Filed pursuant to Rule 433 under the Securities Act of 1933, as amended
Dated7/14/2022
Registration Statement No. 333-264641

# Kiora Pharmaceuticals, Inc.

NASDAQ: KPRX

Q3 2022

KIORA PHARMACEUTICALS

# Forward Looking Statements

Some of the statements in this presentation are "forward-looking" and are made pursuant to the safe harbor provision of the Private Securities Litigation Reform Act of 1995. These "forward-looking" statements include statements relating to, among other things, the development and commercialization efforts and other regulatory or marketing approval efforts pertaining to Kiora's products, including KIO-101, KIO-201 and KIO-301, as well as the success thereof, with such approvals or success may not be obtained or achieved on a timely basis or at all. These statements involve risks and uncertainties that may cause results to differ materially from the statements set forth in this presentation, including, among other things, market and other conditions and certain risk factors described under the heading "Risk Factors" contained in Kiora's Amended Annual Report on Form 10-K/A filed with the SEC on July 7, 2022 or described in Kiora's other public filings. Kiora's results may also be affected by factors of which Kiora is not currently aware. The forward-looking statements in this presentation speak only as of the date of this presentation. Kiora expressly disclaims any obligation or undertaking to release publicly any updates or revisions to such statements to reflect any change in its expectations with regard thereto or any changes in the events, conditions, or circumstances on which any such statement is based, except as required by law.

# Risk Factors

Investing in our securities involves a high degree of risk. You should carefully consider the risks described below, as well as other information included in our S-1 Registration Statement, Form 10-K and 10-Q , including our financial statements and the related notes, and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations," any of which may be relevant to decisions regarding an investment in or ownership of our securities. The occurrence of any of these risks could have a significant adverse effect on our reputation, business, financial condition, results of operations, growth and ability to accomplish our strategic objectives. We have organized the description of these risks into groupings in an effort to enhance readability, but many of the risks interrelate or could be grouped or ordered in other ways, so no special significance should be attributed to the groupings or order below.

- We have incurred significant operating losses since our inception, which have caused management to determine there is substantial doubt regarding our ability to continue as a going concern.
- We will need substantial additional funding. If we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our product development programs or commercialization efforts.
- Raising additional capital may cause dilution to our stockholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.
- Our limited operating history may make it difficult for you to evaluate the success of our business to date and to assess our future viability.
- We depend heavily on the success of KIO-101, KIO-201 and KIO-301. If we are unable to successfully obtain marketing approval for KIO-101, KIO-201 and KIO-301, or experience significant delays in doing so, or if after obtaining marketing approvals, we fail to commercialize KIO - 101, KIO-201 and KIO-301, our business will be materially harmed.
- If clinical trials of KIO-101, KIO-201, KIO-301 or any other product candidate that we develop fail to demonstrate safety and efficacy to the satisfaction of the FDA or foreign regulatory authorities or do not otherwise produce favorable results, we may incur additional costs or experience delays in completing, or ultimately be delayed or unable to complete, the development and commercialization of KIO-101, KIO-201, KIO-301 or any other product candidate.
- If we experience delays or difficulties in the enrollment of patients in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.
- If serious adverse or unacceptable side effects are identified during the development of our product candidates, we may need to abandon or limit our development of such product candidates.
- Laws and regulations governing international operations may preclude us from developing, manufacturing, and selling certain products outside of the U.S. and require us to develop and implement costly compliance programs.
- We are a smaller reporting company and the reduced disclosure requirements applicable to smaller reporting companies may make our common stock less attractive to investors.
- We have identified material weaknesses in our internal controls over financial reporting that, if not properly remediated, could result in material misstatements in our financial statements in future periods

# Free Writing Prospectus

This presentation highlights basic information about the Company and the offering. Because it is a summary that has been prepared solely for informational purposes, it does not contain all of the information that you should consider before investing in our Company. Except as otherwise indicated, this presentation speaks only as of the date hereof.

This presentation does not constitute an offer to sell, nor a solicitation of an offer to buy, any securities by any person in any jurisdiction in which it is unlawful for such person to make such an offering or solicitation.

Neither the United States Securities and Exchange Commission (the "SEC") nor any other regulatory body has approved or disapproved of our securities or passed upon the accuracy or adequacy of this presentation. Any representation to the contrary is a criminal offense.

