(NASDAQ: OCUL)

OCULAR THERAPEUTIX

Transforming Ophthalmic Care with Innovative Therapies

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Ocular Therapeutix™

Eyecelerator @ AAO | November 2, 2023

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Any statements in this presentation about future expectations, plans, and prospects for the Company, including the commercialization of DEXTENZA® or any of the Company's products or product candidates; the development and regulatory status of the Company's product candidates, including the timing and design of the Company's planned pivotal trials of AXPAXLI for the treatment of wet AMD; the Company's plans to advance the development of AXPAXLI; the Company's cash runway and sufficiency of the Company's cash resources; and other statements containing the words "anticipate," "believe," "estimate," "expect," "intend", "goal," "may", "might," "plan," "predict," "project," "target," "potential," "will," "would," "could," "should," "continue," and similar expressions, constitute forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors. Such forward-looking statements involve substantial risks and uncertainties that could cause the Company's preclinical and clinical development programs, future results, performance or achievements to differ significantly from those expressed or implied by the forward-looking statements. Such risks and uncertainties include, among others, the timing and costs involved in commercializing DEXTENZA or any product or product candidate that receives regulatory approval, including the conduct of post-approval studies; the ability to retain regulatory approval of DEXTENZA or any product or product candidate that receives regulatory approval; the ability to maintain and the sufficiency of product, procedure and any other reimbursement codes for DEXTENZA; the initiation, design, timing, conduct and outcomes of clinical trials including the first pivotal trial of AXPAXLI for the treatment of wet AMD; uncertainties as to the response from the FDA regarding the SPA submission for AXPAXLI, including the risk that the FDA will not agree with the design of the first pivotal trial under the SPA; the risk that even if the FDA agrees with the design of the first pivotal trial under the SPA, the FDA will not agree that the data generated by the trial could support marketing approval; uncertainty as to whether the data from earlier clinical trials will be predictive of the data of later clinical trials, particularly later clinical trials that have a different design than the earlier trials; availability of data from clinical trials and expectations for regulatory submissions and approvals; the Company's scientific approach and general development progress; uncertainties inherent in estimating the Company's cash runway, future expenses and other financial results, including its ability to fund future operations, including clinical trials; Company's existing indebtedness and the ability of the Company's creditors to accelerate the maturity of such indebtedness upon the occurrence of certain events of default; the Company's ability to enter into strategic alliances or generate additional funding on a timely basis, on favorable terms, or at all; and other factors discussed in the "Risk Factors" section contained in the Company's quarterly and annual reports on file with the Securities and Exchange Commission. In addition, the forward-looking statements included in this presentation represent the Company's views as of the date of this presentation. The Company anticipates that subsequent events and developments will cause the Company's views to change. However, while the Company may elect to update these forward-looking statements at some point in the future, the Company specifically disclaims any obligation to do so, whether as a result of new information, future events or otherwise, except as required by law. These forward-looking statements should not be relied upon as representing the Company's views as of any date subsequent to the date of this presentation.

This presentation discusses investigational product candidates in development. Their efficacy and safety profiles have not been established, and they have not been approved for marketing by the FDA.

Ocular Therapeutix™

OCULAR THERAPEUTIX IS COMMITTED TO REVOLUTIONIZING THE TREATMENT OF SERIOUS EYE DISEASES AND CONDITIONS

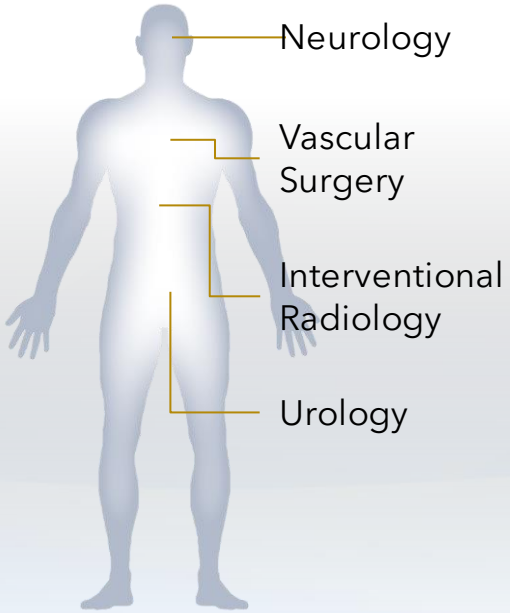
Pioneering novel treatments for serious conditions affecting both the front and back of the eye

