



# VEGA-1 Phase 2 Topline Results Conference Call

June 30, 2021

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# Agenda and Participants

*Phase 2 Trial Topline Readout As Planned In 2Q21*

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- Topline VEGA-1 Phase 2 Clinical Trial Results for Nyxol and Low-Dose Pilocarpine in Presbyopia
  - Presbyopia Market Opportunity
  - Future Milestones
  - Q&A
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## **Participants**

Mina Sooch, MBA, President and CEO

Mitch Brigell, PhD, Head of Clinical Development

Jay Pepose, MD, Medical Advisory Board & Corporate Board Member

Susan Benton, Corporate Board Member

Charlie Hoffmann, MBA, VP of Corporate Development and Operations

Amy Rabourn, MAcc, VP of Finance

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# Ocuphire Pipeline & Upcoming Milestones

Multiple Phase 3 & Phase 2 Clinical Data Readouts Anticipated Over The Next Year

	Product Candidate	Indication	Development Stage				Anticipated Milestones
			Pre-clinical	Phase 1	Phase 2	Phase 3	
Ocuphire-Focused Development	0.75% Nyxol® Eye Drop	Reversal of Mydriasis (RM)	Positive Data Readout				Initiated Phase 3 MIRA-2 trial 4Q20; Topline data reported in 1Q21 (n=185)
							Initiate Phase 3 MIRA-3 trial 2H21; Data expected in early 2022 (n=330)
							Initiate Pediatric trial 2H21; Data expected in early 2022 (n=20)
	0.75% Nyxol® Eye Drop	Dim Light or Night Vision Disturbances (NVD)					Initiated Phase 3 LYNX-1 trial 4Q20; Data expected in 3Q21 (n=160)
	0.75% Nyxol® + Low-Dose 0.4% Pilocarpine Eye Drops	Presbyopia (P)	Positive Data Readout				Initiated Phase 2 VEGA-1 trial 1Q21; Topline data reported in 2Q21 (n=150)
APX3330 Oral Pill	Diabetic Retinopathy (DR)/ Macular Edema (DME)					Initiated Phase 2 ZETA-1 trial Apr21; Data expected by early 2022 (n=100)	
Partnering-Focused Development	APX2009 Intravitreal	DME, Wet Age-Related Macular Degeneration (wAMD)					Next steps: IND enabling studies (with partner funding)

**Note: 0.75% Nyxol (Phentolamine Ophthalmic Solution) is the same as 1% Nyxol (Phentolamine Mesylate Ophthalmic Solution)**



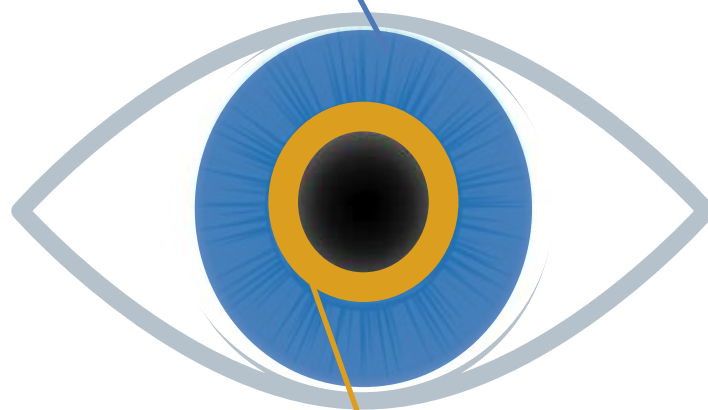
# Product Profile: Nyxol + Low-Dose Pilocarpine (LDP) Combo

*Moderate Use of Iris Dilator And Iris Sphincter Muscles To Improve Near Vision*

## 0.75% Nyxol



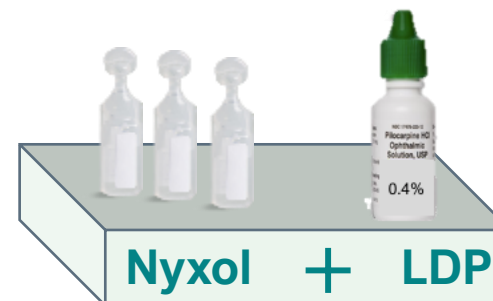
**Iris Dilator  
Muscle  
Inhibition**



**Iris Sphincter  
Muscle  
Activation**

## 0.4% LDP

- Active ingredient approved decades ago 505(b)(2)
- Novel MOA on iris dilator with 24+ hour durability with moderate 1+mm pupil reduction
- Chronic daily dosing of Nyxol at bedtime demonstrated no daytime redness
- Well-tolerated with no systemic effects
- Stable, preservative-free, single use vial



- Active ingredient approved decades ago 505(b)(2)
- Known MOA on sphincter muscle with more potent miotic effects at approved doses (1%, 2%, 4%)
- Chronic daily dosing in daytime
- Low concentration avoids known tolerability issues:
  - headache and browache
  - redness
  - accommodative spasm causing loss of distance vision especially at night

# Potential 'Best in Class' Presbyopia Drop

*Topline Results From Vega-1 Were Positive...*

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## ***Nyxol + LDP Presbyopia Treatment is Differentiated:***

- ✓ **Statistically significant efficacy data**
- ✓ **Favorable safety profile**
- ✓ **Comfort and tolerability**
- ✓ **Fast onset**
- ✓ **Long duration**
- ✓ **Maintain good distance visual acuity (night/day)**
- ✓ **Novel tunable pupil modulation**



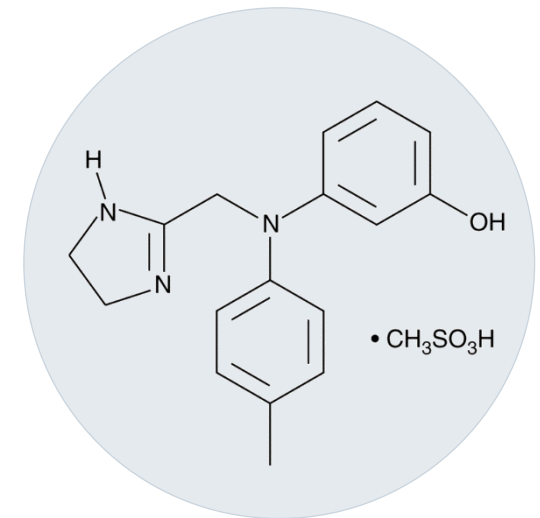
# Nyxol<sup>®</sup>



**RM** Reversal of Mydriasis

**NVD** Night Vision Disturbances

**P** Presbyopia



Phentolamine  
Mesylate

## Topline VEGA-1 Phase 2 Results

*Randomized, Multi-Center, Double-Masked, Placebo-Controlled Study of the Safety and Efficacy of Nyxol (0.75% Phentolamine Ophthalmic Solution) + 0.4% Low Dose Pilocarpine (LDP) for the Treatment of Presbyopia*

Clinical trial NCT#04675151



# Objectives and Key Eligibility Criteria

*VEGA-1 (OPI-NYXP-201) Phase 2 Trial Evaluating Nyxol + LDP for Treatment of Presbyopia*

## Key Objectives

### PRIMARY

- To evaluate the efficacy of Nyxol + LDP to improve DCNVA compared to Placebo alone in presbyopia subjects

### KEY SECONDARY

- To evaluate the ocular and systemic safety of Nyxol + LDP and each component individually
- To evaluate multiple secondary visual acuity and pupil diameter endpoints