This presentation includes industry and market data that we obtained from industry publications and journals, third-party studies and surveys, internal company studies and surveys, and other publicly available information. Industry publications and surveys generally state that the information contained therein has been obtained from sources believed to be reliable. Although we believe the industry and market data to be reliable as of the date of this presentation, this information could prove to be inaccurate. Industry and market data could be wrong because of the method by which sources obtained their data and because information cannot always be verified with complete certainty due to the limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other limitations and uncertainties. In addition, we do not know all of the assumptions that were used in preparing the forecasts from the sources relied upon or cited herein.

We have filed a registration statement on Form S-1 (File No. 333-264641) with the SEC, including a preliminary prospectus dated July 13, 2022 (the "Preliminary Prospectus"), with respect to the offering of our securities to which this communication relates. Before you invest, you should read the Preliminary Prospectus (including the risk factors described therein) in the registration statement and, when available, the final prospectus relating to the offering, and the other documents we have filed with the SEC, for more complete information about the Company and the offering. You may obtain these documents, including the Preliminary Prospectus, for free by visiting EDGAR on the SEC website at http://www.sec.gov. Alternatively, copies of the prospectus may be obtained, when available, from: Ladenburg Thalmann & Co. Inc. by written request addressed to Syndicate Department, 640 5th Avenue, 4th Floor, New York, NY 10019 (telephone number 1-800-573-2541) or by emailing prospectus@ladenburg.com.

# Corporate Overview

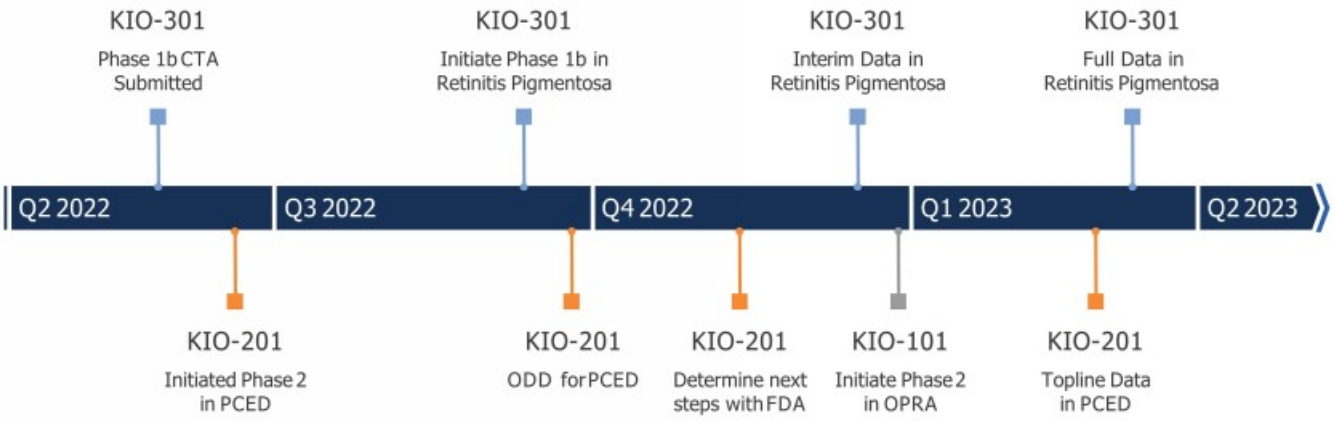
- Development stage company focused on rare & underserved ophthalmic diseases
- New executive leadership
- KIO-301: Small molecule to restore vision in Retinitis Pigmentosa (RP)
- KIO-101: Small molecule to treat Ocular Presentation of Rheumatoid Arthritis (OPRA)
- KIO-201: Cross-linked hyaluronic acid (HA) for ocular wound healing
- Opportunity for value through multiple assets under development

KIO-101, KIO-201 & KIO-301 are currently in clinical development and not commercially available

