



MIRA-3 Phase 3 Trial Results Conference Call

March 29, 2022

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Agenda and Participants

Second Phase 3 RM Trial Topline Readout as Planned in 1Q22

- Highlights and Overview
 - Topline MIRA-3 Phase 3 Clinical Trial Results for Nyxol in Reversal of Mydriasis (RM)
 - Reversal of Mydriasis Market Opportunity
 - Upcoming Milestones
 - Q&A
-

Participants

Mina Sooch, MBA, President and CEO

Jay Pepose, MD, PhD, Medical Advisory Board and Board Member

Mitch Brigell, PhD, Head of Clinical Development

Susan Benton, MBA, Corporate Board Member

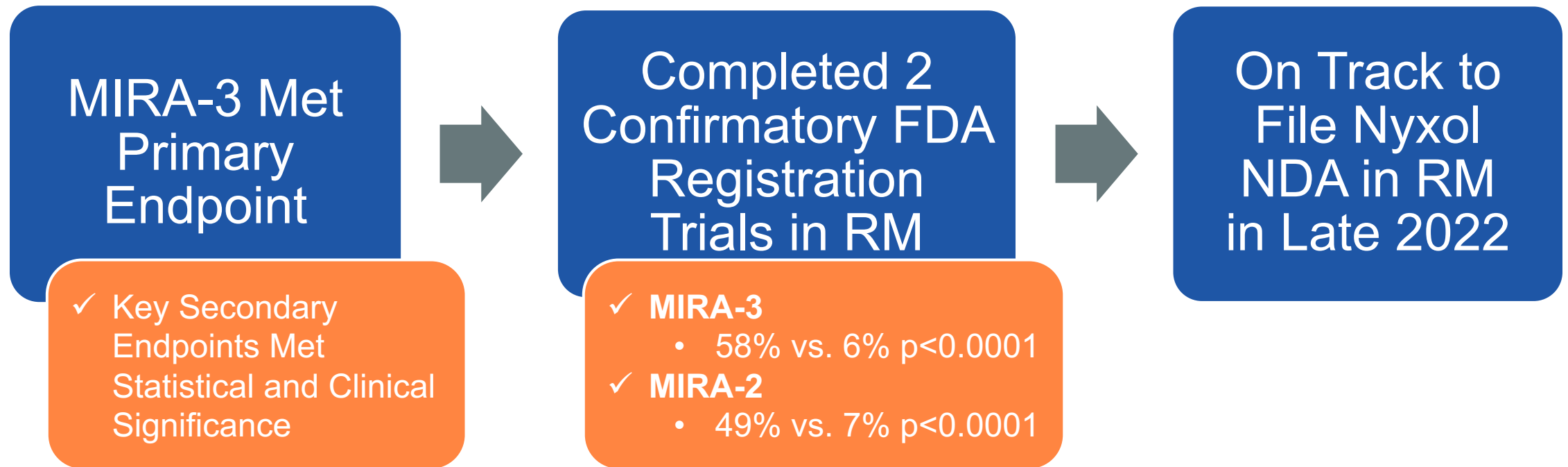
Bindu Manne, Head of Market Development and Commercialization

Charlie Hoffmann, MBA, VP of Corporate Development and Operations

Amy Rabourn, MAcc, VP of Finance

Highlights and Overview

Key Takeaways from Nyxol's MIRA-3 2nd Phase 3 RM Trial



Addressing Unmet Needs in Large Markets

Significant Preclinical & Clinical Data Supporting MOA, Efficacy and Safety

Refractive



Nyxol®

**Novel $\alpha1/\alpha2$ Blocker
505(b)(2)**

10

Completed
Phase 1,
Phase 2, and
Phase 3 Trials

>600

Subjects
Dosed

Exposure in
Humans

28

Days

Patent
Coverage

2034+

US Market Opportunity

RM

**Reversal of
Mydriasis**

~\$500 M

P

Presbyopia

\$10B - \$20B

NVD

**Night Vision
Disturbances**

\$2B - \$4B

Retina



APX3330

**Oral REF-1 Inhibitor
New Chemical Entity (NCE)**

11

Completed
Phase 1 and
Phase 2 Trials

>340

Subjects
Dosed

Exposure in
Humans

365

Days

Patents to

2034+

US Market Opportunity

DR

**Diabetic
Retinopathy**

DME

**Diabetic
Macular Edema**

\$10+B

Oral Rx Revenues*

Ocuphire Pipeline & Clinical Milestones

Multiple Phase 3 & Phase 2 Clinical Data Readouts Anticipated this Year

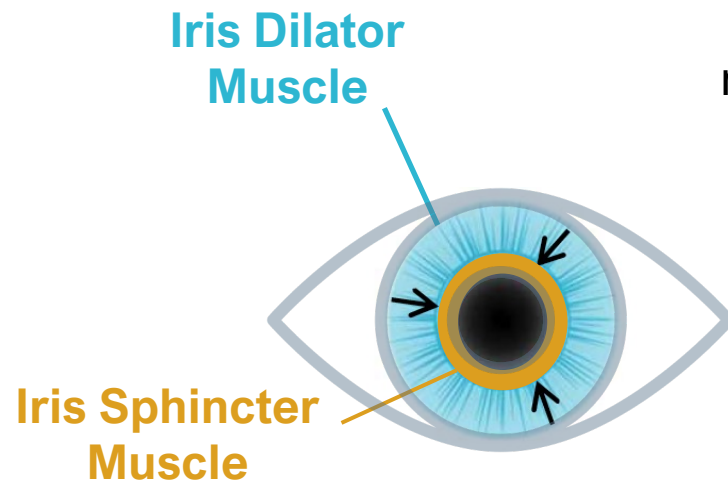
Indication	Product Candidate	Pre-clinical	Phase 1	Phase 2	Phase 3	Regulatory Approval	Anticipated Milestones
Reversal of Mydriasis (RM)	Nyxo ^l [®] Eye Drop				✓ MIRA-3 MIRA-2 ✓ ★ MIRA-4		<input checked="" type="checkbox"/> Reported MIRA-3 Phase 3 data in Q1 2022 (n=368) <input type="checkbox"/> MIRA-4 Pediatric safety study data expected in 2Q 2022 (n=23)
Presbyopia (P)	Nyxo ^l [®] Eye Drop Nyxo ^l [®] + Low-Dose (0.4%) Pilocarpine Eye Drops			VEGA-1 ✓			<input type="checkbox"/> VEGA Phase 3 program planned to initiate in mid-2022
Dim Light or Night Vision Disturbances (NVD)	Nyxo ^l [®] Eye Drop				★ LYNX-1		<input type="checkbox"/> LYNX-1 Phase 3 data expected in 2Q 2022 (n=145)
Diabetic Retinopathy (DR)/ Macular Edema (DME)	APX3330 Oral Pill				★ ZETA-1		<input type="checkbox"/> ZETA-1 Phase 2b data expected in 2H22 (n=103)
DME or Wet Age-Related Macular Degeneration (wAMD)	APX2009 (Intravitreal or Local Delivery)				✓ Recent Positive Trial Data ★ Ongoing Trial		<input type="checkbox"/> Seeking partner funding for IND enabling studies and further development

NyxoI's Differentiated MOA as an Alpha-1 Blocker

Phentolamine Mesylate Reformulated as a Proprietary Topical Eye Drop → NyxoI™

Phentolamine Mesylate is the Active Ingredient in NyxoI: a Non-selective $\alpha 1$ & $\alpha 2$ Antagonist

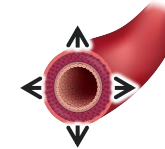
Blocking $\alpha 1$
Reduces Pupil Size



NyxoI blocks $\alpha 1$ receptors only found on the **Iris Dilator Muscle**

↓
Decreases Pupil Size
(Moderate Miosis)
without
Affecting the Ciliary Muscle

Blocking $\alpha 1$
Dilates Blood Vessels






Phentolamine mesylate is approved for 2 indications:

- Regitine® (Pheochromocytoma) – intravenous injection approved in 1952
- OraVerse® (Reversal of oral anesthesia) – intramuscular injection approved in 2008

505(b)(2) Regulatory Approval Pathway

Nyxol Product Candidate Profile

Novel, Differentiated Alpha 1/2 Blocker Eye Drop for Refractive Indications

 Nyxol: 0.75% Phentolamine Ophthalmic Solution Preservative Free, EDTA Free, and Stable		
Efficacy Data	Favorable Safety Profile	Durable
<p>Nyxol Improves Vision by Decreasing Pupil (~1-1.5mm)</p> <ul style="list-style-type: none">↑ Near Vision↑ Distance Vision↑ Contrast Sensitivity (night) 	<p>No Systemic Effects No Changes in Blood Pressure No Changes in Heart Rate</p> <p>Well-Tolerated Topical Effects Mild, Transient, Reversible Eye Redness</p> <p>IOP Unchanged or Decreased</p> <p>Minimal to No Headaches</p>	<p>Effects Last ≥ 24 Hours Chronic daily dosing of Nyxol at bedtime reduces pupil size for up to 24 to 36 hours</p> 

Nyxol® for Reversal of Mydriasis (RM)



