Disclosures and Forward Looking Statements

This presentation contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. Such statements include, but are not limited to, statements concerning Ocuphire Pharma, Inc.’s (“Ocuphire” or the “Company”) product candidates and potential. These forward-looking statements are based upon the Company’s current expectations and involve assumptions that may never materialize or may prove to be incorrect. Actual results and the timing of events could differ materially from those anticipated in such forward-looking statements as a result of various risks and uncertainties, including, without limitation: (i) potential adverse reactions or changes to business relationships resulting from the announcement or completion of the merger; (ii) the success and timing of regulatory submissions and pre-clinical and clinical trials; (iii) regulatory requirements or developments; (iv) changes to clinical trial designs and regulatory pathways; (v) changes in capital resource requirements; (vi) risks related to the inability of the Company to obtain sufficient additional capital to continue to advance its product candidates and its preclinical programs; (vii) legislative, regulatory, political and economic developments, and (viii) the effects of COVID-19 on clinical programs and business operations. The foregoing review of important factors that could cause actual events to differ from expectations should not be construed as exhaustive and should be read in conjunction with statements that are included herein and elsewhere, including the risk factors detailed in documents that have been and may be filed by the Company from time to time with the SEC (including the proxy statement/prospectus included in that certain Registration Statement on Form S-4 (File No. 333-239702) initially filed with the SEC on July 6, 2020 and declared effective by the SEC on October 2, 2020). All forward-looking statements contained in this presentation speak only as of the date on which they were made. The Company undertakes no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they were made.

The Company makes no representation or warranty, express or implied, as to the accuracy or completeness of the information contained in or incorporated by reference into this presentation. Nothing contained in or incorporated by reference into this presentation is, or shall be relied upon as, a promise or representation by the Company as to the past or future. The Company assumes no responsibility for the accuracy or completeness of any such information. This presentation may not be reproduced or provided to any other person (other than your advisor) without our prior written consent. By accepting delivery of this presentation, you agree to the foregoing and agree to return this presentation and any documents related thereto and any copies thereof to us or to destroy the same if you do not make an investment in any securities. The information contain within this presentation shall not, except as hereinafter provided, without the prior written consent of the Company, be disclosed by you or your representatives in any manner whatsoever, in whole or in part, and shall not be used by you or your representatives other than for the purpose of evaluating the transaction described herein. By accepting delivery of this presentation you further acknowledge and agree aware of the restrictions imposed by the United States securities laws on the purchase or sale of securities by any person who has received material, nonpublic information from the issuer of the securities or any affiliate thereof and on the communication of such information to any other person when it is reasonably foreseeable that such other person is likely to purchase or sell such securities in reliance on such information for so long as the information remains material and non-public. This presentation also contains estimates and other statistical data made by independent parties and by us relating to market shares and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. The trademarks included herein are the property of the owners thereof and are used for reference purposes only. Such use should not be construed as an endorsement of such products.
Ocuphire - New Public Ophthalmic Drug Development Company

*Nasdaq Symbol: OCUP*

- Nasdaq public listing allows for capital access, investor liquidity, and strategic visibility
  - Reverse merger with Rexahn and financing transaction announced in June, closed in November
  - Ocuphire management team, expanded board and field-leading SAB
  - No Rexahn legacy operating/capital obligations (CVR for Rexahn shareholders on existing agreements with Biosense and Haichang)
  - REXN represented by Oppenheimer for the merger
- Concurrent $21+ million PIPE financing led by Altium Capital
  - Pro forma cash provides sufficient capital to fund 4 late-stage clinical trials through their respective readouts in 2021
  - Financing co-led by Cantor Fitzgerald and Canaccord Genuity
- Ocuphire focusing exclusively on ophthalmic drug development
  - Two lead assets: Nyxol Eye Drops and APX3330 oral tablets
  - Two Phase 3 trials and two Phase 2 trials expected to readout in 2021
## Ocuphire Management Team