# Development Pipeline

| | Indication | Product Formulation | Development Stage | | | | Anticipated Near-Term Milestones |
|---|---|---|---|---|---|---|---|
| | | | Pre-clinical | Phase 1 | Phase 2 | Phase 3 | |
| Posterior Segment | Retinitis Pigmentosa (Mutation Agnostic) | KIO-301 IVT | *Granted Orphan Drug Designation – March 2022* | | | | Expect to initiate Phase 1b in Q3 2022 |
| Anterior Segment | Ocular Presentation of Rheumatoid Arthritis | KIO-101 Eye Drop | | | | | Expect to initiate Phase 2 in H2 2022 |
| | Persistent Corneal Epithelial Defects | KIO-201 Eye Drop | | | | | Initiated Phase 2 in Q2 2022<br>Expect Orphan Drug Designation in Q3 2022 |
| | Corneal Surgical Wounds | KIO-201 Eye Drop | | | | | Expect to initiate Phase 3b in 2023 |

# Upcoming Planned Milestones




CTA – Clinical Trial Application (Australia), PCED – Persistent Corneal Epithelial Defect, ODD – Orphan Drug Designation, OPRA – Ocular Presentation of Rheumatoid Arthritis

# KIO-301

Target Population: Retinitis Pigmentosa
Product: Small Molecule Photoswitch for Retinal Reanimation
IP: Anticipated through 2041*

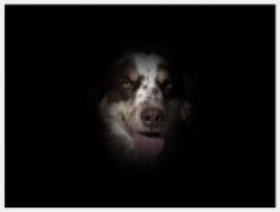
*Also granted 7 years orphan drug regulatory exclusivity

# Retinitis Pigmentosa

## High Unmet Need with No Approved Therapeutics

Normal Vision

Retinitis Pigmentosa



**Prevalence**

- 1 :3,500 worldwide
- Approximately 100,000 in US

**Etiology**

- 50+ genetically distinct subtypes from 150+ mutations
- Inherited disease

**Clinical Presentation**

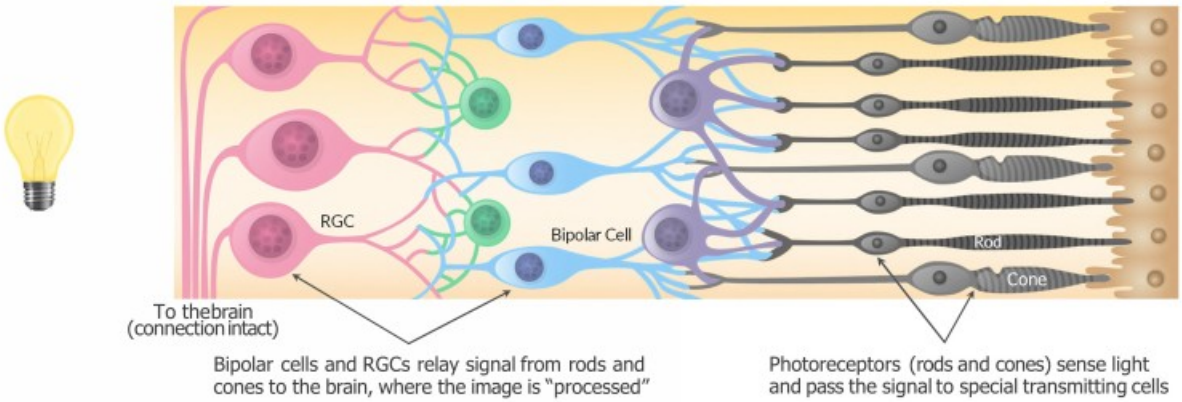
- Night blindness, reduced visual field range and eventual loss of central vision
- Visual acuity declines

**Diagnosis**

- Retinal exam (black bone-spicule pigmentation)
- ERG provides definitive diagnosis
- Genetic testing

*American Academy of Ophthalmology*

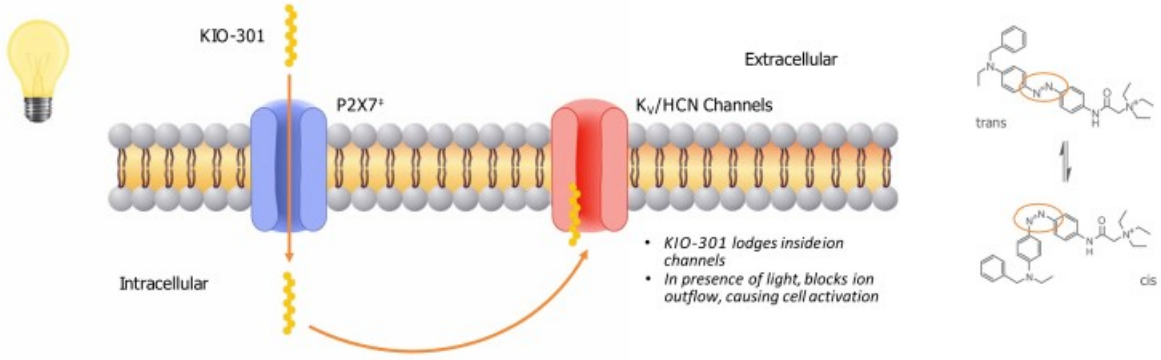
# KIO-301: Photoreceptors Degeneration Whilst Downstream Neurons Remain Viable