## Key Eligibility Criteria

### INCLUSION

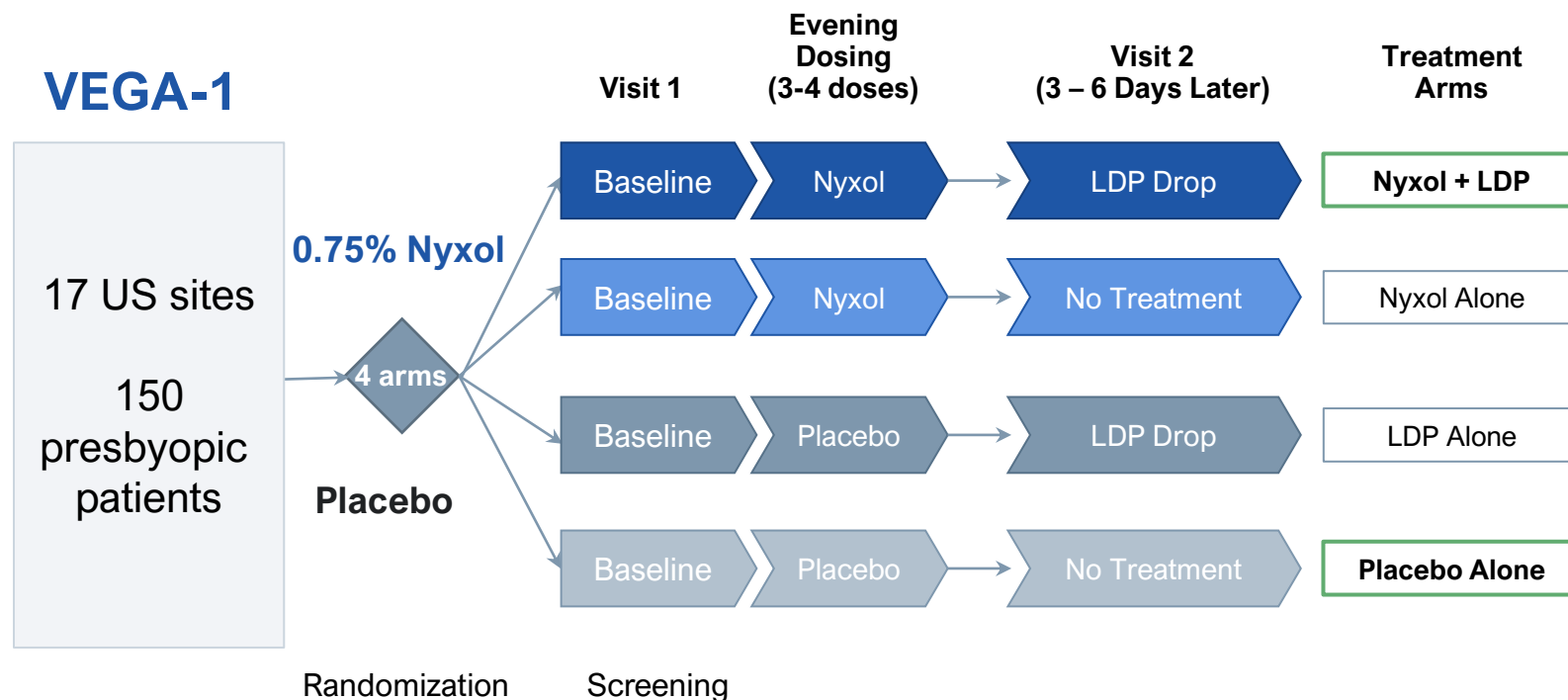
- Males or females  $\geq 40$  and  $\leq 64$  years of age.
- BCDVA of 20/20 or better under photopic conditions
- DCNVA of 20/50 or worse under photopic conditions
- Binocular best-corrected near VA is 20/25 or better

### EXCLUSION

- Clinically significant ocular disease
- Recent or current evidence of ocular infection or inflammation in either eye

# Presbyopia VEGA-1 Phase 2 Design

*Randomized, Double-Masked, Placebo-Controlled One-Week Trial*



## Endpoints

**Primary:** % of subjects with  $\geq 3$  lines of improvement in distance-corrected near visual acuity comparing Nyxol + LDP vs placebo alone at 1 hour

### Secondary:

- % of subjects with  $\geq 2$  and  $\geq 3$  lines gained at time points from 30 min to 6 hours in photopic and mesopic lighting comparing Nyxol + LDP vs placebo, Nyxol alone, and LDP alone
- No loss of distance vision
- Pupil diameter at time points
- Safety and tolerability (redness)

**Phase 2 Enrollment Completed Feb to May 2021 – 150 Subjects**

**Reporting Topline Results as Guided by End of 2Q21**

# Patient Population – Subject Disposition

*Per Protocol Population, mITT, And Safety Population Are Essentially Identical*

	Placebo Alone N (%)	Nyxol Alone N (%)	LDP Alone N (%)	Nyxol+LDP N (%)	Total N (%)
<b>All Randomized Population (ARP)</b>	45	30	31	44	150
<b>Safety Population (SP)</b>	45 (100%)	30 (100%)	31 (100%)	44 (100%)	150 (100%)
<b>Modified Intention to Treat Population (mITT)</b>	44 (98%)	30 (100%)	31 (100%)	43 (98%)	148 (99%)
<b>Per Protocol Population (PP)</b>	43 (96%)	30 (100%)	31 (100%)	43 (98%)	147 (98%)
<b>Completed Study</b>	44 (98%)	30 (100%)	31 (100%)	43 (98%)	148 (99%)
<b>Discontinued Study Early</b>	1 (2%)	0	0	1 (2%)	2 (1%)

- 148/150 subjects completed the study (mITT)
- Only a single subject difference between mITT and PP population
- Per Statistical Analysis Plan, all analyses performed on PP population with results being nearly identical for mITT

# Demographics (PP Population)

*Treatment And Placebo Arms Were Balanced In This Phase 2 Clinical Trial*

	Placebo Alone N=43	Nyxol Alone N=30	LDP Alone N=31	Nyxol+LDP N=43	Total N=147
<b>Age (years):</b> Median (Range)	52 (42-62)	54 (41-60)	52 (44-64)	53 (43-63)	53 (41-64)
<b>Sex: Male</b> n (%)	15 (35%)	7 (23%)	13 (42%)	5 (12%)	40 (27%)
<b>Female</b> n (%)	28 (65%)	23 (77%)	18 (58%)	38 (88%)	107 (73%)
<b>Race: White</b> n (%)	37 (86%)	26 (87%)	28 (90%)	40 (93%)	131 (89%)
<b>African American</b> n (%)	4 (9%)	0 (0%)	1 (3%)	0 (0%)	3 (2%)
<b>Asian</b> n (%)	2 (5%)	0 (0%)	6 (6%)	6 (6%)	11 (5%)
<b>Other*</b> n (%)	0 (0%)	1 (3%)	1 (3%)	0 (0%)	2 (1%)
<b>Dark Iris Color:</b> n (%)	18 (42%)	12 (40%)	12 (39%)	18 (42%)	60 (41%)
<b>Light Iris Color:</b> n (%)	25 (58%)	18 (60%)	19 (61%)	25.1 (58%)	87 (59%)

\* includes American Indian or Alaska Native; Native Hawaiian or Other Pacific Islander

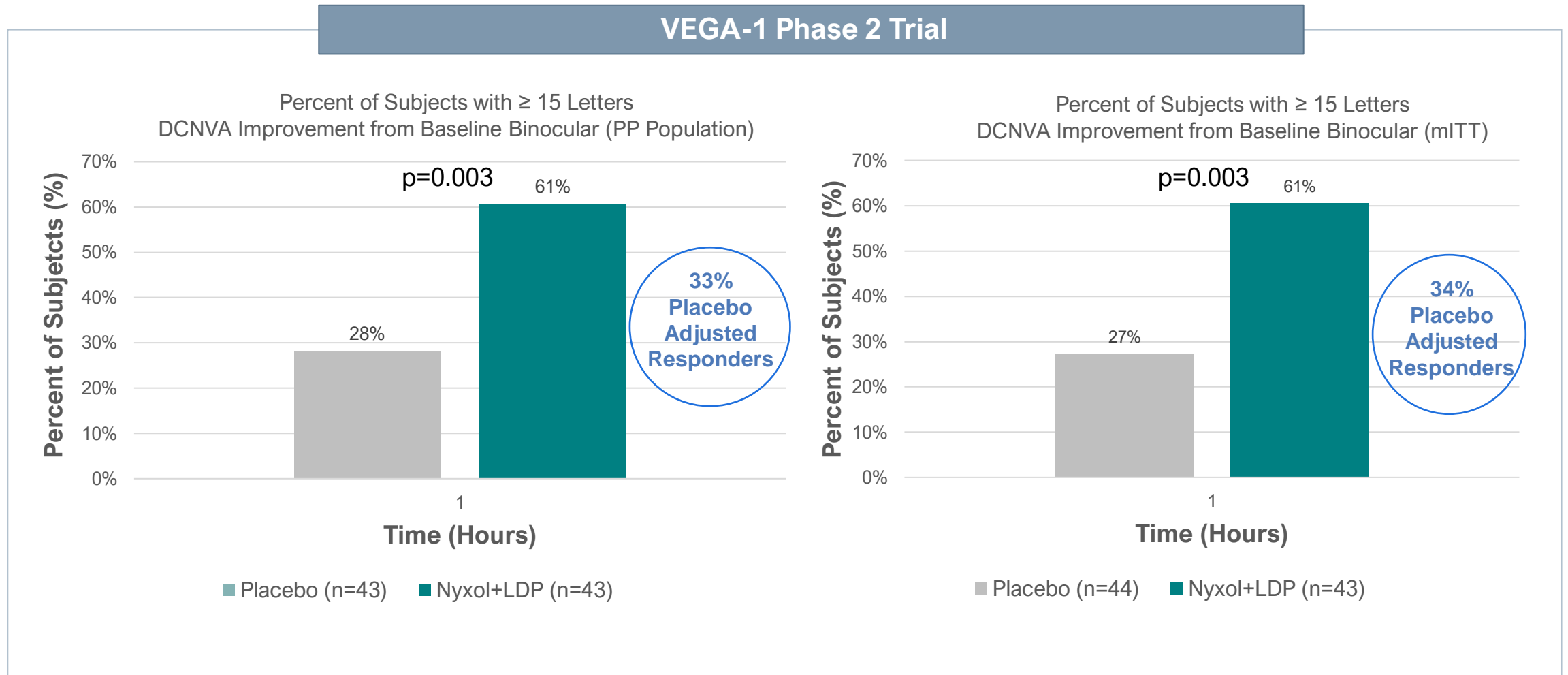
# Baseline Characteristics Study Eye (PP Population)

