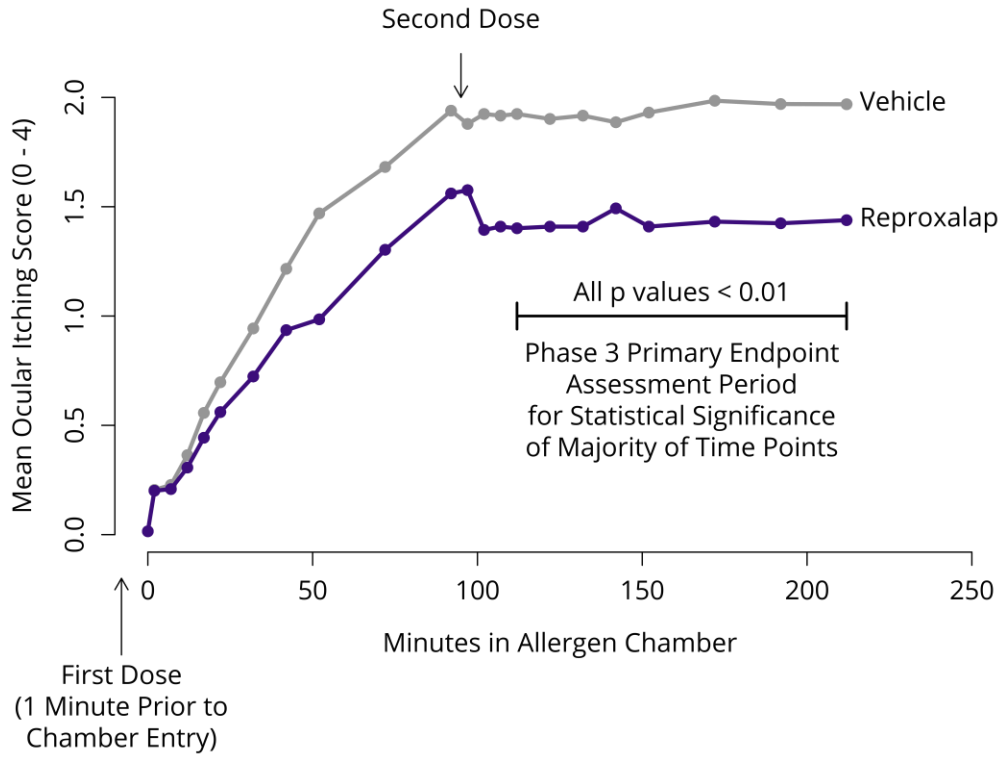
Topical ocular reproxalap has been studied in over 1,100 patients with no observed safety concerns reported; mild instillation site irritation is the most commonly reported adverse event in clinical trials.

Source: Reproxalap ALLEVIATE Phase 3 and allergen chamber Phase 2 clinical trial results; Ocular itch scale (0-4); Ocular redness scale (0-4). MMRM = Mixed Effect Model Repeated Measures

Results from the INVIGORATE Phase 3 Trial in Allergic Conjunctivitis Expected in H1 2021

- **Design:**
  - Two-way randomized crossover, ~100 patients total
- **Primary endpoint:**
  - Statistical significance in ocular itch (0-4 scale) at a majority of eleven time points between 110 and 210 minutes
- **Secondary endpoints:**
  - Investigator-assessed ocular redness score
  - Patient-reported ocular tearing score
  - Total ocular symptom score
- **Inclusion/exclusion criteria:**
  - History of moderate to severe allergic conjunctivitis to ragweed pollen
  - Itching score of ≥ 2.5 or redness score ≥ 2 in baseline chamber test
- **Chamber exposure and dosing schedule:**
  - 3.5 hours continuous allergen exposure
  - First dose 5 minutes before chamber entry
  - Second dose 90 minutes after entry (when non-treated patients reach peak allergy symptoms)

Phase 2 Results Were Statistically Significant During Phase 3 Primary Endpoint Time Points*



ClinicalTrials.gov Identifier: NCT04207736

*The safety and efficacy results of later phase or subsequent clinical trials may not confirm the results of earlier trials. Topical ocular reproxalap has been studied in over 1,100 patients with no observed safety concerns reported; mild instillation site irritation is the most commonly reported adverse event in clinical trials.
Source: Reproxalap allergen chamber Phase 2 clinical trial results; Ocular itch scale (0-4).