“ I had a premium cataract procedure by my MD, and I was unable to see clearly for two days. My doctor said it was due to my dilation. I did not expect my dilation to last that long. ”



“ I have to visit my retina MD for my monthly injections, where I am dilated. Being dilated every month is a huge burden on my day. ”



“ I have to stay indoors. They say it only lasts a few hours, but it lasts all day, and it is very annoying. ”

Problem: Dilated Eyes for Exams and Procedures

Patients Report Significant Side Effects after Dilated Eye Exam

The Problem

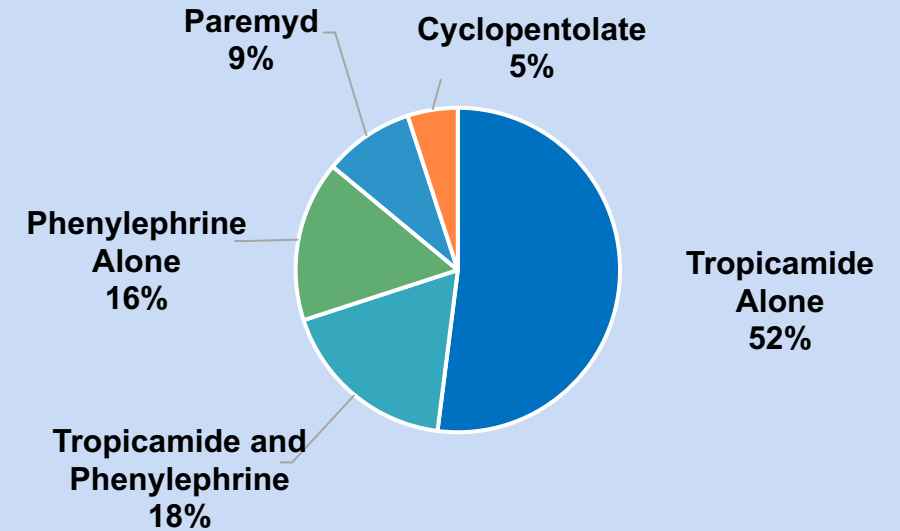
Pharmacologically-induced pupil dilation is part of standard care for annual and specialty eye exams...

...but there is 6 to 24 hours of impaired vision including:

- Inability to Focus
- Photophobia (sensitivity to light)
- Cycloplegia (loss of accommodation)
- Difficulty Reading and Driving
- Halos and Glare



Physician's Use of Mydriatic Agents¹



Note - Tropicamide and Cyclopentolate have same MOA

**NO REVERSAL DROPS
COMMERCIALY AVAILABLE**

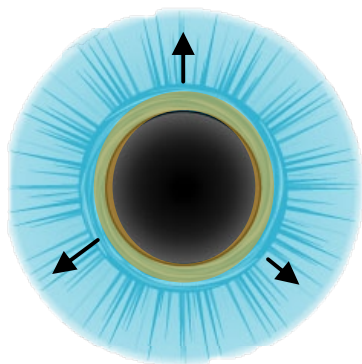
Nyxol Has Potential To Be The Only Option For RM

Physicians *AVOID* Use of Cholinergic Agonists (Pilocarpine) Due to Safety Risk on Ciliary Muscle

2 Classes of Mydriatic Agents

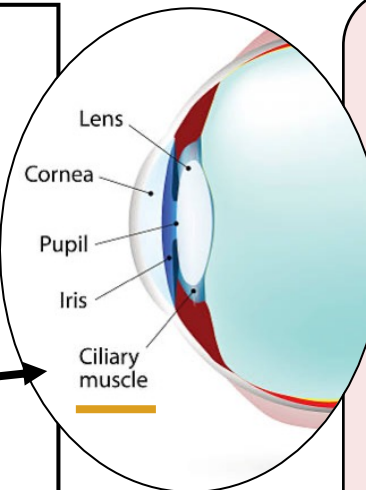
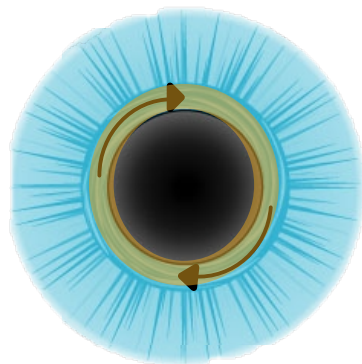
Phenylephrine (α_1 agonist)

Sympathetic (primarily α_1)
innervation stimulates
the iris dilator muscles



Tropicamide (anti-cholinergic)

Parasympathetic
innervation stimulates
the **iris sphincter and**
ciliary muscle



Reversal via the Ciliary Muscle by Cholinergic Agonists* is Not a 'Safe' Option

- ✗ Retinal tear has been reported in some patients, especially high myopes¹
- ✗ Induces accommodation spasm and reduction in distance vision²
- ✗ Induced anterior shift of the lens can increase the risk of acute angle-closure glaucoma²
- ✗ High incidence of brow ache and headache following installation³

* **Cholinergic Agonists include pilocarpine, carbachol, and aceclidine. Note, pilocarpine is rarely used off-label for RM given these safety concerns.**

Nyxol® is the only eye drop in clinical development for multiple indications with a MOA that does not affect the ciliary muscle

1 Pilocarpine FDA Label (2017)

2. Optician (2012)- Mydriatic Drugs: Practical Considerations

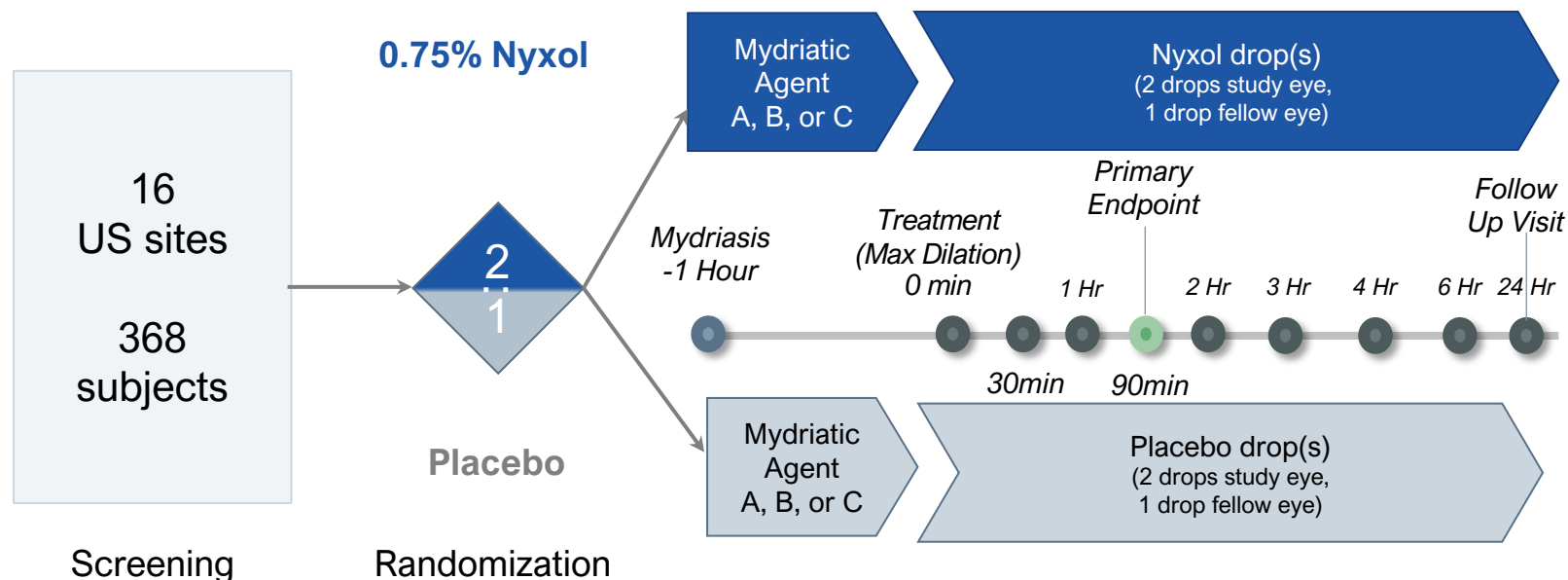
3. Lee DA, Higginbotham EJ, 2005. Glaucoma and its treatment: a review. Am J Health Syst Pharm 62, 691–699.