- Using advanced technology to optimize delivery of known medications for more effective delivery
- Driven by a deep commitment to improving the quality of care and quality of life for patients

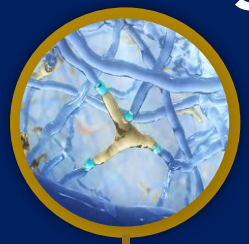
ESTABLISHED HYDROGEL PLATFORM

5M patients treated with therapies utilizing hydrogel platform[1]

5 FDA-approved devices utilize hydrogel outside of the eye[2-6]



OCULAR THERAPEUTIX LEVERAGES HYDROGEL FOR OCULAR SUSTAINED DELIVERY



1992
Origins of ELUTYX™ Technology[7]

2018
DEXTENZA® intracanalicular insert FDA-approved[8]

References: 1. Instylla: An Easy, Predictable, and Simpler Way to Embolize Tumors. Accessed 3/2/2023. https://www.instylla.com/wp-content/uploads/2021/08/Instylla-MTS-7-2021-UL.pdf. **2.** DuraSeal [Instructions for Use]. Princeton, NJ: Integra LifeSciences Corporation. **3.** Mariados N, et al. *Int J Radiat Oncol Biol Phys*. 2015;92(5):971-977. **4.** Embrace™ Hydrogel Embolic. System. Instylla. Inc. Accessed December 22, 2022. https://instylla.com/technology/. **5.** MynxGrip Vascular Closure Device. Cardinal Health. Accessed December 22, 2022. https://www.cardinalhealth.com/content/dam/corp/web/documents/brochure/CardinalHealth-MynxGripVascularClosureDeviceOverviewBrochure.pdf. **6.** Nellix Endovascular Aneurysm Sealing System. Endologix. Accessed December 22, 2022. https://endologix.com/wp-content/uploads/2016/09/MM1250Rev01-Nellix-Polymer-Sheet-Disposable-_04-20.pdf. **7.** Sawhney AS; Incept, LLC, assignee. Methods for forming regional tissue adherent barriers and drug delivery systems. US patent 6,514,534 B1. February 4, 2003. **8.** Approval Package for DEXTENZA. US Food and Drug Administration. November 20, 2018. Accessed December 22, 2022. https://www.accessdata.fda.gov/drugsatfda_docs/nda/2018/208742Orig1s000Approv.pdf