July 16, 2020

OIS VIRTUAL PUBLIC COMPANY SHOWCASE

Dihydrofolate Reductase Inhibition

Nasdaq: ALDX

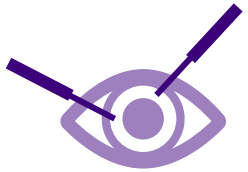
ADX-2191: A Potential Therapeutic Breakthrough in the Treatment of Proliferative Vitreoretinopathy

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 combined.

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

There is currently **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

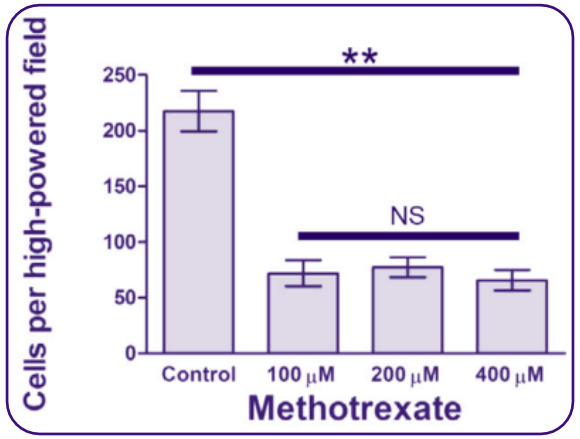
- A **potential therapeutic breakthrough** in PVR treatment
- **Granted U.S. orphan designation and FDA fast track designation** for the prevention of PVR
- **Tolerability and reattachment success** during study period **demonstrated in Phase 1b** open-label investigator sponsored clinical trial
- **GUARD adaptive Phase 3 clinical trial** for the prevention of recurrent retinal detachment due to PVR ongoing
- **Exploring additional indications**, including primary intraocular lymphoma

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

PVR = Proliferative vitreoretinopathy

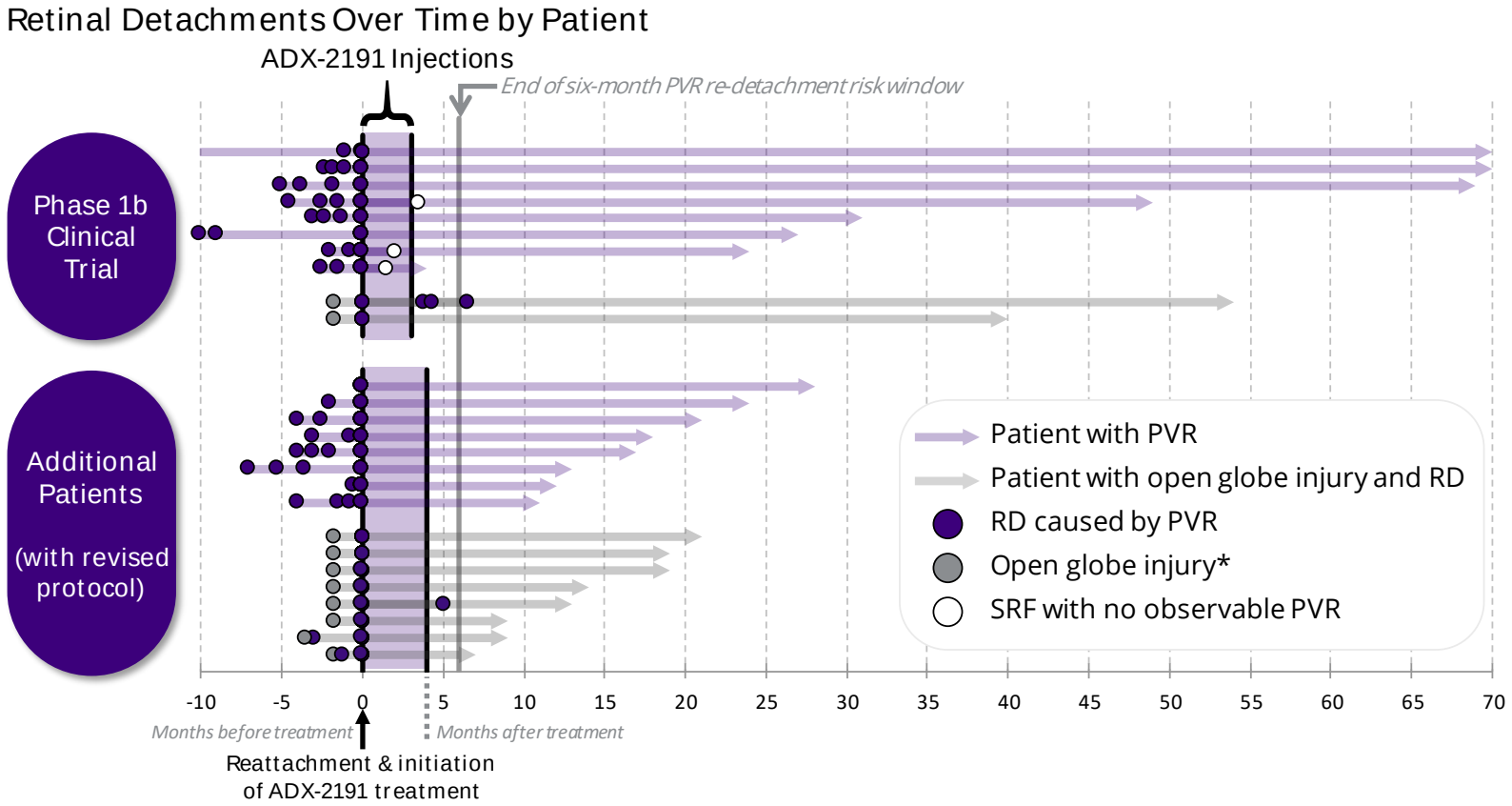
ADX-2191, a Novel Intravitreal Formulation of Methotrexate, Represents a Clinically Proven Systems Modulating Approach