- Normal human retina has about 120 million rods (black & white, night vision, movement) and 6 million cones (color)
- Photoreceptors die (rods first, then cones), unable to activate Bipolar cells and Retinal Ganglion Cells (RGCs)
- Bipolar cells and RGCs remain intact and retain ability to send signals to the brain

# KIO-301: Turns RGCs "ON" in the Presence of Light

- In RP, photoreceptors are no longer viable => companion "signal" cells (RGCs) are not capable of being activated
- KIO-301 preferentially enters these RGCs and turns them "ON" in the presence of light*



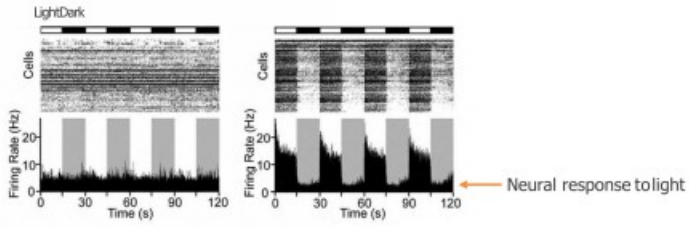

‡ P2X7 is solely expressed on RGCs and amacrine cells in the retina.

* Visual light causes shape change of KIO-301 (trans ⟶ cis), blocking the movement of positively charged ions out of the cell through the $K_v$/HCN channels. This build up of charged ions in the cell triggers activation (phototransduction signaling) to the brain.

*Neuron. 92, 100-113 (2016)*

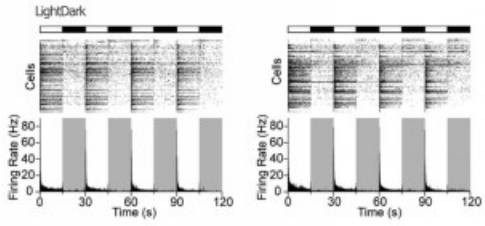
# KIO-301: Selectivity in Diseased Retinas