MIRA-3 Topline Phase 3 Results

Randomized, Parallel Arm, Double-Masked, Placebo-Controlled Study of the Safety and Efficacy of Nyxol (0.75% Phentolamine Ophthalmic Solution) to Reverse Pharmacologically-Induced Mydriasis in Healthy Subjects

MIRA-3 Phase 3 Registration Trial Design

Randomized, Double-Masked, Placebo-Controlled, Parallel, Multi-Center, One-Day Trial



Endpoints

Primary: % of subjects (study eye) returning to baseline (within 0.2 mm) pupil diameter (PD) at 90 min

Key Secondary:

- % of subjects returning to baseline at 0min, 30min, 1h, 90 min 2h, 3h, 4h, 6h, 24h (overall, by mydriatic agent, by iris color)
- Mean time to return to baseline PD
- Mean change in pupil diameter at all timepoints
- Distance-Corrected Near Vision
- Accommodation (Tropicamide/Paremyd)
- Safety and tolerability

Key Eligibility Criteria

Inclusion: Healthy ≥ 12 years of age

Exclusion: Clinically significant ocular trauma, surgery, or non-refractive laser treatment within the 6 months prior to screening; and recent or current evidence of ocular disease, infection or inflammation in either eye

MIRA-3 Started in Nov 2021 → Enrolled 368 in Feb 2022

Phase 3 Results Reported March 2022

Demographics

Treatment and Placebo Arms Were Balanced in MIRA-3 Phase 3 Registration Trial

	Nyxol n=244	Placebo n=124	Total n=368
Demographics			
Age (years): Mean (Range)	34 (12-80)	36 (12-80)	35 (12-80)
Sex: Male n (%)	92 (37.7%)	59 (47.6%)	151 (41.0%)
Female n (%)	152 (62.3%)	65 (52.4%)	217 (59.0%)
Race: White n (%)	182 (74.6%)	93 (75.0%)	274 (74.5%)
African American n (%)	38 (15.6%)	21 (16.9%)	59 (16.0%)
Asian n (%)	22 (9.0%)	9 (7.3%)	31 (8.4%)
Other[^] n (%)	0 (0%)	1 (0.8%)	7 (1.9%)
<i>[^]includes American Indian or Alaska Native; Native Hawaiian or Other Pacific Islander</i>			
Light Iris Color: n (%)	113 (46.3%)	58 (46.8%)	171 (46.5%)
Dark Iris Color: n (%)	131 (53.7%)	66 (53.2%)	197 (53.5%)

Notes: 32 pediatric subjects 12-17years old were enrolled in the trial.

Race is more than 100% given subjects could check more than one category.

Demographics represent all randomized population (ARP) of 368 which is the same as Safety Population and Modified-Intent-to-Treat (mITT).

Per Protocol (PP) Population is 345, excludes 23 subjects who did not dilate more than 0.2 mm 1 hour after receiving mydriatic drop.

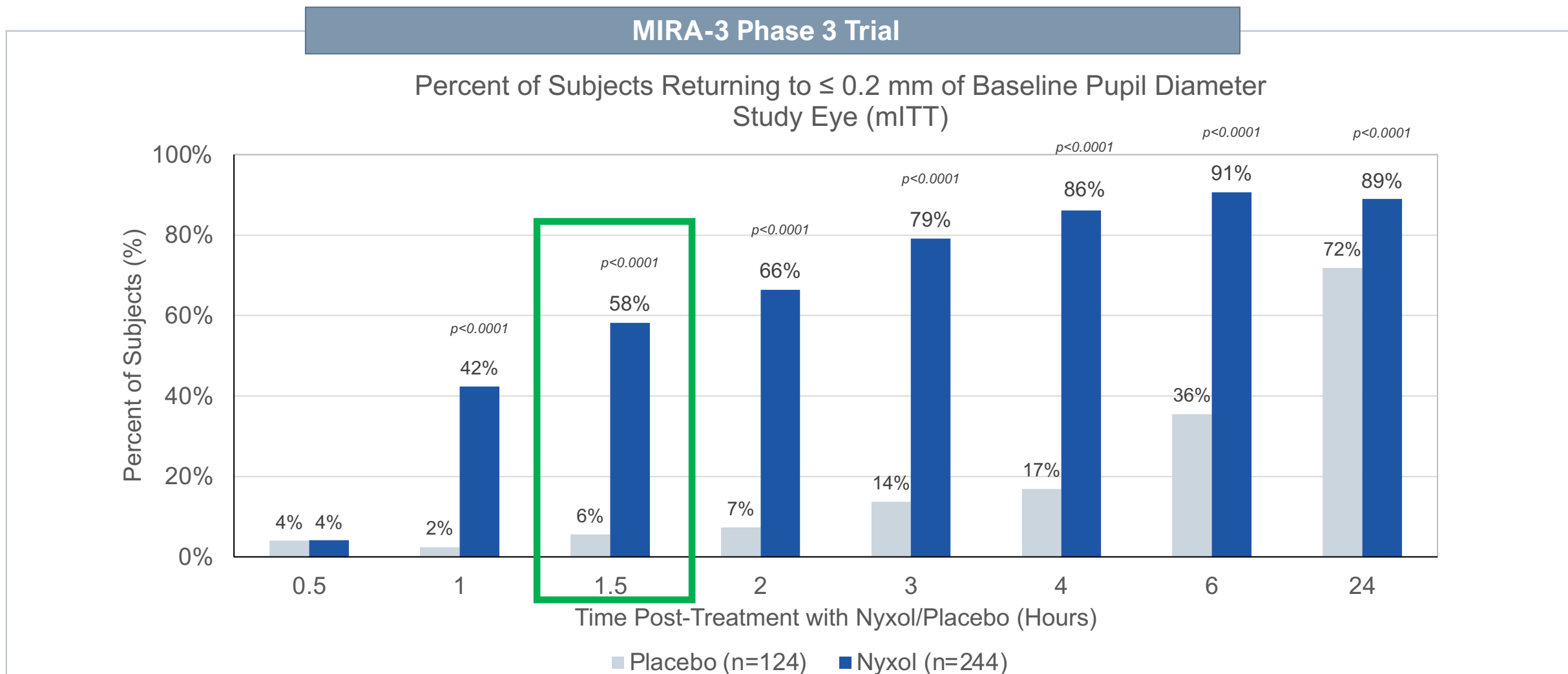
Baseline Characteristics Study Eye

Treatment and Placebo Arms Were Balanced Across Ocular Measures in the MIRA-3 Trial

	Nyxol n=248	Placebo n=120	Total n=368
Baseline Characteristic			
Baseline Pupil Diameter Mean (mm)	5.1	4.9	5.1
Max Dilated Pupil Diameter Mean (mm)	7.2	7.1	7.2
Accommodation Mean (diopters)	7.4	7.6	7.5
BCDVA letters <i>55 letters = 20/20</i>	57	57	57
DCNVA letters <i>70 letters = 20/20</i>	65	65	65
IOP (mmHg)	16.2	16.1	16.1

Primary Endpoint: 58% of Subjects' Study Eye Returned to Baseline at 90 Min

Nyxol Statistically Better Than Placebo Starting At 1 Hour And All Subsequent Timepoints