*Treatment Arms Were Balanced Across Key Ocular Measurements*

	Placebo Alone N=43	Nyxol Alone N=30	LDP Alone N=31	Nyxol+LDP N=43	Total N=147
<b>Baseline Characteristic</b>					
<b>Photopic DCNVA Mean Letters read-Binocular (Snellen Equiv.)</b> <i>70 letters = 20/20</i>	46 (20/63)	45 (20/63)	48 (20/63)	46 (20/63)	46 (20/63)
<b>Photopic BCDVA Mean Letters read-Binocular (Snellen Equiv.)</b> <i>55 letters = 20/20</i>	62 (20/15)	61 (20/15)	60 (20/15)	61 (20/15)	61 (20/15)
<b>Photopic Pupil Diameter Mean (mm)</b>	4.3	4.5	4.3	4.3	4.3
<b>Mesopic Pupil Diameter Mean (mm)</b>	5.1	5.0	5.0	5.1	5.1
<b>IOP (mmHg)</b>	13.5	14.8	13.9	14.4	14.1

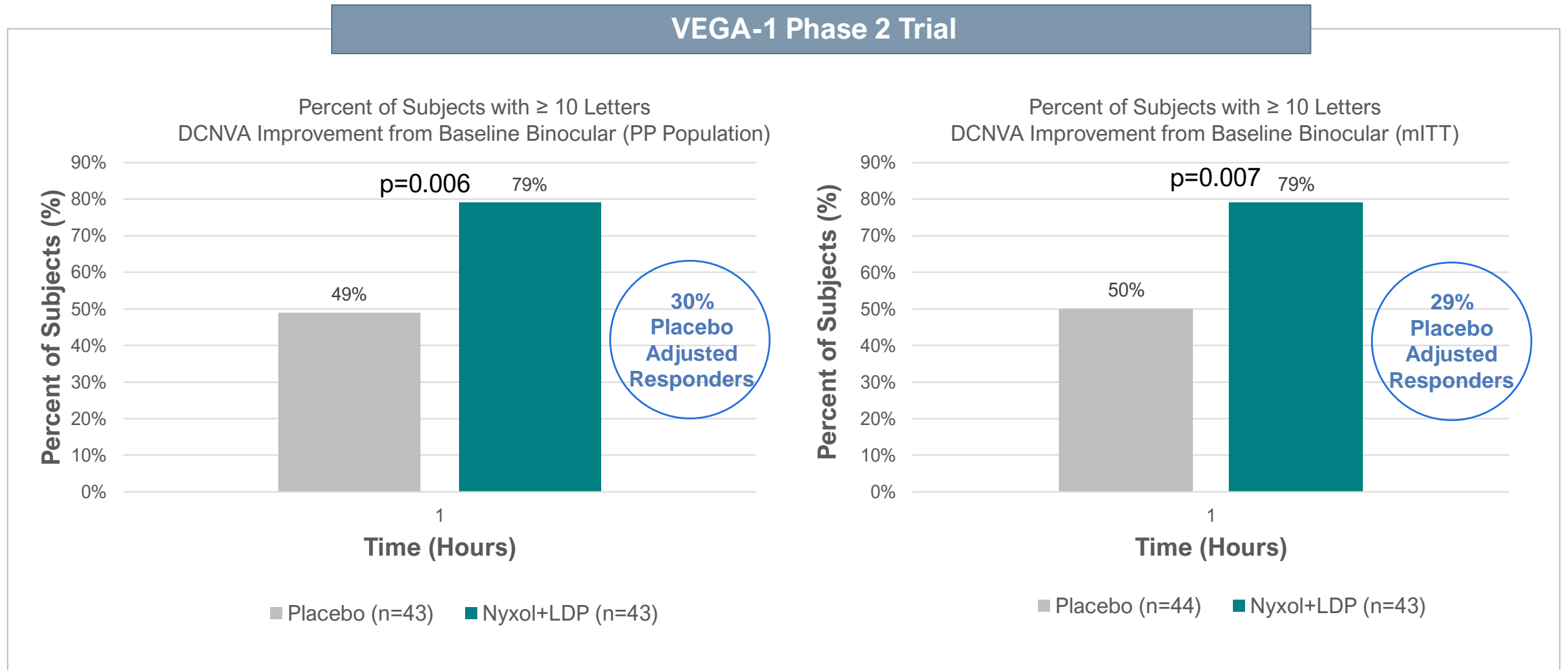
# Primary Endpoint: % of Subjects $\geq 15$ Letter Gain in Photopic DCNVA at 1 Hour

*Primary Endpoint Was Met For Nyxol + LDP Gaining  $\geq 15$  Letters Near Vision In PP Population*



# Secondary Endpoint: % of Subjects $\geq 10$ Letter Gain In Photopic DCNVA At 1 Hour

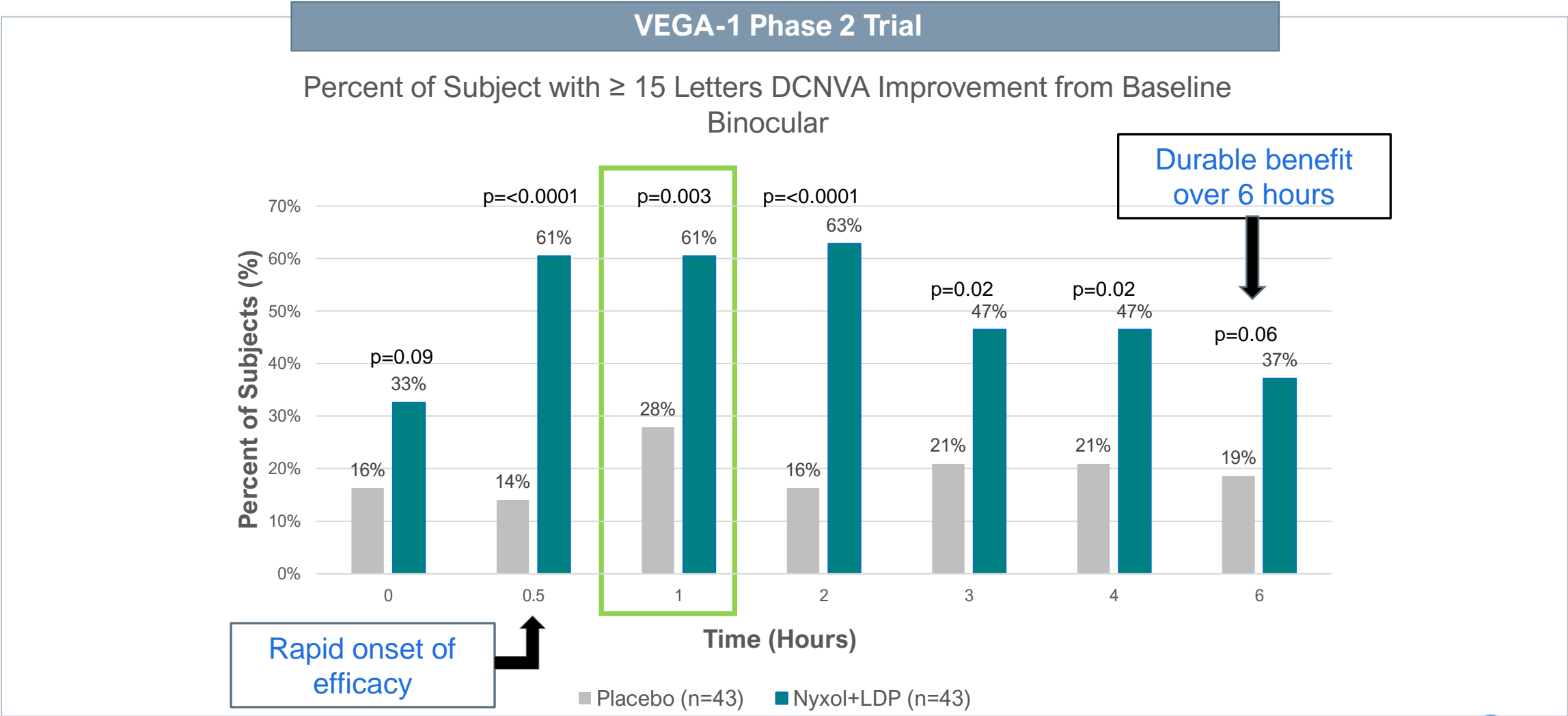
*Many Subjects Treated With Nyxol + LDP Gained A Clinically Meaningful  $\geq 10$  Letters*