Diseased Retina




KIO-301 is selective for RGCs in Degenerating Retinas

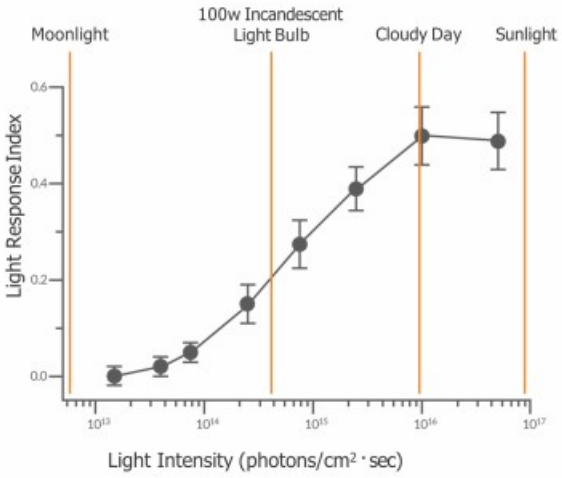
Normal Retina

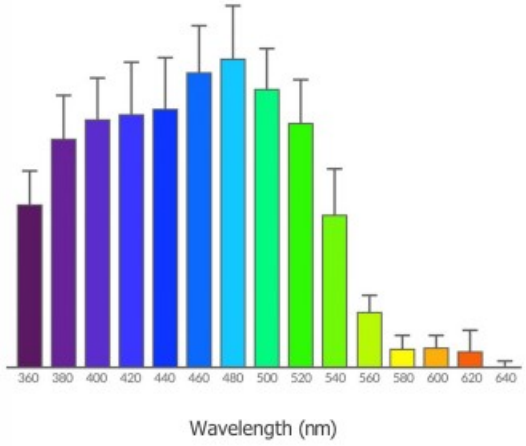



*Sci. Rep. 7, 45487 (2017)*

# KIO-301: Restore Vision in Daily-Life Regular Settings

## Molecule Sensitive to a Broad Spectrum of Intensity and Wavelength



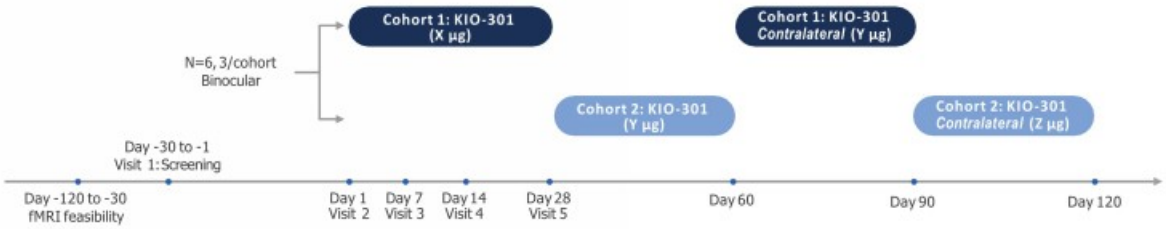




*Sci. Rep. 7, 45487 (2017), Banghart, Trauner et al (2008)*

# KIO-301: Phase 1b Study Design (ABACUS)

## Open Label, Single Ascending Dose Trial – Single Site (Australia)

Protocol Approved by Regulatory Authority




| | |
|---|---|
| Study Design | ▪ Two cohorts, non-randomized, open-label, single IVT injection per eye<br>▪ Cohort 1 – NLP/LP patients; Cohort 2 – HM/CF patients<br>▪ Up to 6 patients |
| Outcome Measures | ■ Primary – AEs, PK & labs<br>■ Secondary – **Assessment days (shown only for Cohort 1 above) is repeated for each cohort per eye;** object idenfificafion, intensity and contrast assessment, etc. |
| Review | ▪ Safety review conducted by Investigators between any change in dose and between cohorts |

ClinicalTrials.gov Identifier: NCT05282953

## KIO-301 Next Steps

Initiate Phase 1b Clinical Trial

- Evaluate safety, tolerability, and efficacy in pafients with advanced Refinifis Pigmentosa
- Expected to inifiate in Q3 2022
- Expect inifial data readout in Q4 2022
- Expect study complefion in Q1 2023

# Significant Activity from Large Pharma

| Company | RetroSense Therapeutics | vedere | Ocata Therapeutics | jCyte | KIORA Pharmaceuticals |
|---|---|---|---|---|---|
| **Buyer** | **Allergan** | **Novartis** | **Astellas** | **Santen** | |
| Treatment: | Gene Therapy | Gene Therapy | Cell Therapy | Cell Therapy | Small Molecule |
| Valuation: | $60M +up to $495M in earnouts | $150M +up to $130M in earnouts | $379M | $62M +up to $190M in earnouts* | $5.3M |
| Clinical Phase at Time of Valuation: | Late Preclinical | Preclinical | Phase 1 | Phase 2 | Expect to initiate Ph1b in Q3 2022 |
| Upfront Premium to KPRX: | 1,132% | 2,830% | 7,151% | 1,170% | |

**Average deal upfronts at a 3,071% premium to KPRX**

*Excludes US. All data sourced from public filings/corporate press releases

# KIO-101

Target Population: Ocular Presentation of Rheumatoid Arthritis (OPRA)
Product: Ocular DHODH Inhibitor
IP: Anticipated through 2039

# Ocular Presentation of Rheumatoid Arthritis

## Ocular Surface Discomfort is the Most Common Complaint Among Patients

"The immune attack on the surface of the eye is a mirror image of what is destroying the joint synovium."