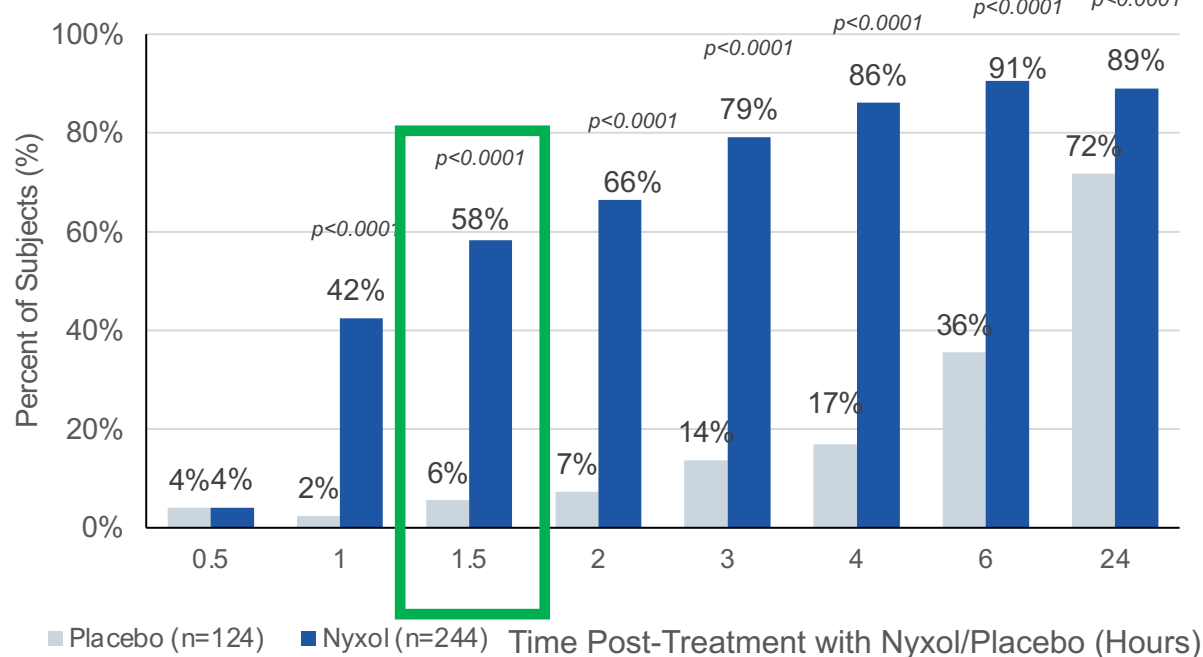


Primary Endpoint Achieved in Two FDA Registration Phase 3 Trials

Rapid, Consistent and Sustained Reversal of Pupil Dilation with Nyxol

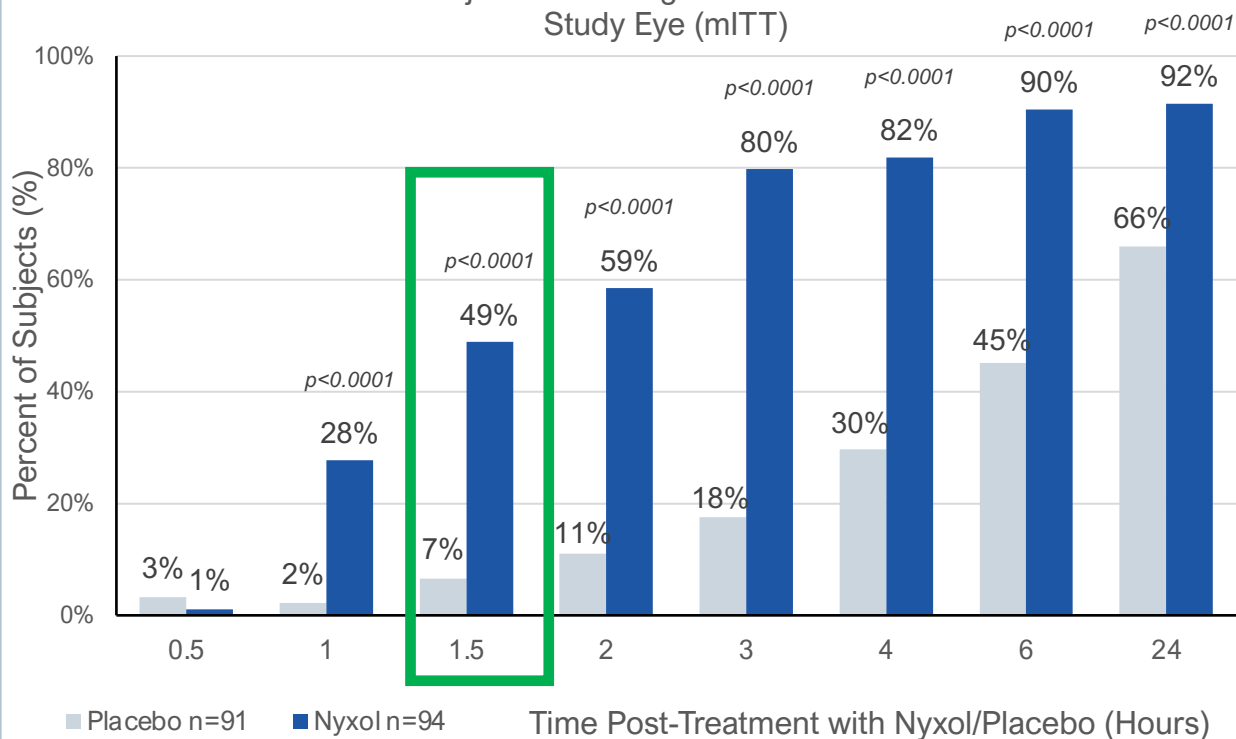
MIRA-3 Phase 3 Trial

Percent of Subjects Returning to ≤ 0.2 mm of Baseline PD Study Eye (mITT)



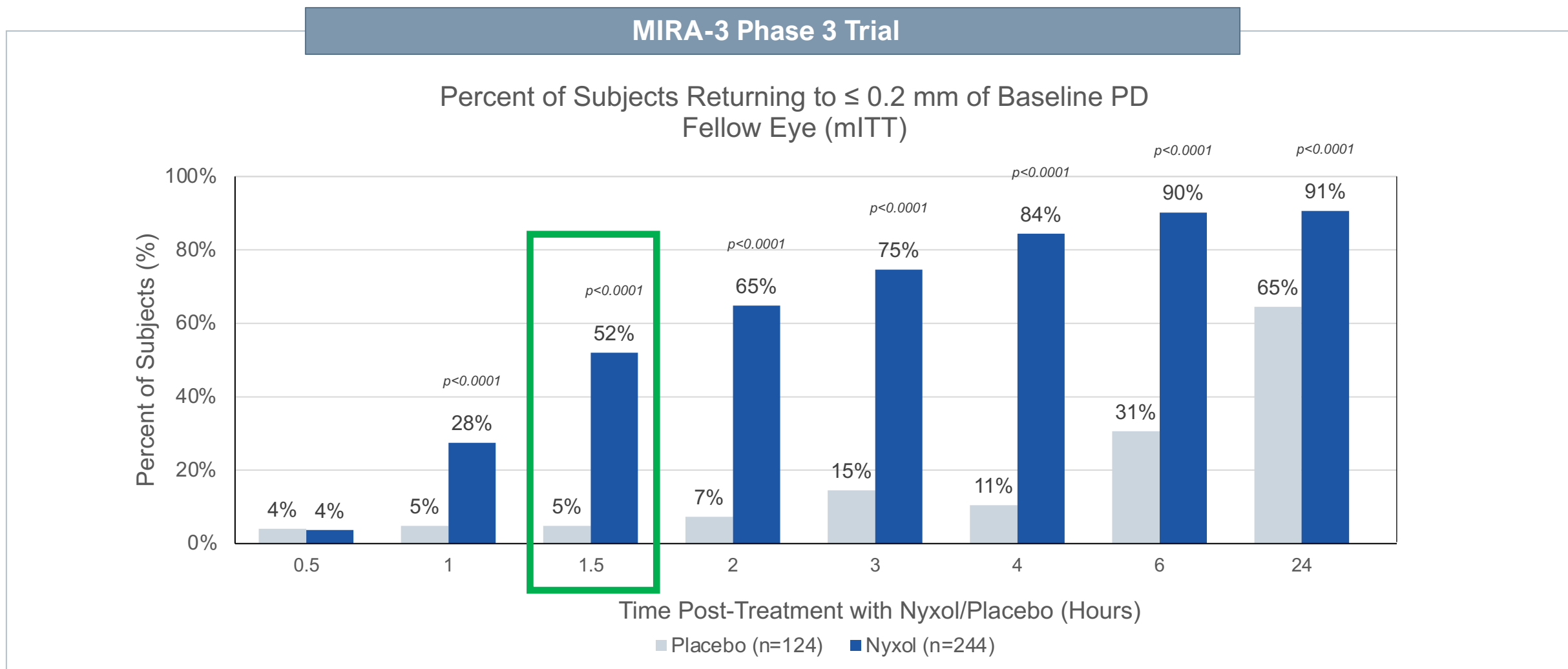
MIRA-2 Phase 3 Trial

Percent of Subjects Returning to ≤ 0.2 mm of Baseline PD Study Eye (mITT)



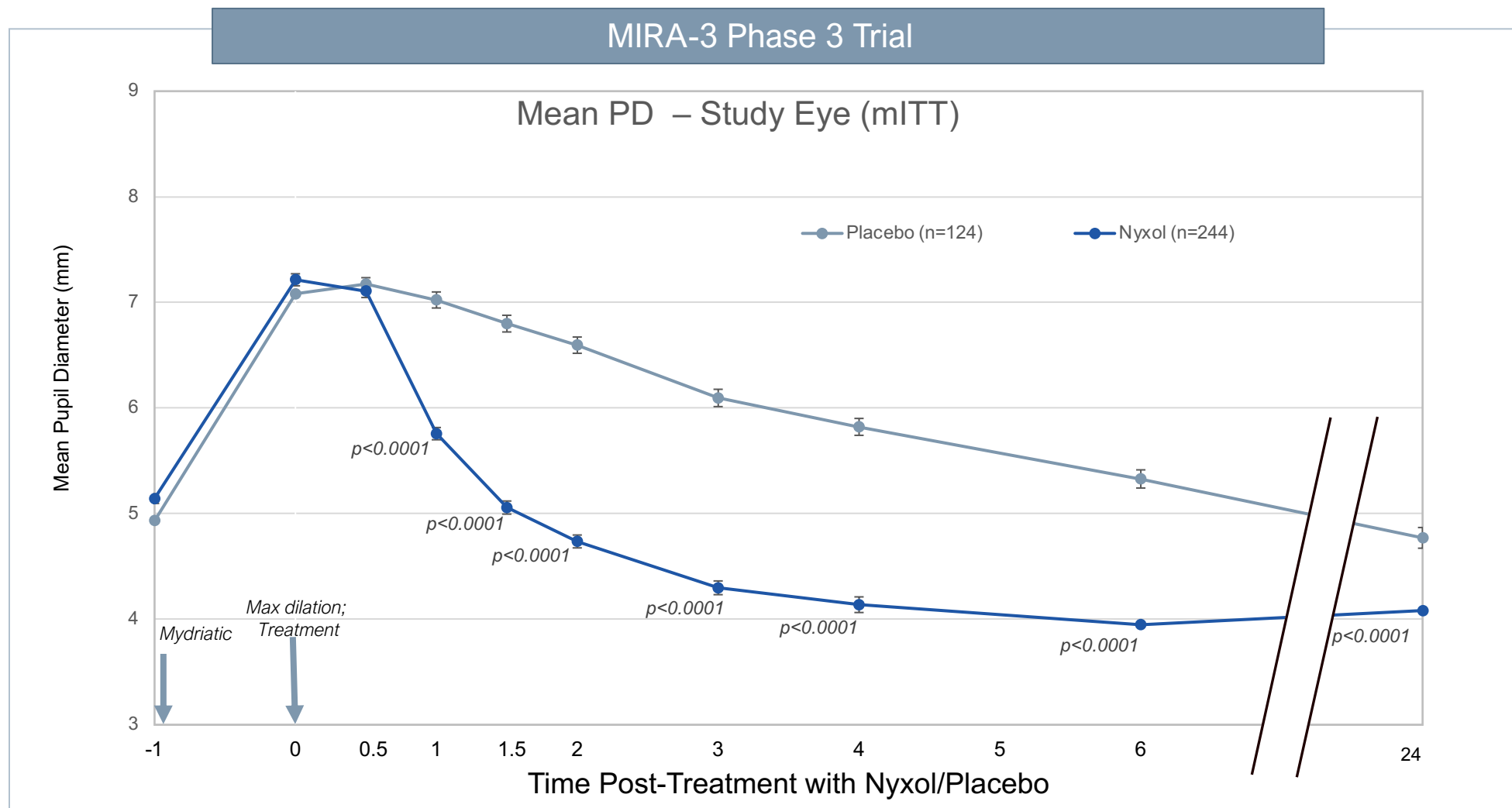
Comparison of One Drop (Fellow Eye) with Two Drops (Study Eye)