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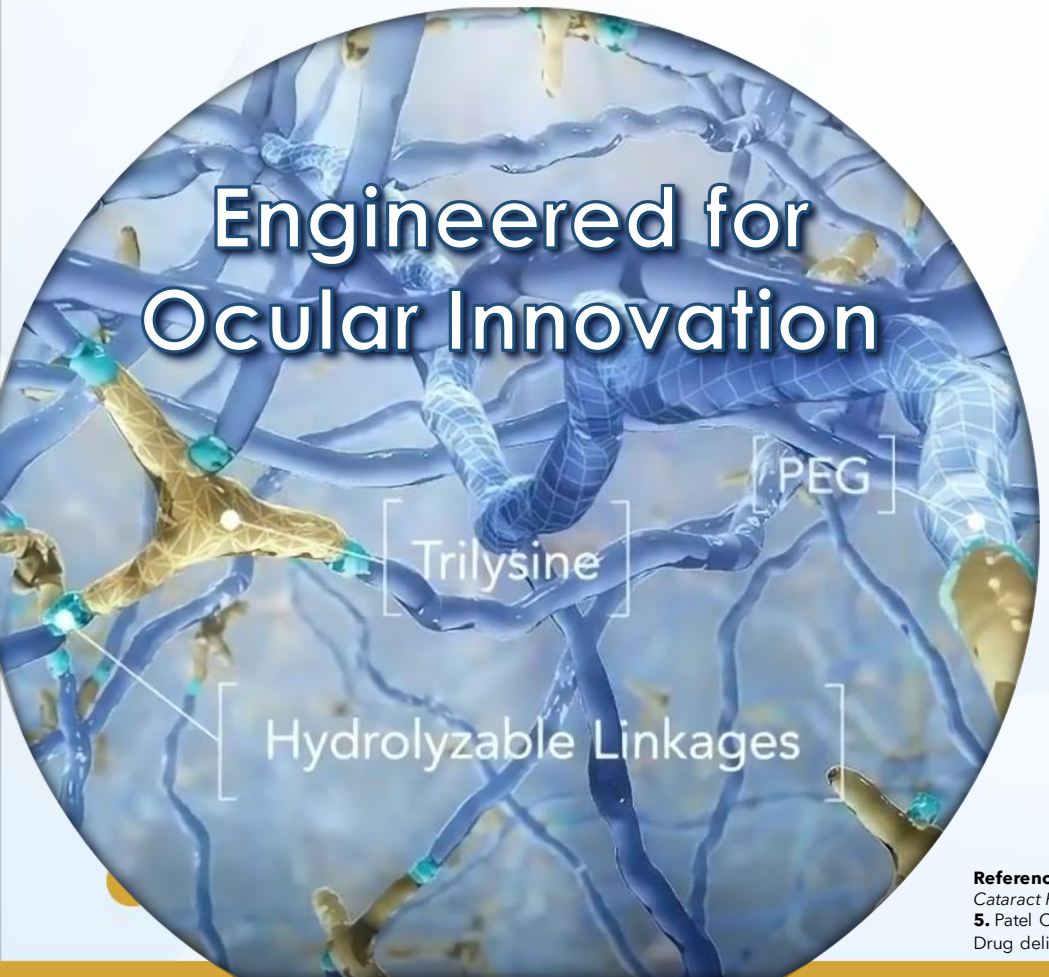
ELUTYX ENABLES OPTIMIZATION FOR SUSTAINED DRUG DELIVERY

ELUTYX technology is a bioresorbable, programmable hydrogel matrix that encapsulates drug to provide sustained and localized delivery



Clinically Proven

- *Established platform used in FDA-approved products*[1-3]

Bioresorbable, Biocompatible

- *90% water, low potential for inflammation*[2]
- *Tunable release kinetics and bioresorption profile*[4,5]

Programmable Sustained Release

- *Durable: Targeted release in days, weeks or months*[6]

Versatile

- *Customizable to deliver small molecules, peptides, large proteins, biologics, or viral vectors*[7]

References: 1. Walters, et al. *J Clin Exp Ophthalmol*. 2016;7:1-11. **2.** Tyson SL, et al. *J Cataract Fract Surg*. 2019;45:204-212. **3.** Masket S, et al. *J Cataract Refract Surg*. 2014;40(12):2057-2066. **4.** Pehlivaner M, et al. Presented at the ASGCT annual meeting; May 16-20, 2023; Los Angeles, CA. **5.** Patel C, et al. Presented at the ARVO annual meeting; April 23-27, 2023; New Orleans, LA. **6.** Sawhney AS, et al., Inventors, Incept, LLC, Assignee. Drug delivery through hydrogel plugs. US Patent 8,409,606 B2. April 2, 2013. **7.** Amin S, et al. *Scientific Research and Essay*. 2009;3:1175-1183.