Preclinical reduction in cellular proliferation



Source: Invest Ophthalmol Vis. Sci. 2017; 58:3940–3949

Clinical reduction in retinal detachment



*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 clinical trials involving ADX-2191.
Source: ADX-2191 PVR Phase 1b investigator sponsored clinical trial (n=10) results and additional in-practice use (n=16)

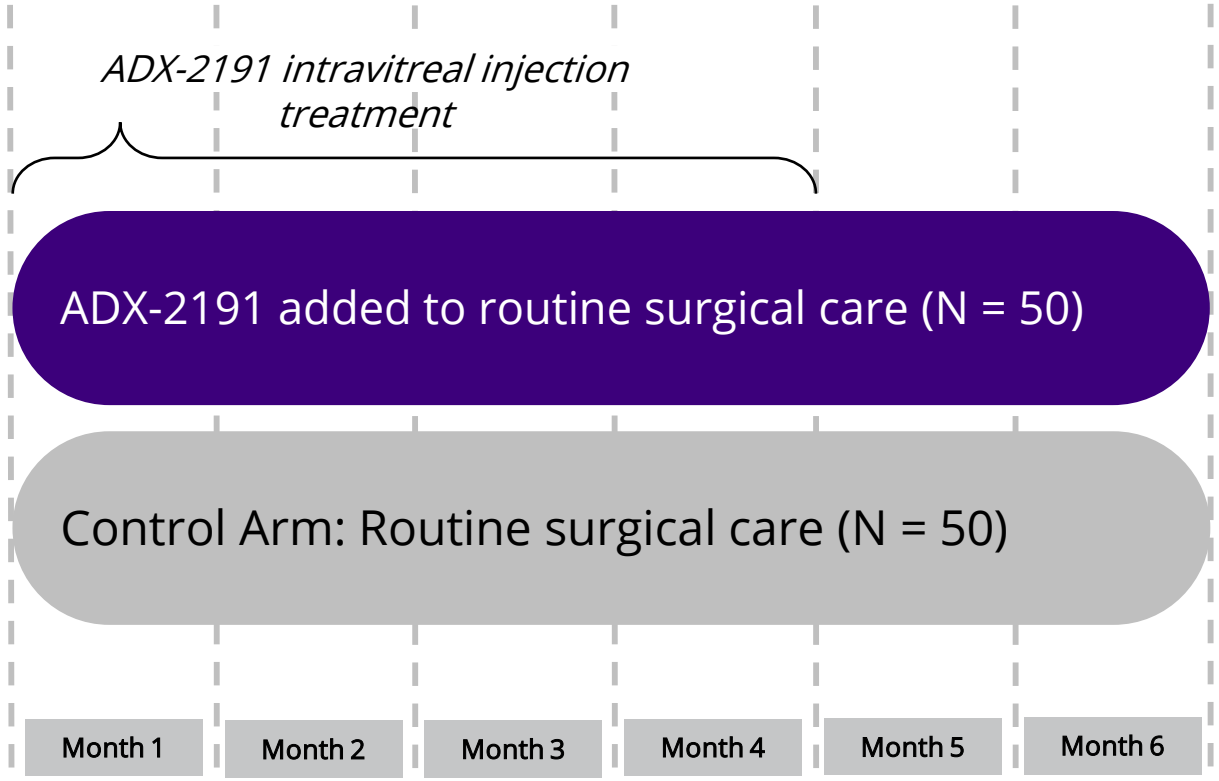
RD = Retinal detachment
PVR = Proliferative vitreoretinopathy
SRF = Subretinal fluid