Similar 52% of Subjects Return to Baseline at 90 Minutes with a Single Drop of Nyxol



Mean Pupil Diameter Over Time

Nyxol Treatment Significantly Reduced PD Starting at 1 Hour Post-Dose Through 6 Hours

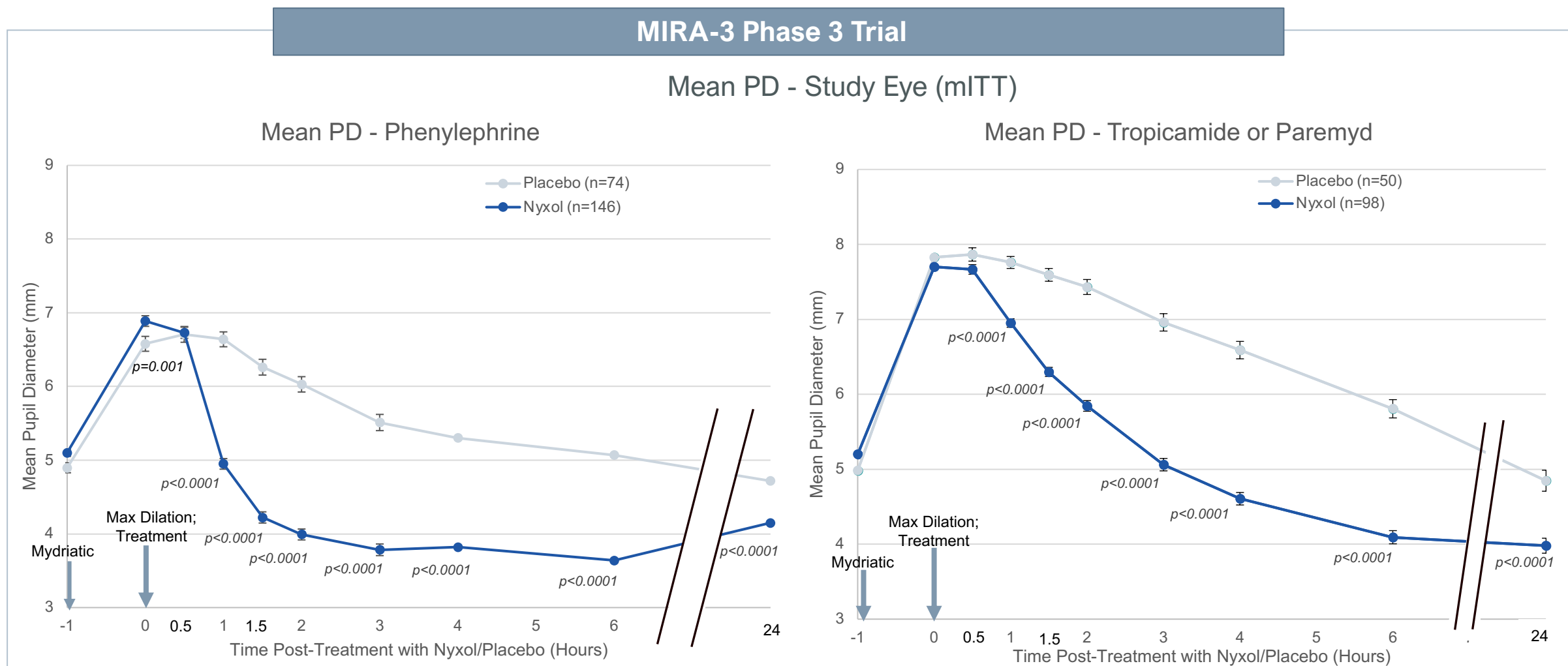


Source: MIRA-3 Table 14.2.2.1 (mITT). The p-values are change from max pupil dilation treatment compared to placebo.

Data includes all three mydriatics (Phenylephrine, Tropicamide, Paremyd). Standard Error bars are shown.

Mean Pupil Diameter Over Time by Mydriatic Agents

Nyxol Reduced PD With All Mydriatic Agents; More Rapidly with Phenylephrine as Expected



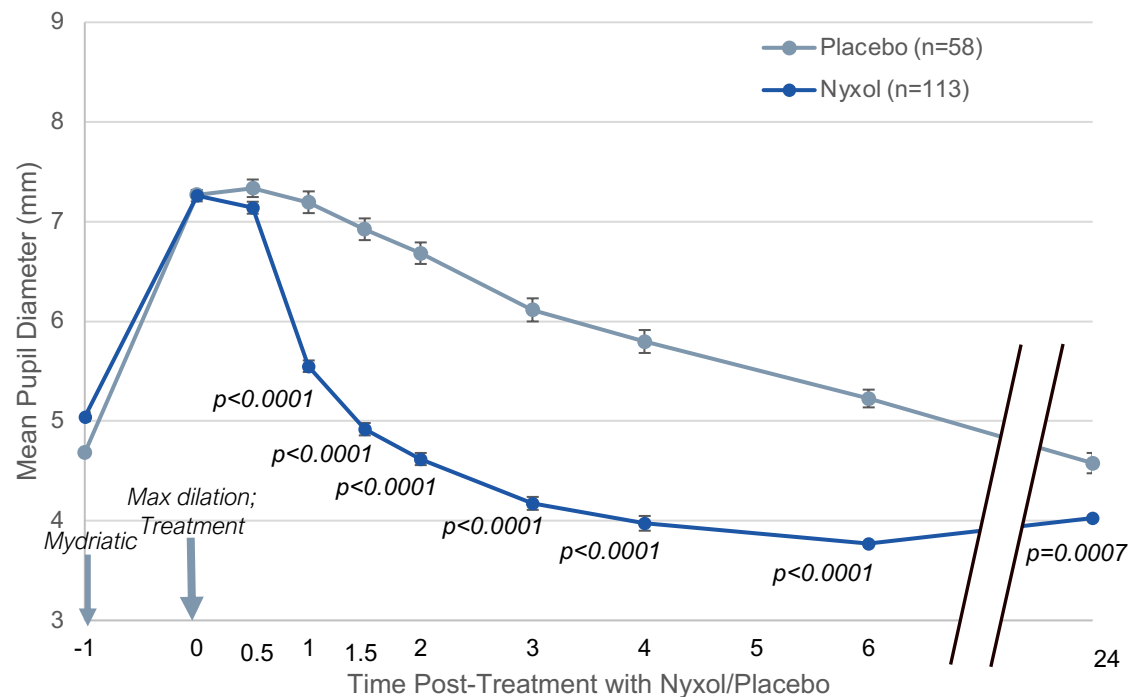
Mean Pupil Diameter Over Time by Eye Color