*Sandeep Jain, MD*
*University of Illinois College of Medicine*

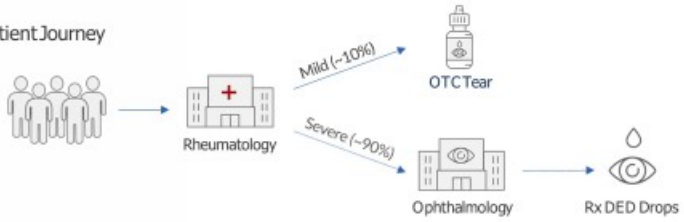
Rheumatoid Arthritis is a **chronic, systemic, autoimmune disease**

- Primarily effects joint linings, causing swelling, bone erosion, and deformity
- No cure exists but symptoms can be managed with disease-modifying agents
  > DHODH inhibitors, IL-6, TNF-α antagonists and others

Large unmet need

- OPRA affects approximately 500,000 people in the US
- Other autoimmune diseases have ocular manifestations potentially addressable by KIO-101

Patient Journey



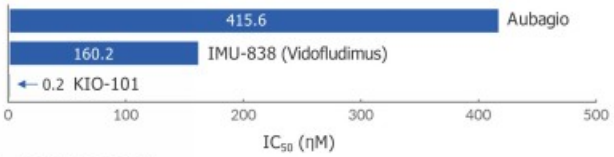

*Rheumatol. Int. 2017 Sep;37(9):1551-1557. Eyenet Magazine. 2016 Nov:37-9. IVOS. 2015 Jun;56(7):4437.*

# DHODH Inhibitors - Competitive Landscape

Validated Drug Class for Autoimmune Diseases (Inhibits *de novo* Pyrimidine Synthesis → Reducing $T_H$ Cell Proliferation & Function)

| Company | Drug | Status* | Indication | Comments |
|---|---|---|---|---|
| Sanofi | Arava (leflunomide) | Approved | RA | Low selectivity and potency results in off-target side effects<br>▪ Safety concerns: severe liver injury & other adverse events<br>▪ Black box warning: risk of severe liver injury |
| | Aubagio (teriflunomide) | Approved | MS | |
| PTC Therapeutics | PTC299 | Phase 1b<br>Phase 2/3 | AML<br>COVID-19 | |
| Immunic | IMU-838 | Phase 2/3 | UC, MS, CD | |
| ASLAN | ASLAN003 | Phase 2 | Autoimmune | |
| Clear Creek Bio | Brequinar | Phase 2<br>Phase 2 | AML<br>COVID-19 | |
| Kiora Pharmaceuticals | KIO-101 | Phase 2 | Ocular RA | Only DHODH inhibitor in ocular development |

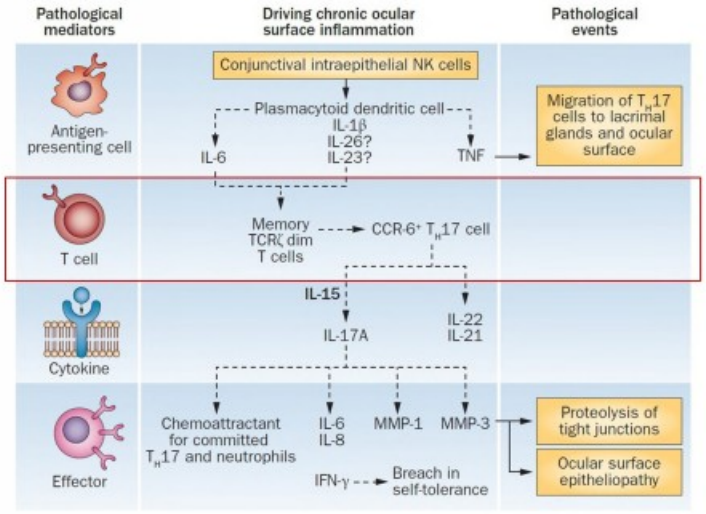
KIO-101 has demonstrated greater specificity and best in class potency




*As of April 2021, RA – Rheumatoid Arthritis, MS – Multiple Sclerosis, AML – Acute Myeloid Leukemia, UC – Ulcerative Colitis, CD – Crohn's Disease