### Decades of Biotech and Drug Development Experience

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Experience and Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mina Sooch, MBA</td>
<td>Chief Executive Officer</td>
<td>25 years in pharma/biotech industry as a CEO, entrepreneur, venture capitalist and strategist. Raised over 100 million dollars for 2 biotechs, then led private to public on Nasdaq. Recognized as MI Newsmaker of the Year.</td>
</tr>
<tr>
<td>Charlie Hoffmann, MBA</td>
<td>VP Corporate Development and Operations</td>
<td>25 years in life sciences fundraising, corporate finance, licensing and M&amp;A transactions, and corporate development. Long time advisor to Ocularis/Nyxol.</td>
</tr>
<tr>
<td>Amy Rabourn, CPA</td>
<td>VP Finance</td>
<td>18 years in finance and accounting, for private and public companies, with a focus on life sciences. Held progressive roles including Controller, Director of Finance, and acting CFO.</td>
</tr>
<tr>
<td>Konstantinos Charizanis, PhD, MBA</td>
<td>Senior Director of Market Strategy and R&amp;D</td>
<td>14 years in medical research, product development, market research, and biotech business development, with a focus on financial modeling, patents and genetics.</td>
</tr>
<tr>
<td>Drey Coleman</td>
<td>Director Clinical Operations and Vendor Management</td>
<td>15 years in ophthalmic pharmaceutical research and development as sponsor and CRO with a focus on clinical operations, vendor management, pharma regulations, and successful contract negotiations.</td>
</tr>
</tbody>
</table>
### Late Clinical Stage Company Targeting Large, Unmet Ophthalmic Markets

- Nyxol targets multiple chronic and acute front of the eye indications addressing large markets: Dim Light or Night Vision Disturbances (NVD), Reversal of Mydriasis (RM), and Presbyopia (P)
- APX3330 targets chronic back of the eye indications: Diabetic Retinopathy (DR) and Diabetic Macular Edema (DME), a leading cause of blindness in diabetic patients

### Significant Clinical Data

- Nyxol and APX3330 achieved promising clinical data over multiple Phase 1 and 2 trials
  - Nyxol with > 150 patients treated across 7 trials
  - APX3330 with > 340 patients treated across 11 trials

### Significant IP Portfolio and Small Molecule CMC Advantages

- US and global issued patents thru 2034 obtained for both assets
- Stable, small-molecule drugs
  - Nyxol = single-use, preservative-free eye drop
  - APX3330 = oral pill

### Multiple Near-Term Data Catalysts with Capital Efficient Plan

- 4 late stage trial readouts (2 Phase 3, 2 Phase 2) expected in 1Q through 4Q 2021
- Capital-efficient operations with a Nyxol NDA filing in one or more indications by early 2023
### Large Unmet Opportunities for the Aging Eye

**Developing Drugs to Treat Front & Back of the Eye Diseases**

<table>
<thead>
<tr>
<th>Disease</th>
<th>U.S. Prevalence</th>
<th>$4-10B US Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Night Vision Disturbances</strong></td>
<td>~16M adults</td>
<td></td>
</tr>
<tr>
<td><strong>Reversal of Mydriasis</strong></td>
<td>~100M pupil dilations per year in U.S.</td>
<td></td>
</tr>
<tr>
<td><strong>Presbyopia</strong></td>
<td>~120M</td>
<td></td>
</tr>
<tr>
<td><strong>Diabetic Retinopathy</strong></td>
<td>~7M</td>
<td></td>
</tr>
<tr>
<td><strong>Diabetic Macular Edema</strong></td>
<td>~750K</td>
<td></td>
</tr>
</tbody>
</table>