Nyxol Reduced Pupil Diameter Rapidly in Both Light and Dark Irises

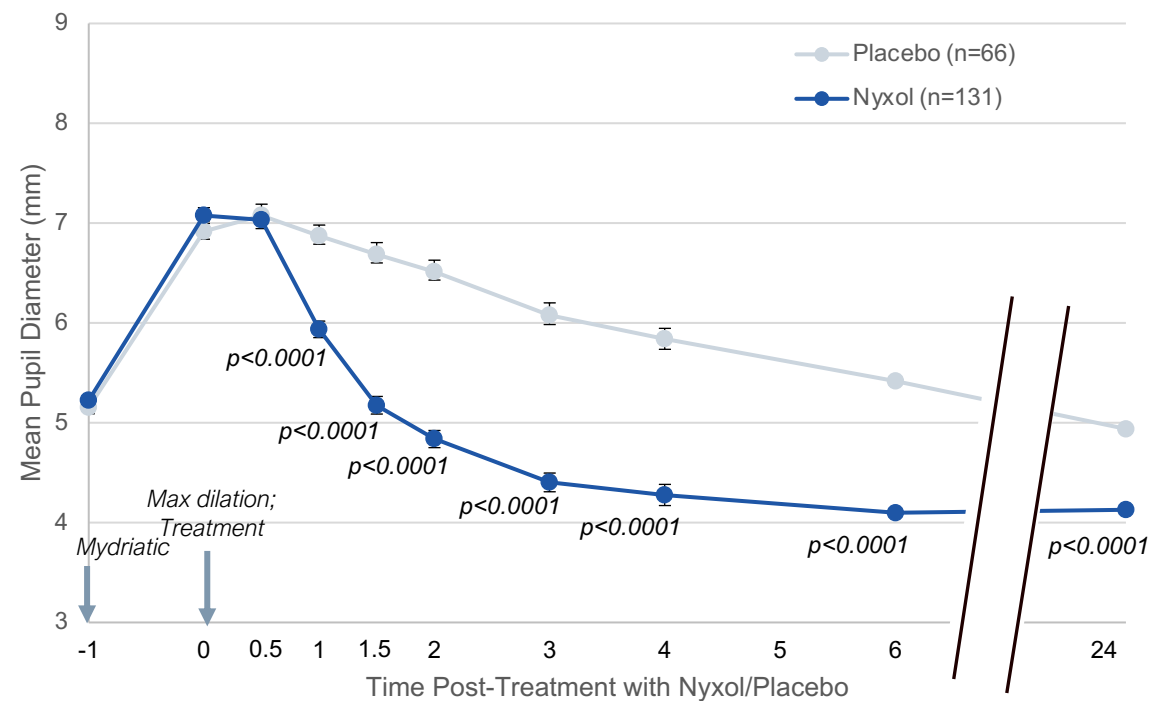
MIRA-3 Phase 3 Trial

Mean PD - Study Eye (mITT)

Mean Pupil Diameter - Light Irises

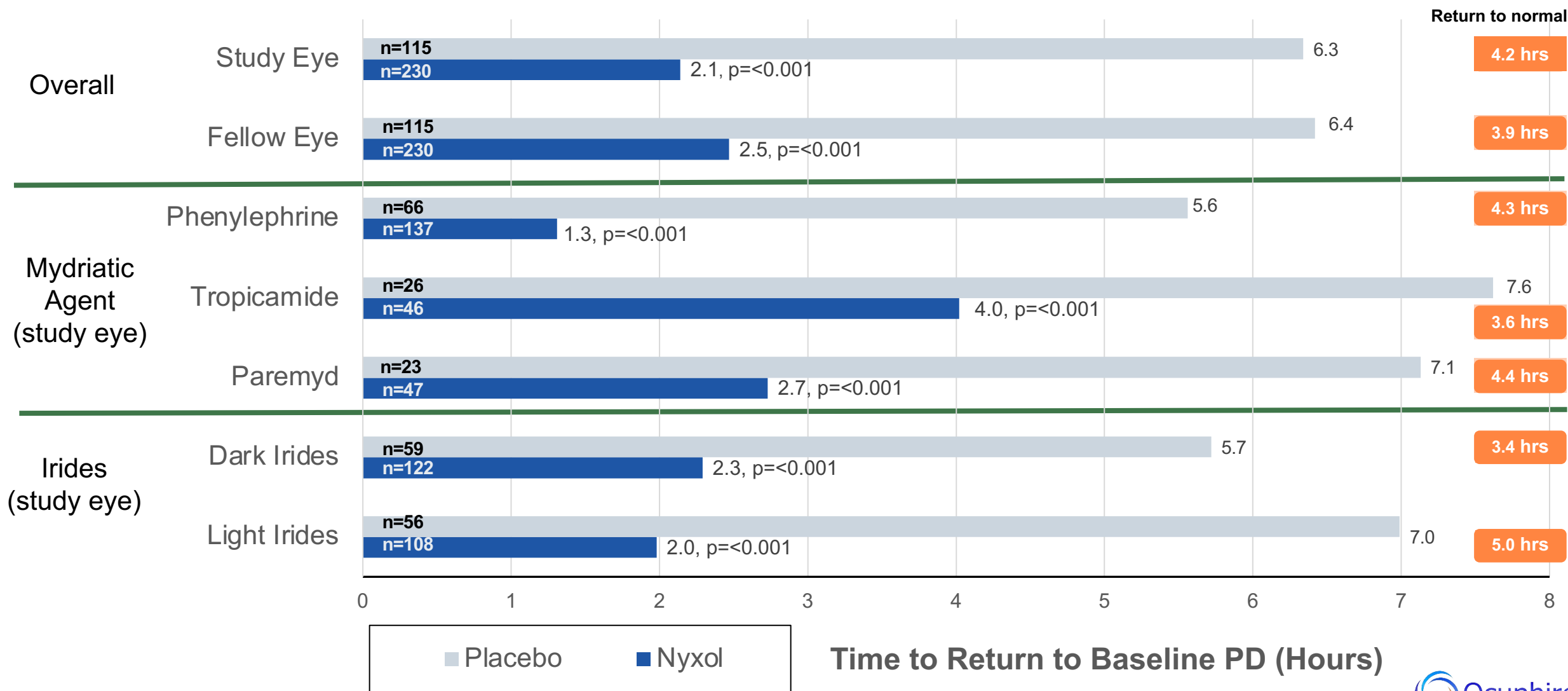


Mean Pupil Diameter - Dark Irises



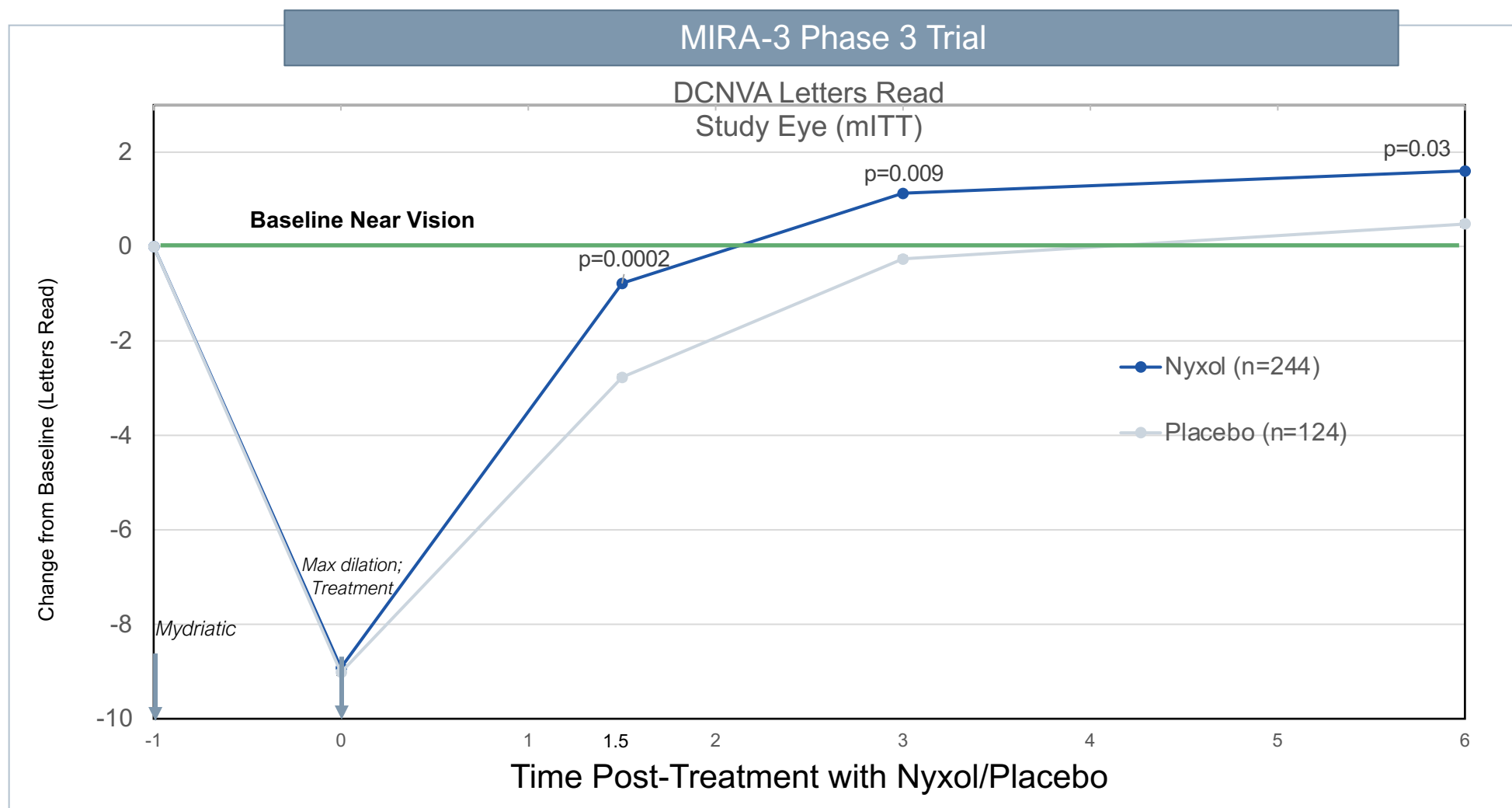
Mean Time to Return to Baseline PD

Saving of ~4 Hours in Return to Normal PD Overall and Across Mydriatic Agents



Maximum Pupil Dilation Results in Loss of Near Vision

Nyxol Returns Near Vision to Baseline Levels Statistically Faster Compared to Placebo