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

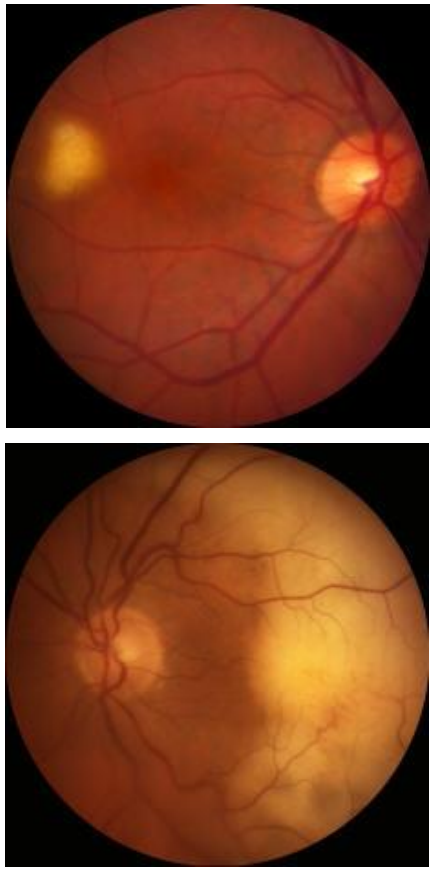
Progress Update Expected H2 2020*

Adaptive Phase 3 PVR Clinical Trial Design: Part 1



OCT = Optical Coherence Tomography
*The timing of ongoing clinical trials depend, in part, on restrictions related to COVID-19, the availability of clinical research facilities and staffing, and the ability to recruit patients.

ADX-2191 Also Has the Potential to be the Only Approved Drug for Primary Vitreoretinal Lymphoma, a Rare but Serious Retinal Cancer



Small (top) and large (bottom) subretinal infiltrates in patients with primary vitreoretinal lymphoma

- Primary vitreoretinal lymphoma (PVRL) is a rare, aggressive, high-grade non-Hodgkin's lymphoma that arises in the vitreous and retina.
- Approximately 2,900 people in the United States suffer from PVRL.
- Approximately 600 new cases of PVRL are diagnosed in the United States per year.
- The median survival for newly diagnosed patients is 4.83 years.
- The most common ocular complaints reported by patients include blurred vision, painless loss of vision, floaters, red eye, and photophobia.
- No approved treatments are currently available.

Source: Primary Vitreoretinal Lymphoma by D. J. Wilson on AAO EyeWiki; M. Sagoo, Survey of Ophthalmology (2014); Grimm et. al., Annals of Oncology (2007).

July 16, 2020

OIS VIRTUAL PUBLIC COMPANY SHOWCASE

Upcoming Development Milestones

Nasdaq: ALDX

Upcoming Development Milestones in Ocular Disease

- ✓ Reproxalap dry eye disease **subsequent development plans update following June Type C FDA meeting final minutes July 2020**
- ○ Reproxalap dry eye disease **tear level RASP reduction clinical trial initiation H2 2020**
- ○ Reproxalap allergic conjunctivitis **INVIGORATE Phase 3 study results H1 2021**
- ○ ADX-2191 - Intraocular lymphoma **orphan designation H2 2020**
- ○ ADX 2191 - GUARD Phase 3 Trial enrollment **update H2 2020***

aldeyra

*The timing of clinical trial initiation depends, in part, on restrictions related to COVID-19, the availability of clinical research facilities and staffing, the ability to recruit patients, and regulatory feedback.

July 16, 2020

OIS VIRTUAL PUBLIC COMPANY SHOWCASE

Novel Pharmaceutical Approaches for the Treatment of Ocular Disease

Nasdaq: ALDX