**Sources:** GlobalData Market Research Report, 2020

**Nyxol®**

**APX3330**
## Ocuphire Pipeline & Upcoming Milestones

*Multiple Phase 3 & Phase 2 Clinical Data Catalysts Expected Throughout 2021*

<table>
<thead>
<tr>
<th>Product Candidate</th>
<th>Indication</th>
<th>Development Stage</th>
<th>Anticipated Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ocuphire-Focused Development</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.75% Nyxol® Eye Drop</td>
<td>Dim Light or Night Vision Disturbances (NVD)</td>
<td>Phase 1</td>
<td>Initiate Phase 3 LYNX-1 trial 4Q2020; Data expected in 3Q21 (n=160)</td>
</tr>
<tr>
<td>0.75% Nyxol® Eye Drop</td>
<td>Reversal of Mydriasis (RM)</td>
<td>Phase 2</td>
<td>Initiate Phase 3 MIRA-2 trial 4Q2020; Data expected in 1Q21 (n=168)</td>
</tr>
<tr>
<td>0.75% Nyxol® + Low-Dose Pilocarpine Eye Drops</td>
<td>Presbyopia (P)</td>
<td>Phase 2</td>
<td>Initiate Phase 2 VEGA-1 trial 1Q2021; Data expected in 2Q21 (n=152)</td>
</tr>
<tr>
<td>APX3330 Oral Pill</td>
<td>Diabetic Retinopathy (DR)/ Macular Edema (DME)</td>
<td>Phase 2</td>
<td>Initiate Phase 2 ZETA-1 trial 1Q2021; Data expected in 4Q21 (n=100)</td>
</tr>
<tr>
<td><strong>Partnership-Focused Development</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APX2009 Intravitreal</td>
<td>DME, Wet Age-Related Macular Degeneration (wAMD)</td>
<td>Phase 2</td>
<td>Next steps: IND enabling studies (with partner funding)</td>
</tr>
<tr>
<td>Combo (0.75% Nyxol® + Latanoprost) Eye Drops</td>
<td>Glaucoma (16 to 24 mmHg)</td>
<td>Phase 2</td>
<td>Next steps: 2nd line add-on Phase 2 trial (with partner funding)</td>
</tr>
</tbody>
</table>

Note: 0.75% Nyxol (Phentalomine Ophthalmic Solution) is the same as 1% Nyxol (Phentalomine Mesylate Ophthalmic Solution)
Extensive Development on Both Drug Candidates

Well-Controlled Phase 1 & Phase 2 Clinical Programs Set Stage for NDA Path

**Nyxol**
- **7** Phase 1 & Phase 2 Trials
- **> 150** Subjects Dosed
- Exposure in Humans **28 Days**
- Patents to **2034+**
- Studied in ocular refractory diseases (NVD) & elderly glaucoma patients

**APX3330**
- **11** Phase 1 & Phase 2 Trials
- **>340** Subjects Dosed
- Exposure in Humans **365 Days**
- Patents to **2034+**
- Studied in inflammation/hepatitis & cancer patients

505(b)(2) Development Pathway
NCE Development Pathway
Nyxol®

- **NVD**: Night Vision Disturbances
- **P**: Presbyopia
- **RM**: Reversal of Mydriasis

Phentolamine Mesylate
### Nyxol History & MOA

**Rationale for Differentiated Product Profile & 505(b)(2) Path**

<table>
<thead>
<tr>
<th>Phentolamine Mesylate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduces Pupil Size</td>
</tr>
<tr>
<td>α1: Iris Dilator Blockade</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dilates Blood Vessels (Vasodilation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>α1: Smooth Muscle Blockade</td>
</tr>
</tbody>
</table>

- Nyxol’s active ingredient, phentolamine mesylate (PM), is currently approved for 2 indications
  - Pheochromocytoma (60+ years ago, Regitine®) – intravenous injection
  - Reversal of oral anesthesia (10+ years ago, OraVerse®) – intramuscular injection
- PM has been reformulated as a topical eye drop (Nyxol)
- Nyxol is a first-in-class non-selective α1 and α2 blocker product candidate
  - MOA of relaxing the iris dilator muscle (α1)
  - Redness is an on-target α1 effect on sclera vessels (transient, mild)
### Nyxol Product Candidate Profile

**First-in-Class Alpha 1/2 Blocker Eye Drop for Refractory Indications**

<table>
<thead>
<tr>
<th>Efficacy Data</th>
<th>Safety Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improving Vision</strong></td>
<td><strong>No Systemic Effects</strong></td>
</tr>
<tr>
<td>↓ Pupil Size (moderate miotic)</td>
<td>No Changes in Blood Pressure</td>
</tr>
<tr>
<td>↑ Contrast Sensitivity (night)</td>
<td>No Changes in Heart Rate</td>
</tr>
<tr>
<td>↑ Near Visual Acuity (light/dark)</td>
<td><strong>Tolerated Topical Effects</strong></td>
</tr>
<tr>
<td>↑ Distance Visual Acuity</td>
<td>Mild / Transient / Reversible Eye Redness</td>
</tr>
</tbody>
</table>

**IOP Unchanged or Decreased**

↓ Intraocular Pressure (IOP) at Normal Baseline

**Chronic daily dosing of Nyxol at bedtime demonstrated no significant daytime redness and durability of effects for more than 24 hours**