Summary of Safety Findings

Nyxol was Well Tolerated with a Favorable Safety Profile

- There were no deaths, serious AEs, or withdrawals due to AEs
- 48 of 244 (20%) Nyxol treated subjects reported 101 AEs
 - All treatment related AEs were mild in severity
- The only AE occurring in $\geq 5\%$ of subjects treated with Nyxol, was conjunctival hyperemia (11% Nyxol vs. 0% placebo)
 - Less than 1% of subjects reported instillation site discomfort, pain, or irritation
- Conjunctival hyperemia was observed to be mild and transient
- Visual acuity (distance and near) was not adversely affected by Nyxol
- Over 300 subjects have been treated with Nyxol and evaluated at 24-hours in the MIRA trials → satisfying regulatory requirements for drug safety exposure for the acute RM indication

Summary of Positive MIRA-3 Phase 3 Results for Nyxol Eye Drops

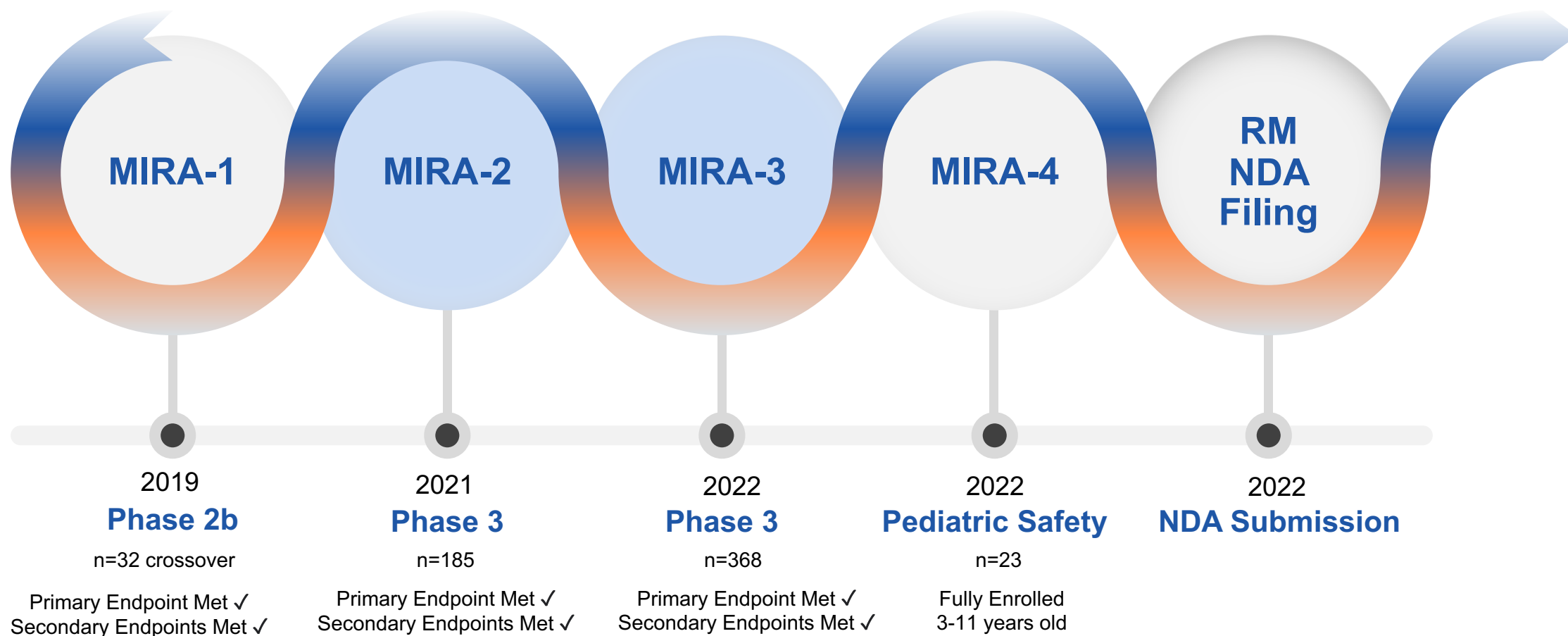
Confirms Prior Phase 3 Study Showing Substantial Benefit in Accelerating Reversal of Mydriasis

- **Met primary endpoint at 90 minutes with 58% of subjects returning to pre-dilation pupil diameter vs. 6% of placebo treated subjects ($p < 0.0001$)**
- **Saving of ~4 hours in time to return to normal pupil diameter**
- **Met key secondary endpoints with high statistical significance**
 - Efficacy seen at all timepoints from 60 minutes to 24 hours
 - Similar efficacy for one drop and two drops
 - Efficacy across all 3 mydriatic agents – phenylephrine, tropicamide, and Paremyd®
 - Efficacy in both light and dark iris colors
 - Accelerated return to normal distance-corrected near visual acuity
- **Favorable safety and tolerability profile**
 - No serious AEs, no drop-outs from AEs
 - No systemic or ocular AEs were observed in $\geq 5\%$ of subjects, except for 11% mild, transient conjunctival hyperemia
- **NDA planned for late 2022**

Plans to NDA for Nyxol in RM

MIRA Program Evaluating Nyxol for the Reversal of Mydriasis

Efficient Clinical Programs have Positioned Ocuphire to Target NDA Filing in Late 2022



NDA Submission Targeted in Late 2022

Potential Regulatory Approval in 2023

Target Label Indication

The treatment of pharmacologically induced mydriasis produced by adrenergic (e.g., phenylephrine) or parasympatholytic (e.g., tropicamide) agents, or a combination thereof.

*Preservative-Free
Single Unit Vial (5-pack)*



Nyxol®



P3 Clinical Trial

Completed 2nd Phase 3 trial in RM (enrolled 368 subjects), which also meets 24-hour safety population exposure requirement

Ongoing



Pediatric Safety

Enrolled 23 subjects ages 3 to 11 per agreed FDA initial pediatric study plan

Ongoing



Manufacturing

Completed 3 registration batches; 1-year CMC stability will be available for NDA



Regulatory Approval

Submit NDA by late 2022, with expected approval review of 10 months

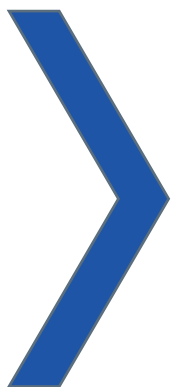
Reversal of Mydriasis Market Opportunity

Reversal of Mydriasis Unmet Need & Landscape

With No Commercially Available Treatment, Nyxol is Uniquely Positioned as a New Reversal Drop

The Problem

- At many annual eye exams and specialty visits, pupils are pharmacologically dilated, impairing vision for **6-24 hours**
- Dilated eyes experience:
 - Heightened sensitivity to light
 - Inability to focus, headaches
 - Difficulty reading, working & driving
 - Halos and glare
 - Cycloplegia (loss of accommodation)



No Currently Available Treatments

100M
Annual Eye Dilations

Current Landscape:

- Rare off-label use of cholinergic agonists (e.g., pilocarpine) given ciliary muscle safety issues^{1,2}
- Optomap® is offered by optometrists to avoid dilations for ~\$50 cash-pay, however images may provide limited view of retina and disease pathology³

Nyxol's MOA Uniquely Suited As A Reversal Drop For Dilations

Source

1. Optician (2012)-Mydriatic Drugs: Practical Considerations

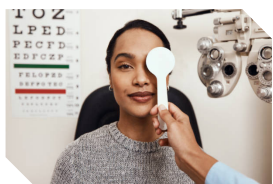
2. Pilocarpine FDA Label (2017)

3. Optos plc Pricing

Bottom-Up Calculation of Annual Dilated Eye Exams

~100 M Annual Dilated Eye Exams are Performed in the US

Demand Side Validation



Optometrists

Number of
Providers
(X)

46,000

Average Number
of Weekly Exams
(Y)

59

Estimated %
Patients Dilated
(Z)

40%

Total
(X*Y*Z) * 48 wk/yr

~52 M



Ophthalmologists

18,000

88

50%

~38 M



Retina Specialists

3,000

150

50%

~10 M

100M

Annual Dilated Eye
Exams

Supply Side Validation: Based on the ~2 million total units of mydriatic agents sold in 2020, we calculated the total number of dilated eye exams to be ~125 million patients, consistent with demand side estimates.