# Secondary Endpoint: % of Subjects $\geq 15$ Letter Gain At All Timepoints

*Nyxol + LDP Had Strong Response With  $\geq 15$  Letter Gain From 30 Min To 6 Hours*



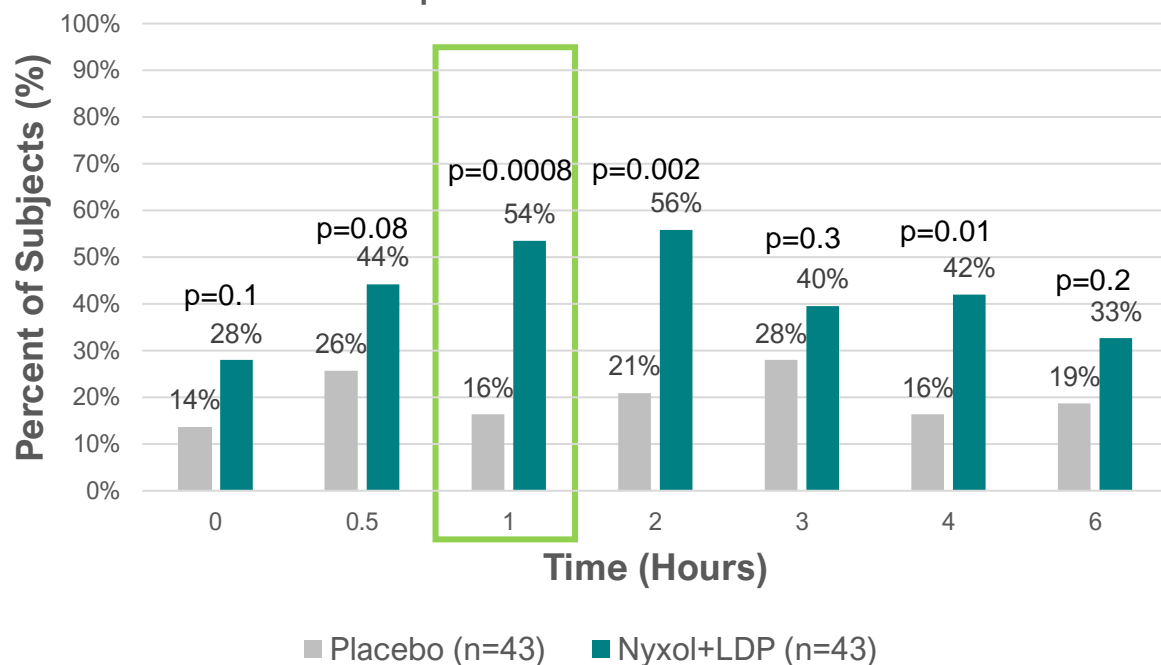
## Secondary Endpoint: % of Subjects $\geq 15$ Letter Gain DCNVA (Monocular)

*Similar Results Were Seen Monocularly For Study Eye And Fellow Eye On Primary Endpoint*