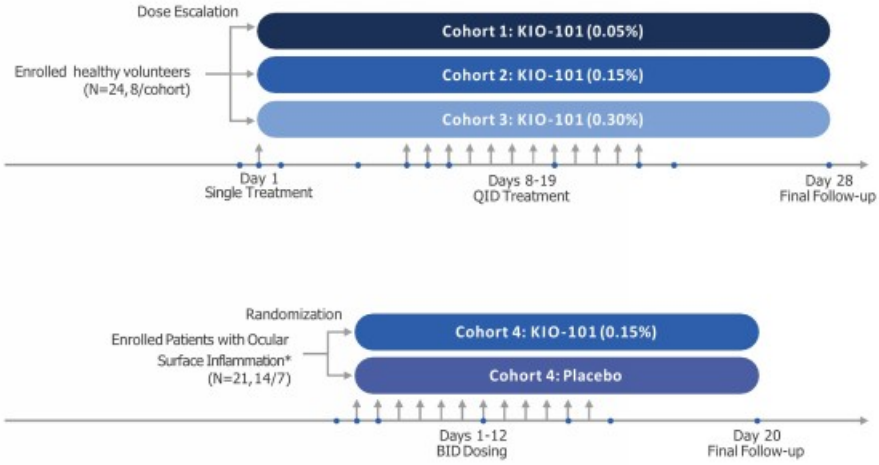
# OPRA Signs & Symptoms are Mediated by $T_H$ Cells

KIO-101 acts upstream to inhibit the number of T helper cells ($T_H17$) and suppresses their pro-inflammatory cytokine release




*Nat. Rev. Rheumatol. 10, 552–560 (2014)*

# KIO-101: Exploratory Phase 1b Ocular Surface Inflammation Trial




**Key Inclusion Criteria**

- Ocular surface inflammafion defined by OSDI of at least 22
- Conjuncfival hyperemia ≤ Grade 2 on the Efron Scale

**1º & 2º Outcomes**

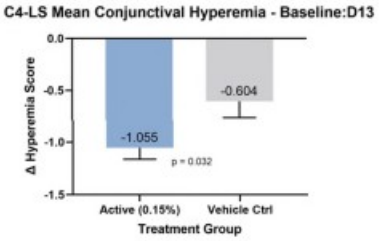
Safety • pK • Exploratory Efficacy Including OSDI, Conjuncfival Hyperemia, Corneal Staining, and Tear Break-Up Time

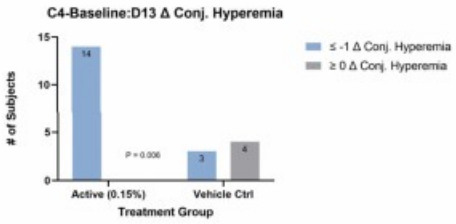
# KIO-101-1101

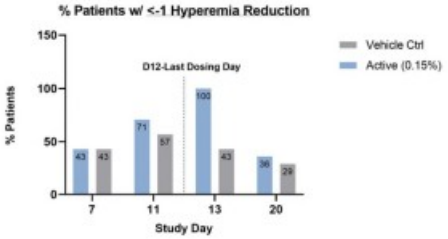
## Key Data Summary Slide*

### Safety & Tolerability

- Low & mid dose tolerated in healthy patients with ocular surface inflammation (OSI)
- High dose (0.3%) inconclusive & awaiting sub-chronic tox




* Presented April 26, 2022 @ American Society of Cataract & Refractive Surgery (ASCRS) Annual Conference

# KIO-101: Phase 2 Study Design

## Randomized, Multicenter, Double Masked, Multiple Ascending Dose Trial (Australia, EU, CA)


**Study Design**

- Three-arm, randomized (1:1:1), controlled, double masked, 90-day BID topical dosing
- Dx of RA (or other AI disease), conjunctival hyperemia, ODS-VAS
- Up to 120 patients

**Outcome Measures**

- ODS-VAS, conjuncfival hyperemia, corneal staining, other
- AEs, PK & labs

*Subject to tox findings

## KIO-101: Next Steps

Inifiate Phase 2 Clinical Trial

- Evaluate safety, tolerability, and efficacy in patients with ocular presentation of rheumatoid arthritis
- Expect to initiate Phase 2 clinical trial in the 2nd half of 2022
- Expect topline data by Q1 2024

# KIO-201

Target Population: Ocular Surface Wound Healing
Product: Synthetic Modified Hyaluronic Acid
IP: Through 2034*

* Subject to 7 years regulatory exclusivity if ODD granted

# KIO-201: Summary

## KIO-201

- KIO-201 is based on a modified form of the natural polymer hyaluronic acid (HA)
- HA is a material with a high viscosity that promotes wound healing by enabling enhanced cell migrafion
- 5 clinical trials completed
  - > 3 PRK surgical recovery
    - 2 Pilot, 1 Pivotal*
  - > 2 dry eye disease