**Nyxol: Phentolamine 0.75% Ophthalmic Solution**

Preservative Free, EDTA Free, and Stable
Night Vision Disturbances (NVD) – Chronic Opportunity

Imperfections in the Eye Affect Night Vision in Millions

The Problem

- Peripheral imperfections scatter light when pupils enlarge in dim light, causing halos, starbursts, and glare that impair vision
- The imperfections maybe caused by LASIK surgery, IOL implants, certain types of cataracts (cortical), and natural reasons (especially with age)
- Symptoms cannot be properly corrected by any type of lens (reading glasses, contact lenses) or surgical procedures

No Currently Approved Therapies

<table>
<thead>
<tr>
<th>Moderate-to-Severe NVDs</th>
<th>US Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Night Myopia</td>
<td>10.8M</td>
</tr>
<tr>
<td>Cortical Cataracts</td>
<td>4.1M</td>
</tr>
<tr>
<td>Post-LASIK</td>
<td>500k</td>
</tr>
<tr>
<td>Post-IOL Implant</td>
<td>300k</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>~16M</strong></td>
</tr>
</tbody>
</table>

I’m no longer comfortable driving at night, especially with my son in the car. I have a hard time playing beach volleyball in the evenings due to the bright lights at the courts.

Post-LASIK, aged 42

Source: GlobalData Market Research Report, 2020
Night Vision Disturbances (NVD) – Chronic Opportunity

Peripheral Optical Imperfections Allowing Pupil Modulation as a Solution

Nyxol’s Potential Differentiated Solution

- **Moderate Decrease in Pupil Size** for scattered light gets blocked by the iris
- **Clinical Effect** to potentially improve low contrast night vision as seen in trials
- **Tolerable** with a minimal side effect profile
- **Convenient and Durable** with chronic once-daily evening dose

“\textit{It seems like a simple process with really no side effects}.”

\textit{Cataract respondent, aged 62}
NVD LYNX-1 Phase 3 Registration Design

Planned Randomized, Double-Masked, Placebo-Controlled Trial

**LYNX-1**

- 15 US sites
- ~160 patients with NVD

0.75% Nyxol

daily evening dose (14 days)

Placebo
daily evening dose (14 days)

1:1

Eligibility Screening  Randomization

Phase 3 Start Targeted for 4Q20

Top Line Expected 3Q21

**Endpoints**

**Primary:** % of subjects with $\geq 3$ lines of improvement in mesopic low contrast best-corrected distance visual acuity (Day 8)

**Secondary (Days 8 & 15):**
- Pupil diameter
- Visual acuity measures (distance and near)
- Safety and tolerability (redness)
Nyxol Demonstrated Clinical Effect in NVD

Key Endpoints Observed in Multiple Phase 2 Trials

**Nyxol Demonstrated Clinical Effect in NVD**

**Improving Low Contrast Distance Visual Acuity**

<table>
<thead>
<tr>
<th>% of Eyes with Mesopic Low Contrast Visual Acuity Improvement</th>
<th>Placebo n=16</th>
<th>Nyxol n=32</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 1 line</td>
<td>69%</td>
<td>31%</td>
</tr>
<tr>
<td>≥ 2 lines</td>
<td>6%</td>
<td>34%</td>
</tr>
<tr>
<td>≥ 3 lines</td>
<td>0%</td>
<td>19%</td>
</tr>
</tbody>
</table>

Source: NYX-SNV

**Durable > 24 hour Pupil Modulation Effect**

**Pupil Diameter Change from Baseline in Mesopic Conditions (Study Eye)**

Baseline Pupil Diameter: Placebo 4.6mm, Nyxol 4.7mm

- Day 8: Placebo -0.99, Nyxol -1.00
- Day 15: Placebo -0.88, Nyxol -1.19
- Day 16: Placebo -0.99, Nyxol -1.00

Source: NYXG-201

* NYX-SNV trial was small and not designed for a statistical 3-line improvement in low-contrast visual acuity; the 20% effect was used for powering and size of Phase 3 trial.
Reversal of Mydriasis (RM) – Acute Treatment

Annual Exams and Specialty Visits Involve Dilation to Monitor Eye Health

The Problem

• At every annual eye exam and many specialty visits, patients’ pupils are pharmacologically dilated, impairing vision for 6-24 hours