### VEGA-1 Phase 2 Trial

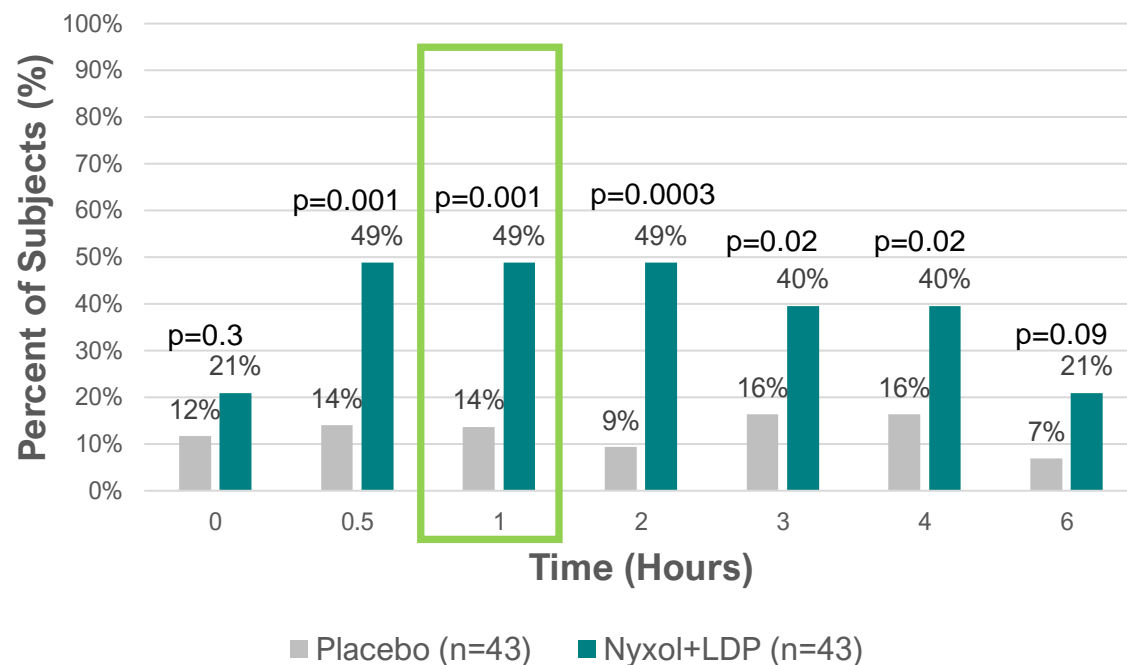
#### Study Eye

Percent of Subjects with  $\geq 15$  Letters DCNVA Improvement from Baseline



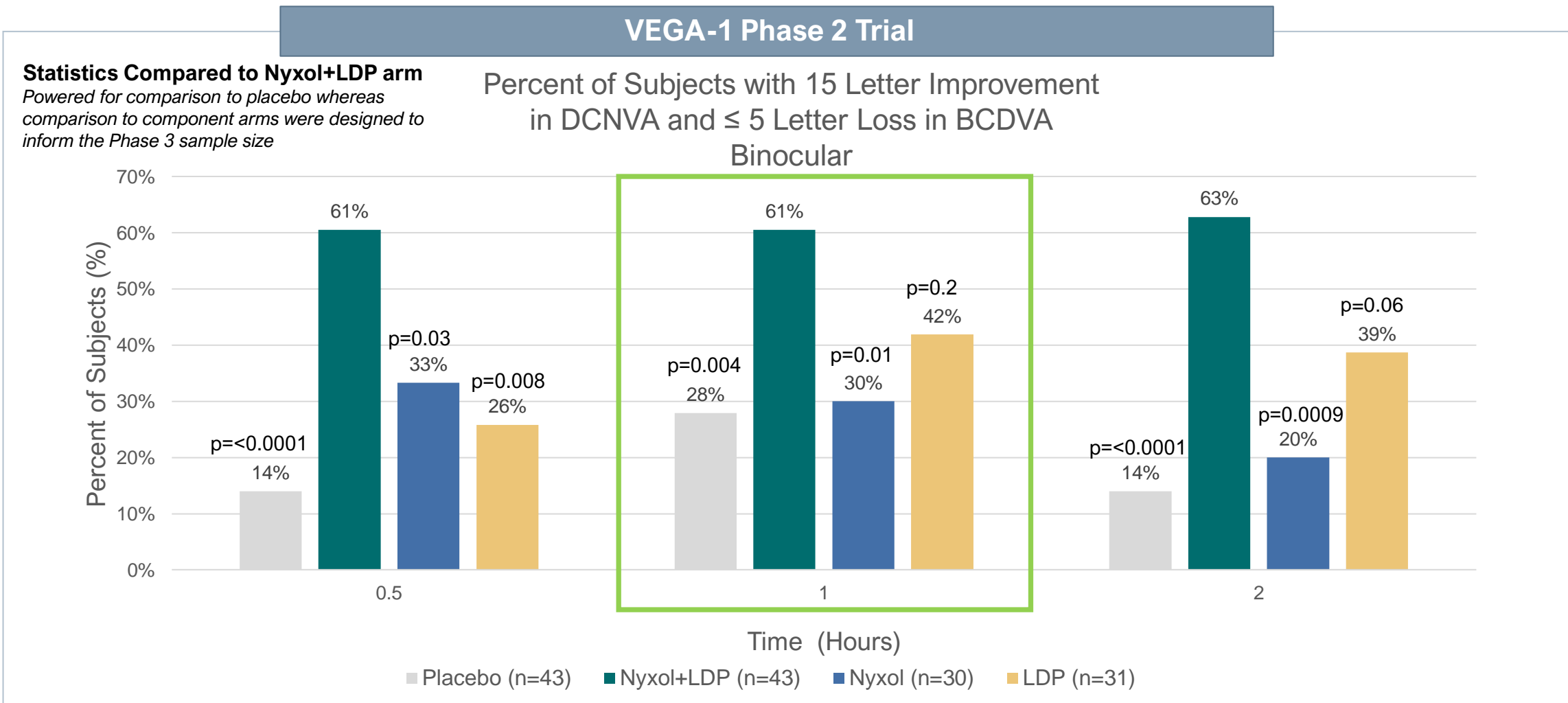
#### Fellow Eye

Percent of Subjects with  $\geq 15$  Letters DCNVA Improvement from Baseline



## 2nd Endpoint: % of Subjects $\geq 15$ Letter Gain In Near & $\leq 5$ Letter Loss In Distance

*Phase 3 Approval Endpoint Also Showed Early Onset Of Near Vision Gain Without Loss of Distance*

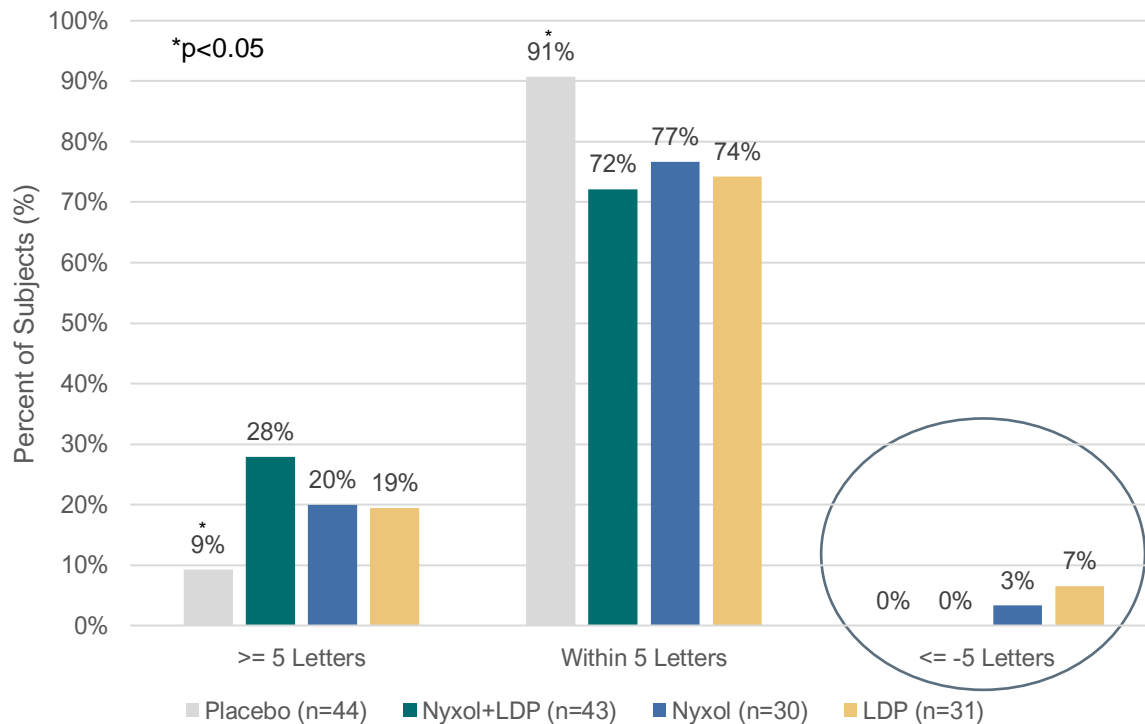


# Change in Photopic and Mesopic BCDVA at the 1-Hour Timepoint

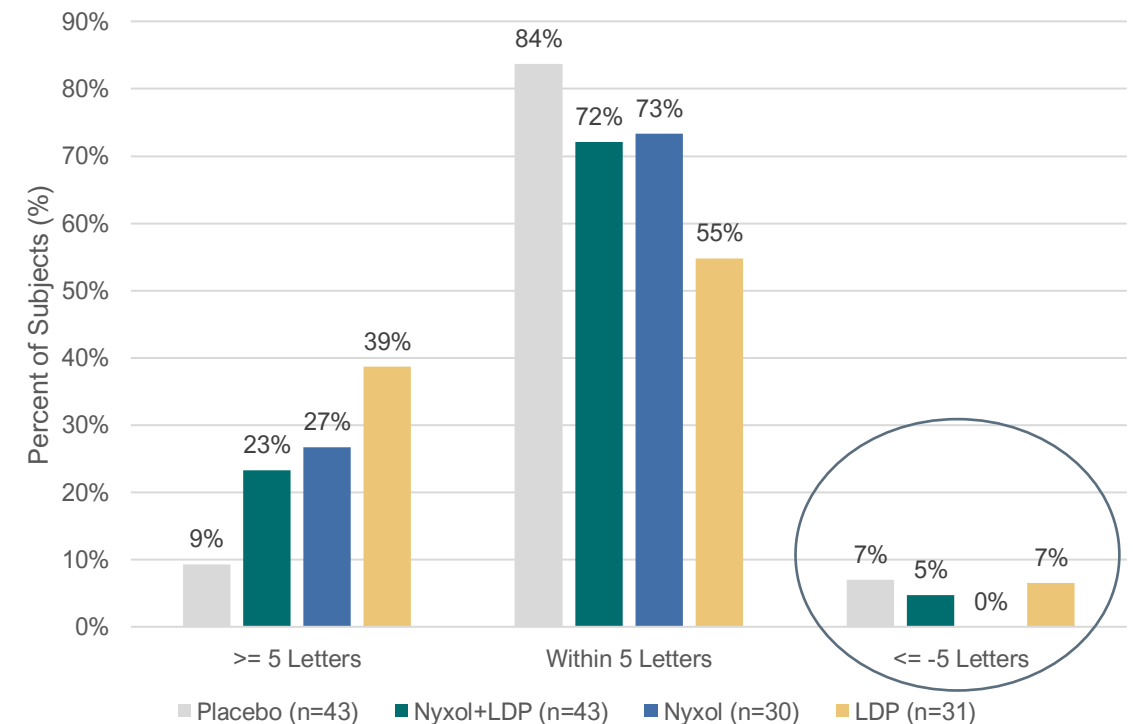
*Treatment With Nyxol And/Or LDP Did Not Reduce BCDVA And Had A Modest Beneficial Effect*

## VEGA-1 Phase 2 Trial

Percent of Subjects With Improvement or Loss From Baseline in Photopic BCDVA at 1 Hour