## Corneal Wounds

- Persistent Corneal Epithelial Defects (PCED)
  - > Defined by a failure of rapid epithelialization and closure of a corneal injury within 10–14 days, despite standard supportive treatment
  - > Orphan Drug Designation opportunity
- PRK Surgical Recovery
  - > Surgical correction of refractive errors for patients who are not candidates for LASIK
  - > Standard-of-care is a Bandage Contact Lens which can result in subsequent erosion of epithelium

## Next Steps

- Expect Orphan Disease Designation in Q3 2022
- Expect to initiate Phase 2 PCED trial in Q3 2022
- Planned discussions with FDA in the 2nd half of 2022

*Was regulated as a medical device until 2020
*American Academy of Ophthalmology, Ocular Surgery News: April 10, 2019*

# KIO-201: Phase 2 PCED Study Design

Single-Arm, Open Label Trial – Single Site (Mexico)


**Study Design**

- Single-arm, open label, 28 days 6x daily topical dosing
- Dx of Stage 1 or 2 PCED
- Up to 10 patients

**Outcome Measures**

- Safety & tolerability
- % of pafients healed (<0.5 mm lesion size) at week 4, fime to complete healing

ClinicalTrials.gov Identifier: NCT05436288

## KIO-201: Next Steps

Inifiate Phase 2 Clinical Trial

- Persistent Corneal Epithelial Defects
- Inifiated Phase 2 clinical trial in Q2 2022
- Expect topline data in Q1 2023
- Orphan Drug Designafion expected in Q3 2022
- Discussions with FDA expected in the 2nd half of 2022

# Financials & Capitalization

| As of March 31, 2022 | |
|---|---|
| Cash & Equivalents | ~$5.1M |

| Capitalization as of April 22, 2022 | Common Stock Equivalents |
|---|---|
| Common Stock | 12,663,965 |
| Series D Convertible Preferred (convertible @ $3.5321 / share) | 2,089 |
| Warrants (WAEP $4.99) | 6,757,180 |
| Options (WAEP $7.85) | 603,150 |
| RSUs | 60,152 |
| Total Fully Diluted | 20,086,536 |

Clean cap table – no ratchets/resets
No debt

# Leadership Team

**Brian M Strem, PhD**
President & CEO

**Susan Drexler, CPA**
Financial Consultant

**Eric J Daniels, MD, MBA**
Chief Development Officer

**Stefan Sperl, PhD**
EVP – CMC & Operations

**Angela Dentiste, MBA**
VP – Clinical Operations

# Board of Directors

**Paul Chaney**
Chairman

**Ken Gayron**

**David Hollander, MD, MBA**

**Erin Parsons**

**Aron Shapiro**

**Praveen Tyle**

**Brian M Strem, PhD**
President & CEO

# Scientific Advisory Board

Allen Ho, MD, PhD

Wills Eye Hospital

Christine Kay, MD, PhD

Vitreo Retinal Associates

Russel Van Gelder, MD, PhD

UW Medicine
UW School of Medicine

Charlie Wykoff, MD

Retina Consultants of Texas℠

Daniel Durrie, MD

KU Medical Center
The University of Kansas

Paul Karpecki, OD, FAAO

Kentucky Eye Institute

Francis Mah, MD

Scripps

Victor Perez, MD

Duke University School of Medicine

# Corporate Recap

- Development stage company focused on rare & underserved ophthalmic diseases
- New executive leadership
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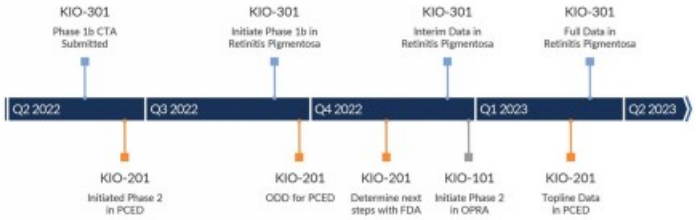


KIO-101, KIO-201 & KIO-301 are currently in clinical development and not commercially available

Contact:
info@kiorapharma.com

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PHARMACEUTICALS