• Dilated eyes:
  – heightened sensitivity to light
  – inability to focus
  – reading, working, and driving are difficult

"I have to stay indoors. They say it only lasts a few hours, but it lasts all day, and it is very annoying."  
\[\text{RM Patient, Aged 51}\]

No Currently Approved Therapies

~100M eye exams / year in US

Source: GlobalData Market Research Report, 2020
Reversal of Mydriasis (RM) – Acute Treatment

Single Use Indication Leveraging a Precedent Approval Pathway

Nyxol’s Potential Differentiated Solution

• **Regulatory Precedent** with RevEyes (an alpha 1 blocker), approved by the FDA in 1990 but shortly thereafter discontinued (not for safety or efficacy reasons)

• **Clinical Effect** to potentially reduce pupil size and reverse mydriasis by counteracting the drugs (alpha agonists and cholinergic blockers) used to dilate the pupil

• **Convenient** eye drop given at the office that may allow patients’ vision to return to normal sooner

• **Tolerable** with a minimal side effect profile
RM MIRA-2 Phase 3 Registration Design
Planned Randomized, Double-Masked, Placebo-Controlled, Parallel, One-Day Trial

**Endpoints**
- **Primary:** % of subjects returning to baseline (within 0.2 mm) pupil diameter at 90 min or less
- **Secondary:**
  - % of subjects returning to baseline at 30min, 1h, 2h, 3h, 4h, 6h, 24h
  - Mean change in pupil diameter from mydriatic max at all timepoints
  - Accommodation (Tropicamide)
  - Safety and tolerability (redness)

**MIRA-2**
- 12 US sites
- ~168 healthy subjects

**Randomization**
- 1:1

**Mydriasis**
- Time -1 Hour
- 0.75% Nyxol

**Treatment**
- Time 0 (Max Dilation)
- Mydriatic Agent A, B, or C
- Placebo drop(s) (1 day)

**Placebo**
- Mydriatic Agent A, B, or C
- Placebo drop(s) (1 day)

**Eligibility Screening**
- Mydriatic Agents: Phenylephrine, Tropicamide, Paremyd® (combination)

**Phase 3 Start Targeted for 4Q20**

**Top Line Expected 1Q21**
Nyxol Demonstrated Clinical Effect in RM

Key Endpoints Observed from MIRA-1 Phase 2b Trial

Nyxol Reduces More Subjects to Pupil Diameter (PD) Baseline

Percent of Subjects Returning to ≤ 0.2 mm of Baseline after Treatment With either Phenylephrine or Tropicamide

<table>
<thead>
<tr>
<th>Time</th>
<th>Placebo n=31</th>
<th>1% Nyxol n=31</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>1 hour</td>
<td>16%</td>
<td>29%</td>
</tr>
<tr>
<td>2 hours</td>
<td>13%</td>
<td>23%</td>
</tr>
<tr>
<td>4 hours</td>
<td>68%</td>
<td>77%</td>
</tr>
<tr>
<td>6 hours</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: MIRA-1

Nyxol Reduces PD Faster Across Phenylephrine & Tropicamide Mydriatic agents

Reduction in Pupil Diameter after Patients received either Phenylephrine 2.5% or Tropicamide 1.0% in Study Eye

Source: MIRA-1

*p<0.05; **p<0.01; ***p<0.001; ****p<0.0001
Presbyopia – Chronic Opportunity

Aging Population Drives Demand for Alternatives to Reading Glasses

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

Source: GlobalData Market Research Report, 2020
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 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
Presbyopia VEGA-1 Phase 2 Proposed Design

Planned Randomized, Double-Blinded, Placebo-Controlled Trial

VEGA-1

20 US sites
~152 presbyopic patients

0.75% Nyxol

4 arms

Visit 1
Baseline → Nyxol → LDP Drop
Baseline → Nyxol → No Treatment
Baseline → Placebo → LDP Drop
Baseline → Placebo → No Treatment

Visit 2
(3 – 5 Days Later)

Treatment Arms
Nyxol + LDP
Nyxol Alone
LDP Alone
Placebo Alone

Endpoints

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

Secondary:
• % of subjects with ≥ 2 and ≥ 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 Start Targeted for 1Q20

Top Line Expected 2Q21

LDP= low-dose pilocarpine (0.4%)
Nyxol Demonstrated Clinical Effect in Presbyopia