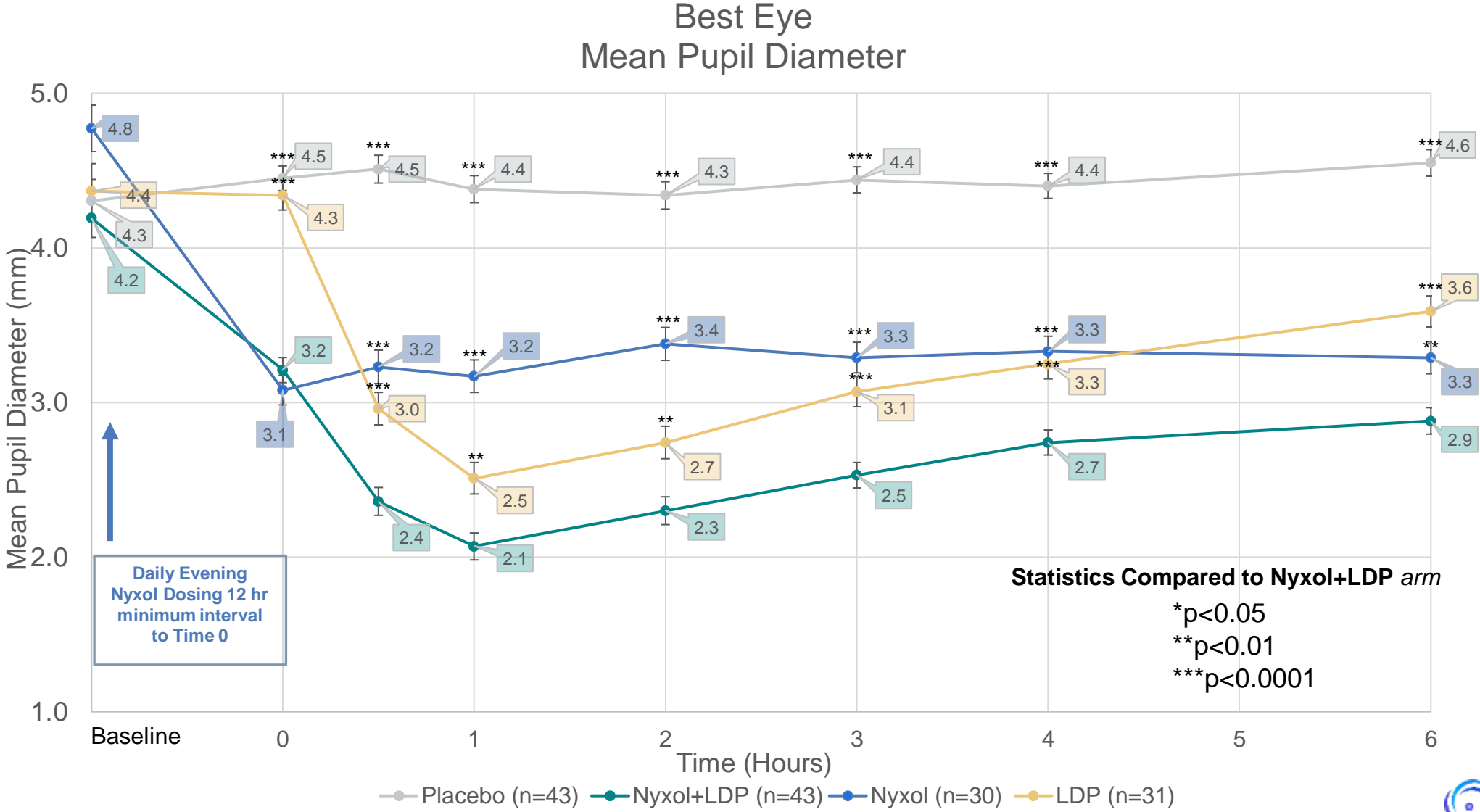


Percent of Subjects With Improvement or Loss From Baseline in Mesopic BCDVA at 1 Hour



# Secondary Endpoint: Mean Pupil Diameter Over Time

*Achieved Pupil Size ~2mm In Nyxol+LDP Consistent With 3-line Improvement In Near Vision*



# Secondary Endpoint: Safety Findings

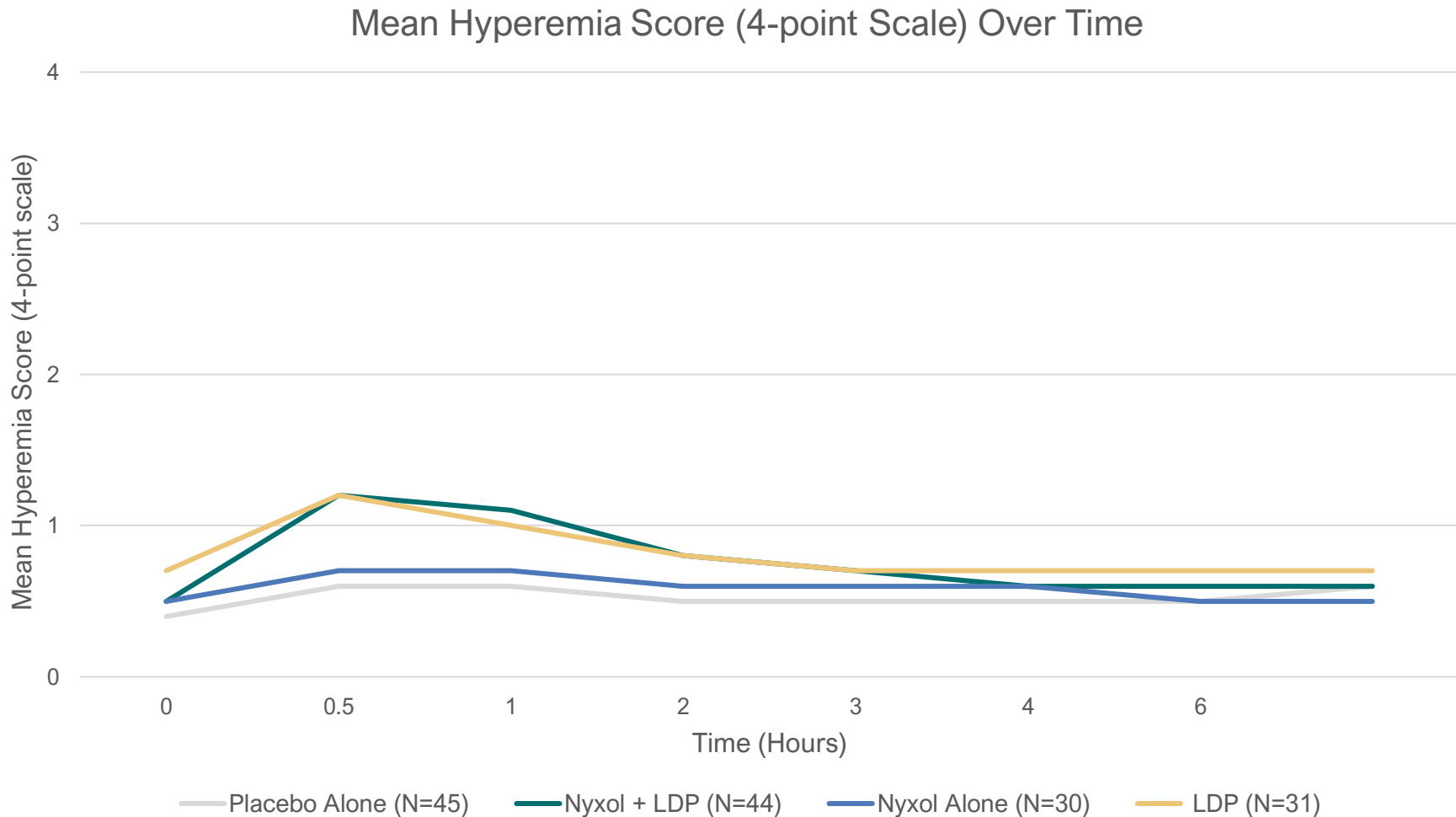
*Nyxol+LDP Combination Was Well Tolerated With A Favorable Safety Profile In VEGA-1 Trial*

	Placebo Alone n=45	Nyxol Alone n=30	LDP Alone n=31	Nyxol+LDP n=44
<b>Total Treatment Emergent Adverse Events (n)</b>	4	18	13	50
<b>TEAEs by Severity (n [%])</b>				
Mild	1 (2.2%)	6 (20%)	6 (19.4%)	<b>13 (29.5%)</b>
Moderate	1 (2.2%)	0 (0%)	0 (0%)	<b>1 (2.3%)</b>
Severe	0 (0%)	0 (0%)	0 (0%)	<b>1 (2.3%)</b>
<b>AEs Occurring in ≥ 5% of subjects (n [%])</b>				
Instillation Site Pain (Mild)	1 (2.2%)	3 (10%)	0 (0%)	<b>4 (9.1%)</b>
Instillation Site Erythema (Mild)	0 (0%)	3 (10%)	2 (6.5%)	<b>5 (11.4%)</b>
Conjunctival Hyperemia (Mild)	0 (0%)	2 (6.7%)	0 (0%)	<b>2 (4.5%)</b>
Eye Disorders (Mild)	1 (2.2%)	2 (6.7%)	4 (12.9%)	<b>5 (11.4%)</b>

- No deaths, no serious AEs, and 1 withdrawal due to AEs (on Nyxol alone)
- **0% Headaches or Browaches reported for Nyxol+LDP and Nyxol alone**
- Only 1 subject in LDP alone arm reported mild headache
- Almost all AEs were mild and most common was mild instillation site discomfort
- **Distance visual acuity not adversely affected (as shown earlier)**
- No change in IOP

# Tolerability: Conjunctival Hyperemia (Redness) Score

*Minor Change (0.5 Point) In Redness Score Over The First 2 Hours In LDP Arms*





# Summary of Positive VEGA-1 Phase 2 Results for Nyxol Eye Drops

*Efficacy Data In Subjects With A Favorable Safety Profile In Presbyopia With Nyxol And Low Dose Pilocarpine*