*IQVIA 2020 sales data; KOL Interview; GlobalData market research; and AOA Excel and Jobson Medical Information

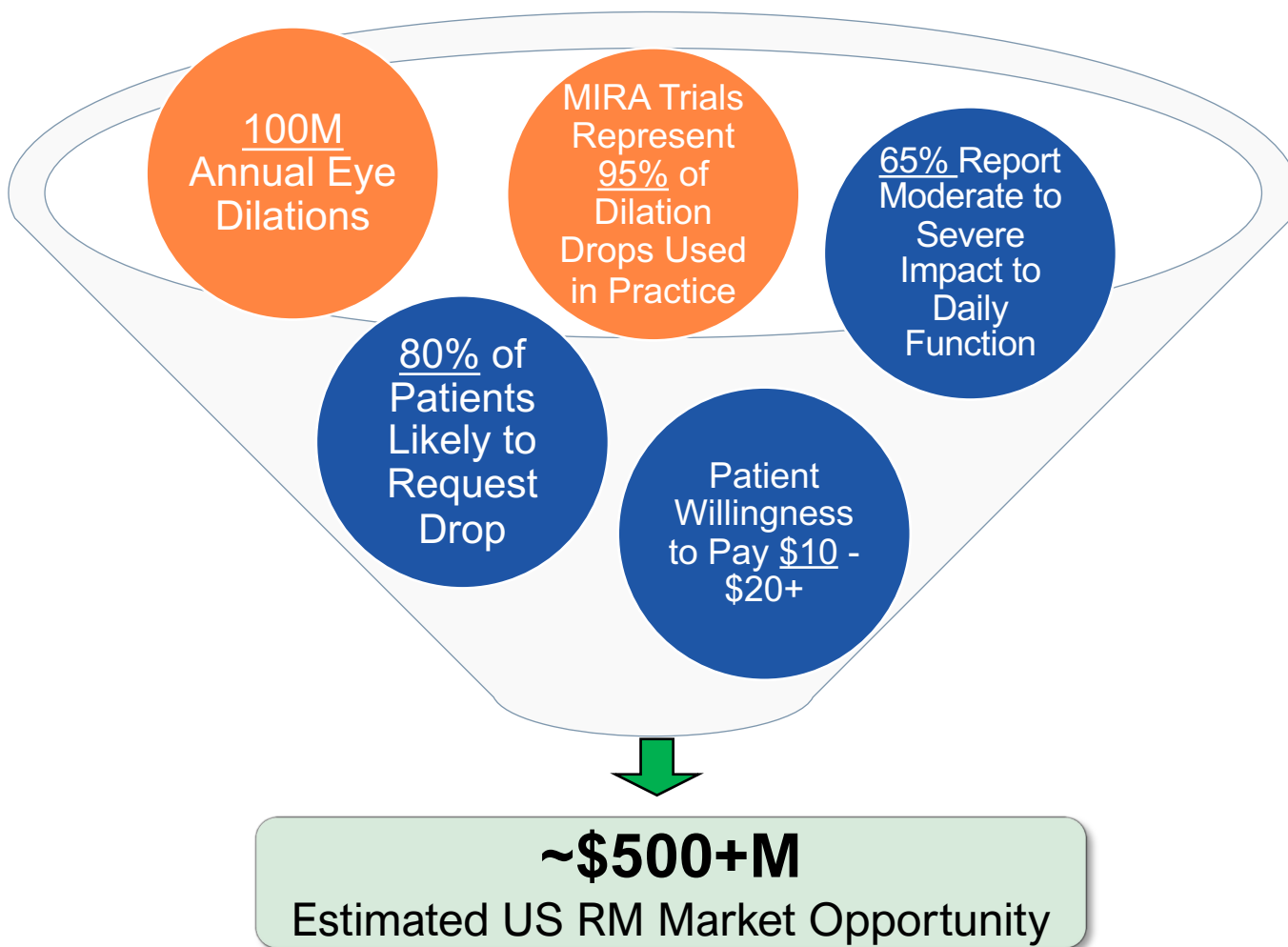
'Bottom-Up Calculation' assumes 48 total work weeks in a year

Supply side validation assumed each unit (bottle) has ~10 mL fill volume and each patient gets 2-4 drops

Reversal of Mydriasis (RM) Market Opportunity

With No Commercially Available Treatment, Nyxol May Achieve Significant Revenue Potential

GlobalData Market Research Findings



58%

physicians would start prescribing Nyxol within 1st year

0

Current Commercially Available Treatments

81%















patients would be more likely to schedule yearly eye exams with a reversal drop

68%

physicians would be willing to use Nyxol even if patients had to still wear sunglasses within 1st hour

More Efficient Launch Opportunity for Nyxol in RM

Launch is Poised to be Disruptive, Cost-Effective and Not Payor-Driven

Traditional Ophthalmic Launch	Ocuphire's Nyxol RM Launch
 Highly competitive markets (e.g., dry eye, glaucoma, allergy); little differentiation	 No competition or approved reversal drop → potential for Nyxol to be the only safe option
 Launch success takes time given payor (reimbursement) dependence	 Cash pay (no reimbursement barriers) allowing for quicker adoption
 Significant prior authorization & step-edits hurdles with burden to the practices	 Offering a significant value proposition to patients and practices
 Lengthy sales cycles and touchpoints due to chronic use and market access upkeep	 Shortened sales-cycle with acute use product
 Significant product education requirement	 No training given dilations routine in practices
 Complex distribution channel including specialty and retail pharmacies	 No specialty/retail pharmacy → direct to physician
 “One product, one indication” commercial model is inefficient with fixed cost infrastructure	 “One product, several indications” offers efficiencies in commercial operations

Pre-Commercial 2022 & Go-To-Market Strategy 2023

Activities Underway to Support Capital-Efficient Nyxol RM Commercial Launch

Pre-Commercial Activity

Market Development (KOLs)

Physician Targeting

Patient Journey

Brand Awareness

Go-To-Market Strategy

Potential Options for Commercialization

Work with strategic or channel partner with existing commercial ophthalmic products

Hire contract commercial organization

Build own salesforce

Easy Adoption

Dilations are a routine part of practice; adoption requires no staff or patient training

Landscape

No approved drug/competition; data-mining for high volume practices

Components of an Efficient Launch

Direct to Physicians

No need for pharmacy; no reimbursement, private pay



Retina
3,000 Retinal Specialists



Ophthalmology
20,000 Ophthalmologists

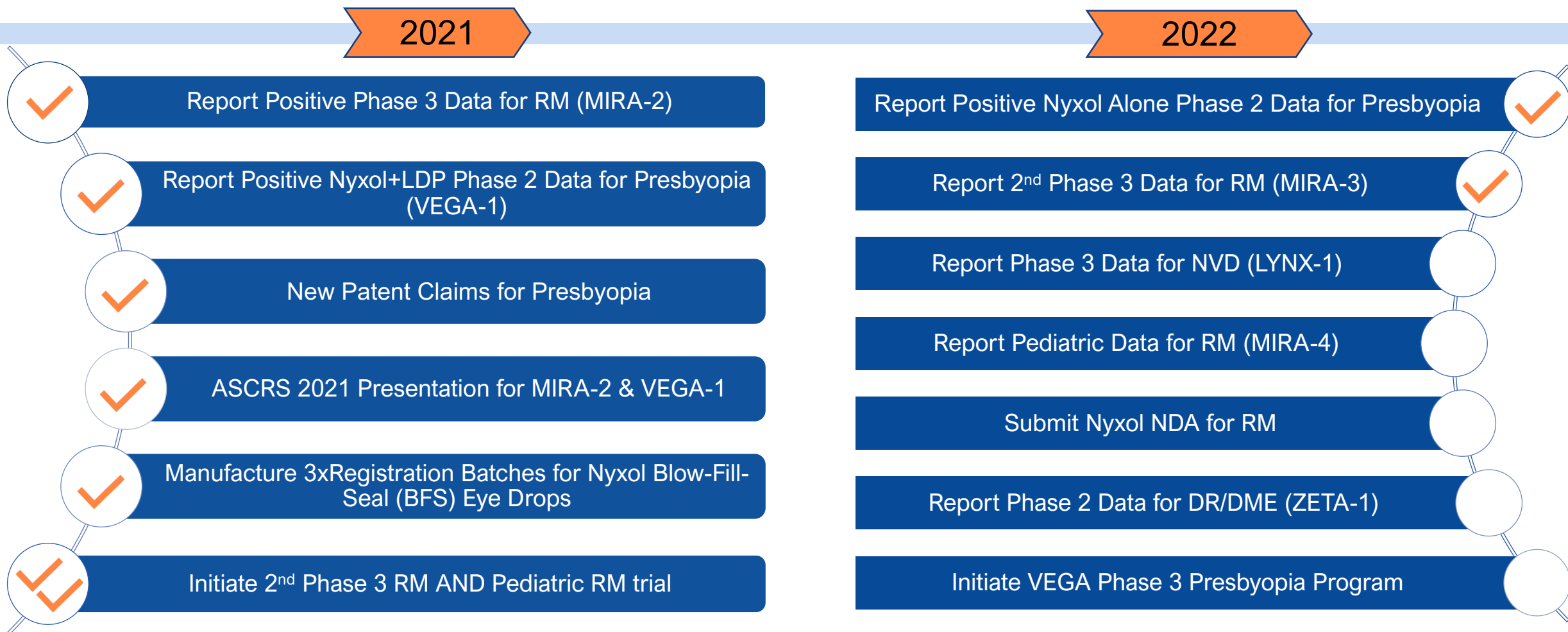


Optometry
46,000 Optometrists

Upcoming Milestones

Track Record of Achieving Milestones → Exciting 2022 News Cadence

Multiple Late-Stage Data Catalysts Expected in 2022 for Potential First NDA Approval in 2023



Ongoing Partnering Discussions with Leading Ophthalmic Companies (including European and Asian Players)



Q&A

www.ocuphire.com
ir@ocuphire.com