Key Endpoints Observed from Multiple Phase 2 Trials

**ORION-1 Phase 2 Trial**

**Improvements in DCNVA with Nyxol Alone**

With No Change in Distance Vision

Near VA Line Improvement at Day 15
(Full Analysis Set, Study Eye, Photopic)

- **Percent of Subjects with VA Line Improvements**
  - ≥ 1 line: 63%
  - ≥ 2 lines: 20%
  - ≥ 3 lines: 11%

Source: ORION-1

- Placebo (n = 20)
- Nyxol (n = 19)

*p=0.026

**Pinhole PD Size Illustrated with Addition of LDP to Nyxol**

1.5 to 2+ mm PD reduction

*Achieve the pin-hole (1.6 to 2 mm) effect*

- Nyxol Alone
- LDP Alone

Average pupil size in photopic conditions is 3.5 to 4+ mm

~0.7 to 1+ mm

~0.7 to 1+ mm
APX3330

- **DR**: Diabetic Retinopathy
- **DME**: Diabetic Macular Edema
- **wAMD**: Wet Age-Related Macular Degeneration
APX3330 is a Ref-1 Inhibitor

Ref-1 Involved in Multiple Pathways that Contribute to Diabetic Retinopathy and DME

- APX3330 is a small molecule oral drug candidate and a first-in-class inhibitor of Ref-1
- Ref-1 (reduction-oxidation effector factor-1) is a novel target discovered and characterized by Dr. Mark R. Kelley at Indiana University School of Medicine
- APX3330 previously developed by Eisai for multiple hepatic inflammatory indications and later by Apexian for advanced solid tumors
  - Similar oncology origin as approved anti-VEGFs
- MOA uniquely decreases both abnormal angiogenesis and inflammation by blocking pathways downstream of Ref-1

Mechanism of Action – Ref-1 Inhibition

- Hypoxia → Ref-1 → HIF-1α → VEGF (Signaling Cascade)
- Inflammation → Ref-1 → NF-κB → TNF-α Chemokines → Other Growth Factors (Signaling Cascade)
- Anti-VEGF → Neovascularization
- Steroids

APX3330 Product Candidate Profile

First-in-Class Ref-1 Inhibitor Phase 2 Ready for Retina Diabetic Indications

APX3330: 600mg Oral Dose (120mg or 300mg tablets)

Expected Efficacy Data

Improving Eye Health in Diabetics
\[ \downarrow \text{Inflammation} \]
\[ \downarrow \text{Hypoxia Signaling} \]
\[ \downarrow \text{Abnormal Angiogenesis} \]

Enhance Compliance & Exposure
Oral pill may reduce the burden of frequent anti-VEGF injections

Safety Data

Few Systemic Adverse Effects
- Mild Gastrointestinal (diarrhea)
- Mild Skin Rash (Reversible)
- Lack of Significant Acute Neurologic, Cardiovascular, Liver, or Pulmonary toxicity

No Topical Effects
- No observed ocular AEs

Twice a day dosing of APX3330 anticipated to provide steady state effectiveness with a tolerable chronic safety profile
Diabetic Retinopathy & Macular Edema

Non-Injectable Alternative Therapies are Needed For Earlier Stages of Disease

The Problem

• Diabetic retinopathy (DR) and diabetic macular edema (DME) are a leading cause of vision loss worldwide, especially in working age adults in developed countries.

• Diabetes damages small blood vessels within the eye causing leakage, oxygen starvation, and abnormal vessel growth, which can obstruct vision.

• Current treatment: 25% non-responders, 50% partial responders to anti-VEGF.

Diabetic Retinopathy & Macular Edema

*APX3330 to Treat Patients Before Vision Loss Occurs*

**APX3330’s Potential Differentiated Solution**

- **Potential First Oral Therapy** to be used as an earlier intervention for the diabetic eye before vision symptoms appear or as add-on therapy to current anti-VEGF treatment

- **Proven Unique Mechanism** that may decrease both inflammation and VEGF activity

- **Convenient** option for patients to potentially alleviate the burden of injections and increase compliance

- **Tolerable** as seen in 11 completed Phase 1 and Phase 2 clinical trials
NPDR = non-proliferative diabetic retinopathy (which includes non centrally involved diabetic macular edema)
PDR = proliferative diabetic retinopathy (which includes non centrally involved diabetic macular edema)