- **Met the primary endpoint** with statistical significance for binocular photopic near vision at 1 hour
  - 61% Nyxol + LDP gained 15 letters (3 lines) or more vs. 28% Placebo (33% Placebo Adjusted)
- **Met the Phase 3 co-primary endpoint** vs. placebo gaining 15 letters (3 lines) near vision with less than 5 letters of distance vision loss
- **Met many key secondary endpoints**
  - Rapid onset at 30 min
  - Durable near vision improvement through at least 6 hours
  - Nyxol+LDP was numerically better than each component through 2-hours
  - Sustained significant reduction in PD over at least 18 hours due the durability effects of Nyxol
  - Near vision efficacy seen monocularly and binocularly
  - Also, efficacy data in both light and dark iris colors
- **Favorable safety profile for Nyxol + LDP**
  - No serious AEs
  - No systemic AEs were observed in >5% subjects
  - No headaches, no browaches, and no blurry vision AEs were reported
  - Only mild, transient conjunctival hyperemia observed in <5% of subjects
- **Positive Phase 2 results lead to advancing Phase 3 presbyopia program**

# Next Steps

*Ocuphire Plans To Present Full Results At ASCRS In July And Move Into Phase 3*

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**VEGA-1 Presbyopia Presentation by Dr. Pepose at ASCRS on Sunday July 25, 2021 at 8:45am**  
ASCRS Paper ID 76645 SPS-204 Presbyopia Correcting IOL Comparisons, New Treatments and Studies  
MBCR - Level 2, Lagoon EF

*MIRA-2 Reversal of Mydriasis Presentation by Dr. Pepose at ASCRS on Monday July 26, 2021 at 4:25pm*  
*ASCRS Paper ID 76599 SPS-316 Corneal Diagnostic Studies*  
*MBCR - Level 2, Lagoon EF*

**Advance into Phase 3 Presbyopia Registration  
Trials in 2022 Towards a Potential NDA in 2023**

# Presbyopia Market Opportunity

# Presbyopia – Chronic Opportunity

*Aging Population Drives Demand for Alternatives to Reading Glasses & Very Large Market*

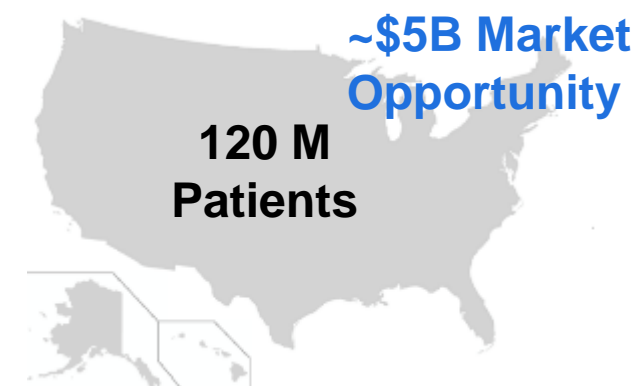
## The Problem

- Lens loses ability to change shape when viewing objects up close as we age
- Dependence on reading glasses for intermittent and prolonged use
- Growing need for therapies that improve, rather than hinder, quality of life

“Effectively everyone over 40 will have the problems with reading.”

*Physician KOL*

**No Currently Approved Drug Therapies**



## Seeking Treatment Findings

Patients requesting alternative to reading glasses	40%
Patients would consider an eye drop alternative	69%

# Presbyopia – Chronic Opportunity

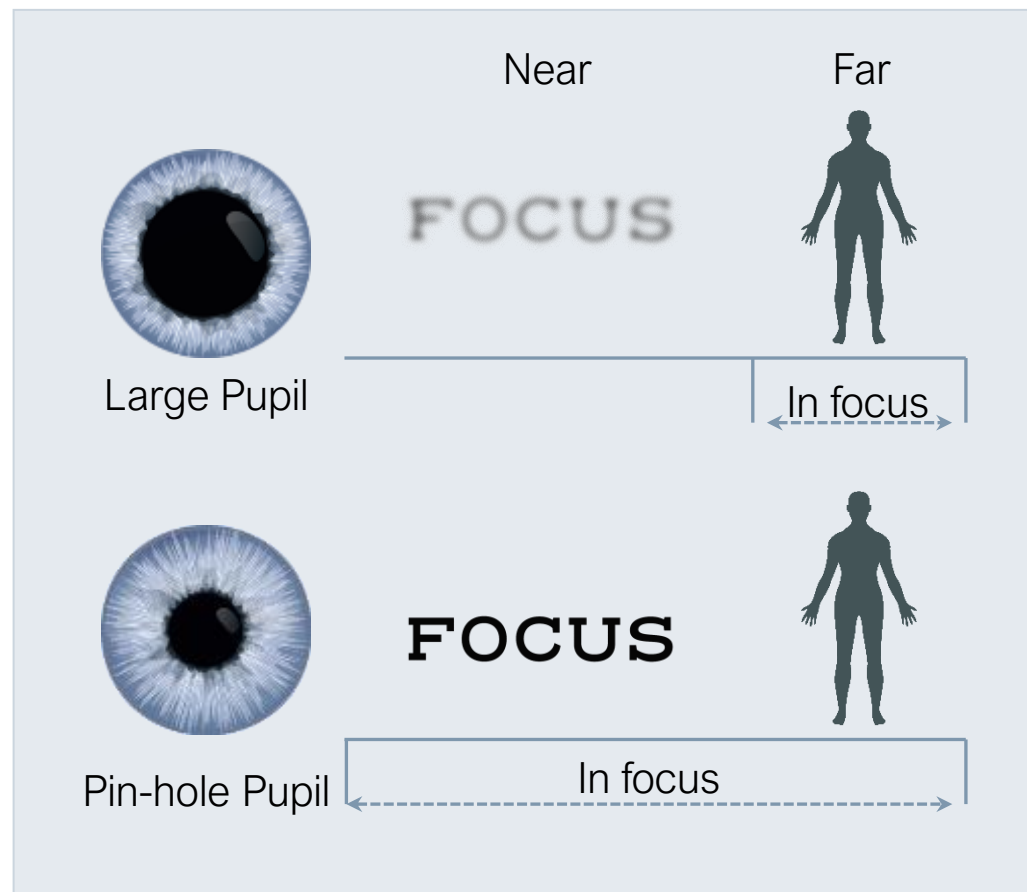
*Pupil Modulation Eye Drops May Replace Reading Glasses*

## Nyxol's Potential Differentiated Solution

- **“Pin-hole”** effect of Nyxol and low dose pilocarpine may improve near vision by increasing depth of focus as validated by other devices/therapies
- **More durable** combination of two miotics affecting different muscles (iris dilator and sphincter) involved in pupil size modulation
- **Tolerable** use with minimal side effects expected with chronic evening use of Nyxol

*“This would just become part of my daily routine for my eyes to be able to see things up close. How convenient is that?”*

*Presbyopic Patient, age 49*



# Synergistic Effects of Nyxol + Low-Dose Pilocarpine (LDP) Combo

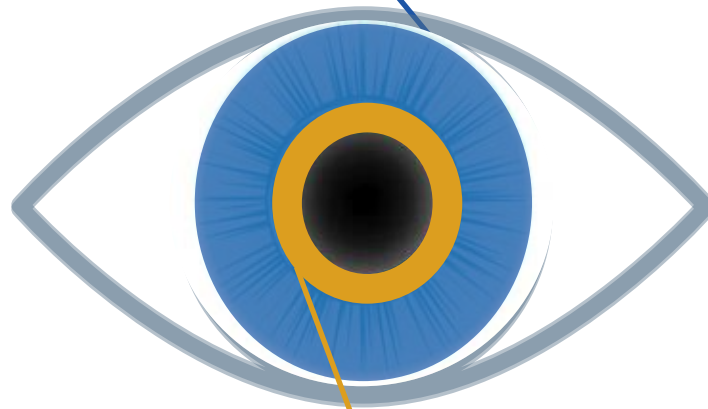
*Nyxol + LDP Demonstrated Efficacy and a Favorable Safety Profile in VEGA-1 Trial*

**0.75% Nyxol**

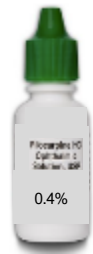


**Iris Dilator Muscle Inhibition**

**~0.7 to 1+ mm Reduction in PD<sup>1</sup>**



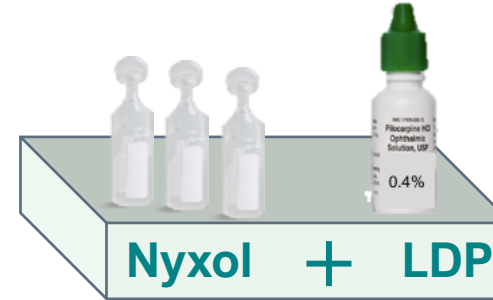
Average PD in photopic conditions is 3.5 to 4.5 mm