ZETA-1

15 US sites
~100 patients with moderate-to-severe NPDR and mild PDR

Eligibility Screening
Randomization

1:1

APX3330 600mg
Twice daily oral dose (24 weeks)

Placebo
Twice daily oral dose (24 weeks)

Phase 2 Start Targeted for 1Q21
Top Line Expected 4Q21

Endpoints
Primary: % of subjects with a ≥ 2 step improvement on the DRSS (Diabetic Retinopathy Severity Scale) score at week 24
Secondary:
• Central subfield thickness (CST)
• BCDVA (ETDRS)
• Safety and tolerability
Exploratory:
• Labs / PK

DR/DME ZETA-1 Phase 2 Proposed Design
Planned Randomized, Double-Masked, Placebo-Controlled Trial
APX3330 Generally Well Tolerated with Clinical Signals

Observations from Pre-Clinical Studies and 11 Clinical Trials of APX3330

L-CNV Mouse Retina Model

APX3330 Reduces Neovascularization Similar to Eylea in Preclinical Models

Lesion Size and Corresponding Fluorescent Stains in L-CNV Models Treated with APX3330 at 25 mg/kg

Source: Unpublished Data Dec 2019

Phase 1 Clinical Trials

Human Drug Exposure Multiple Times Higher than Mouse Efficacious Levels

Human Pharmacokinetics of APX3330 at 120 mg/kg/day

Source: Unpublished Data Dec 2019
Boards and Milestones
Prestigious Ocular Medical Advisory Board

Fortunate for the Insights of Leading KOLs & Drug Candidate Co-Founders

Richard Lindstrom, MD
University of Minnesota

Jay Pepose, MD
UCLA

Richard Messmann, MD
Wayne State University
CMO Apexian/APX3330

Marguerite McDonald, MD
Columbia University

Eliot Lazar, MD
Georgetown University

Gerald Horn, MD
University of Illinois
Co-Founder Ocularis/Nyxol

Paul Karpecki, OD
Indiana University

Ed Holland, MD
Loyola University Chicago

Thomas Samuelson, MD
University of Minnesota

Mark Kelley, PhD
Indiana University
Co-Founder Apexian/APX3330

Jack Holladay, MD
University of Texas

Thomas Samuelson, MD
University of Minnesota

Peter Kaiser, MD
Harvard Medical School

Richard Lindstrom, MD
University of Minnesota

Michael Allingham, MD, PhD
University of North Carolina

David Boyer, MD
Chicago Medical School

Jeffrey Heier, MD
Boston University

Gary Novak, PhD
UC Davis

Marguerite McDonald, MD
Columbia University

Eliot Lazar, MD
Georgetown University

Gerald Horn, MD
University of Illinois
Co-Founder Ocularis/Nyxol

Paul Karpecki, OD
Indiana University

Ed Holland, MD
Loyola University Chicago

Thomas Samuelson, MD
University of Minnesota

Mark Kelley, PhD
Indiana University
Co-Founder Apexian/APX3330

Jack Holladay, MD
University of Texas

Thomas Samuelson, MD
University of Minnesota

Peter Kaiser, MD
Harvard Medical School

Michael Allingham, MD, PhD
University of North Carolina

David Boyer, MD
Chicago Medical School

Jeffrey Heier, MD
Boston University
Ocuphire Board of Directors

Seasoned Directors with Decades of Biotech Drug Development and M&A/Financings

Cam Gallagher, MBA
Chair, Board Director

Mina Sooch, MBA
Vice-Chair, Board Director
President & CEO

James Manuso, PhD/MBA
Board Director

Talfinium Investments, Inc.

Sean Ainsworth, MBA
Lead Independent Director, Board Director

Richard Rodgers, MBA
Board Director

Susan Benton, MBA
Board Director

Alan R. Meyer, MBA
Board Director
MFR/IP Advisor
2020 to 2022 Cadence of Milestones

Multiple Data Catalysts for Value-Building

2018/2019

- NVD Podium Presentation at AAO 2018
- Initiate/Report Phase 2b Data for ORION-1
- Initiate/Report Phase 2b Data for MIRA-1
- Expand Patent Estate

1H 2020

- Completion of APX3330 License
- ARVO 2020 Presentation for MIRA-1
- ARVO 2020 Presentation for ORION-1
- FDA EOP2 Meeting May 2020

2H 2020

- Announced Ocuphire Reverse Merger and PIPE Financing (Co-Led by Cantor and Canaccord)
- Completion of Transaction (Nasdaq: OCUP)
- Initiate Phase 3 RM Trial
- Initiate Phase 3 NVD Trial
- Complete Nyxol Market Research
- Journal Publications

1H 2021

- Report Phase 3 Data for NVD
- Report Phase 2 Data for DR/DME
- Initiate 2nd Phase 3 Trials (RM, NVD)
- Initiate Acute and Chronic Phase 3 Safety Trial
- Initiate Phase 3 Presbyopia Trial

2H 2021

- Report Phase 3 Data for RM and NVD
- Report Phase 3 Safety Data
- Report Phase 3 Data for Presbyopia
- Initiate Phase 3 DR/DME Trial and 2nd Phase 3 Trial for Presbyopia

2022

- Report 2nd Phase 3 Data for RM and NVD

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

Nyxol NDA filing for RM & NVD in early 2023
NVD Endpoint: 5% Low Contrast Visual Acuity (LCVA) Chart

*FDA Accepted Endpoint for Contrast Sensitivity Assessment*

**Primary Endpoint of Nyxol LYNX-1 Trial**

Percent of subjects with ≥ 3 lines of improvement in mesopic low contrast best-corrected distance visual acuity (7 days)

*Inclusion Criteria includes subjects with baseline mesopic LCVA of 20/100 or worse*
DR/DME Endpoint: Diabetic Retinopathy Severity Scale (DRSS)

*FDA Accepted Endpoint for DR (EYLEA® in PANORAMA Pivotal Trial)*

### Primary Endpoint of APX3330 ZETA-1 Trial

Percent of patients with a ≥ 2 step improvement on the DRSS score at week 24

<table>
<thead>
<tr>
<th>DRSS Score</th>
<th>Description</th>
<th>Retinal Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;(10)&lt;/sup&gt;</td>
<td>DR Absent</td>
<td>Healthy blood vessels with no bulges</td>
</tr>
<tr>
<td>2&lt;sup&gt;(20)&lt;/sup&gt;</td>
<td>Micro-aneurysm only</td>
<td>Small bulges in blood vessel walls as well as other signs in the retina</td>
</tr>
<tr>
<td>3&lt;sup&gt;(35)&lt;/sup&gt;</td>
<td>Mild NPDR</td>
<td>More changes in the blood vessels in the retina and small spots of blood can become more visible</td>
</tr>
<tr>
<td>4&lt;sup&gt;(43)&lt;/sup&gt;</td>
<td>Moderate NPDR</td>
<td>More blood vessels in larger areas of the retina show changes</td>
</tr>
<tr>
<td>5, 6&lt;sup&gt;(47, 53)&lt;/sup&gt;</td>
<td>Moderately Severe NPDR</td>
<td>Many of the blood vessels in the retina show visible changes</td>
</tr>
<tr>
<td>7 – 13&lt;sup&gt;(60, 61, 65, 71, 75, 85, 90)&lt;/sup&gt;</td>
<td>PDR – Mild, Moderate, and Severe</td>
<td>Increased growth of new, damaged blood vessels</td>
</tr>
</tbody>
</table>

### DRSS Score

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
<th>Retinal Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DR Absent</td>
<td>Healthy blood vessels with no bulges</td>
</tr>
<tr>
<td>2</td>
<td>Micro-aneurysm only</td>
<td>Small bulges in blood vessel walls as well as other signs in the retina</td>
</tr>
<tr>
<td>3</td>
<td>Mild NPDR</td>
<td>More changes in the blood vessels in the retina and small spots of blood can become more visible</td>
</tr>
<tr>
<td>4</td>
<td>Moderate NPDR</td>
<td>More blood vessels in larger areas of the retina show changes</td>
</tr>
<tr>
<td>5, 6</td>
<td>Moderately Severe NPDR</td>
<td>Many of the blood vessels in the retina show visible changes</td>
</tr>
<tr>
<td>7 – 13</td>
<td>PDR – Mild, Moderate, and Severe</td>
<td>Increased growth of new, damaged blood vessels</td>
</tr>
</tbody>
</table>

*A 13-point Scale Outlining the Various Stages of Diabetic Retinopathy*