**0.4% LDP**

**~1 to 1.5+ mm Reduction in PD**

**Iris Sphincter Muscle Activation**



1.5 to 2.5 mm PD reduction moves toward the pin-hole (1.6 to 2.5 mm, up to <3 mm)

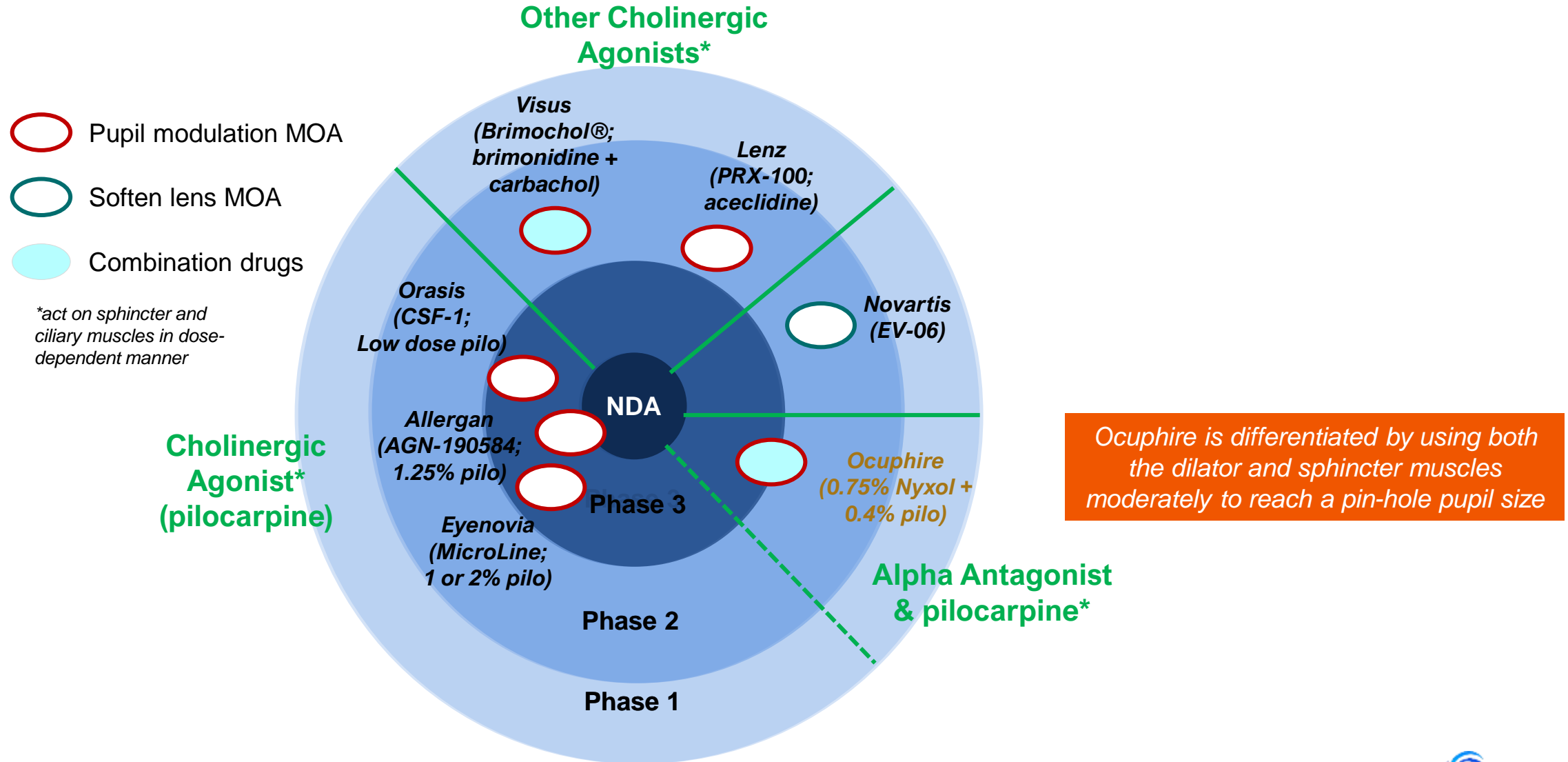
≥ 3-line improvement in near vision expected

**Benefits of Nyxol + LDP:**

- Observed longer durability of effect → inhibition of the dilator muscle with Nyxol may allow sphincter muscle to constrict without opposition and the long-acting effects of Nyxol
- Lower dose of pilocarpine showed a moderate miotic effect on sphincter muscle
- Lower dose of pilocarpine showed reduced known side effects such as headaches, browaches, and day/night distance loss

# Presbyopia Eye Drops Competitive Landscape

Validation of Pupil Modulating Drops Achieving Pin-Hole Effect & Efficacy, Many with Pilocarpine





# Potential 'Best in Class' Presbyopia Drop

*Competitive Approaches Limited by Safety/Tolerability, Durability, and Poor Distance Night Vision*

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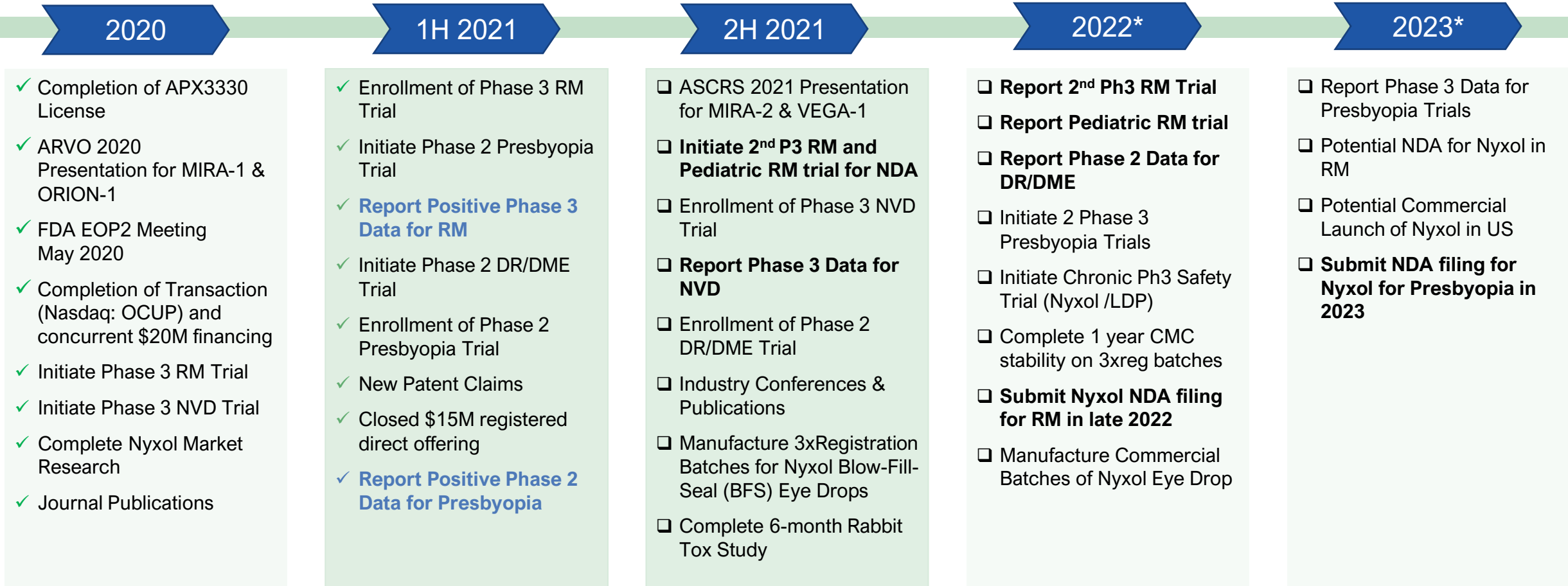
## ***Nyxol + LDP Presbyopia Treatment is Differentiated:***

- ✓ **Statistically significant efficacy data**
- ✓ **Favorable safety profile**
- ✓ **Comfort and tolerability**
- ✓ **Fast onset**
- ✓ **Long duration**
- ✓ **Maintain good distance visual acuity (night/day)**
- ✓ **Novel tunable pupil modulation**

## Future Milestones

# 2021 to 2022 Ocuphire Cadence of Milestones

*Multiple Data Catalysts On Path To NDA(s)*



Ongoing partnering discussions with leading ophthalmic companies (including European and Asian players)

\*Additional Studies for NVD and DR based on Data Readouts



Q&A

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