Ocular Therapeutix™

WE ARE ADVANCING A BROAD OPHTHALMOLOGY PORTFOLIO USING ELUTYX FOR CONTINUOUS DRUG DELIVERY

PROGRAM	THERAPEUTIC FOCUS	PRECLINICAL	EARLY/MID CLINICAL STAGE (PHASE 1 – PHASE 2)	PIVOTAL CLINICAL TRIAL STAGE (PHASE 3)	FDA APPROVAL	NEXT MILESTONES
Dextenza® (dexamethasone ophthalmic insert) 0.4 mg for intracanalicular use	Post surgical ocular inflammation and pain Ocular itching associated with allergic conjunctivitis				●	
AXPAXLI™ (axitinib intravitreal implant)	Wet AMD*			●		**Q4 2023** Screen first subject in pivotal trial
AXPAXLI (axitinib intravitreal implant)	Diabetic Retinopathy		●			**Q1 2024** Interim data from HELIOS Phase 1 trial and prepare to initiate pivotal trial†‡
OTX-TIC (travoprost intracameral implant)	Glaucoma and ocular hypertension		●			**Q1 2024** Top-line data from Phase 2 trial
OTX-DED (dexamethasone intracanalicular insert)	Episodic dry eye disease		●			Phase 1 trial completed **H1 2024** Complete enrollment for trial to determine placebo comparator for the pivotals
OTX-CSI (cyclosporine intracanalicular insert)	Dry eye disease		●			Phase 1/2 trial completed **H1 2024** Complete enrollment for trial to determine placebo comparator for the pivotals
Complement Modulator (product candidate)	Intermediate and late dry AMD*	●				
Gene Delivery (intravitreal and suprachoroidal delivery)	Inherited retinal degenerations and protein biofactory indications	●				

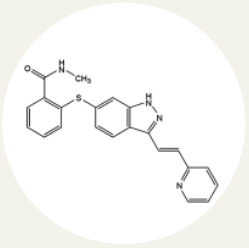
*Age-related Macular Degeneration (AMD)
†Subject to FDA discussions of future clinical trial requirements and obtaining necessary financing; ‡Subject to confirmatory Phase 1 readout

AXPAXLI IS DESIGNED TO DELIVER CONTINUOUS CONTROL OVER WET AMD

AXPAXLI is axitinib delivered by Elutyx technology, designed to release drug for 9-12 months

Elutyx Technology: targeted sustained drug delivery platform

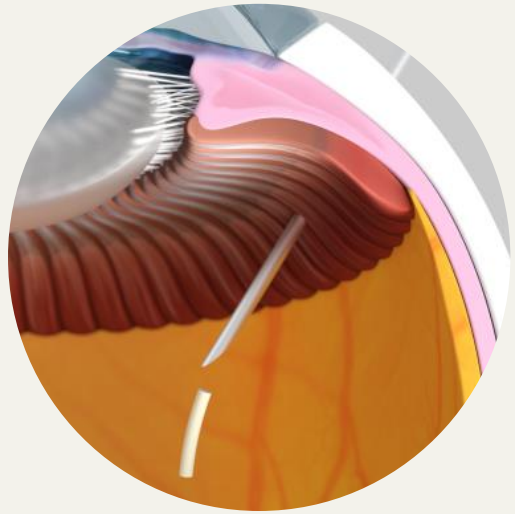
- Designed to deliver axitinib for 9-12 months with a single implant[1]
- Completely bioresorbable[1]
- Formulated from biocompatible and inert components [1]



Axitinib: potent tyrosine kinase inhibitor

- Highly potent, pan-VEGF receptor inhibitor[2-4]
- Acts within the intracellular space
- No TIE2 inhibition at clinically relevant tissue concentrations[5]

AXPAXLI: axitinib delivered by Elutyx technology



Abbreviations: TIE2=Tyrosine Kinase with Immunoglobulin-like and EGF-like domains 2; VEGF=vascular endothelial growth factor

References: 1. Blizzard CD, Driscoll A, El-Hayek R, et al. Ocular implant containing a tyrosine kinase inhibitor. Published online September 13, 2022. Accessed September 26, 2022. Patent . **2.** Zhao Y, et al. *Oncologist*. 2015;20(6):660-673. **3.** Gross-Goupil M, et al. *Clin Med Insights Oncol*. 2013;7:269-277. **4.** Liang C, et al. *Mol Ther Oncolytics*. 2022;24:577-584. **5.** Unpublished data; Data on File. In vitro cell-based assays used to characterize IC50 values of axitinib for receptors VEGFR-2 (using HUVECs), PDGFR-Beta (in murine fibroblast cells), and a non-target receptor TIE2 (utilizing CHO cells).

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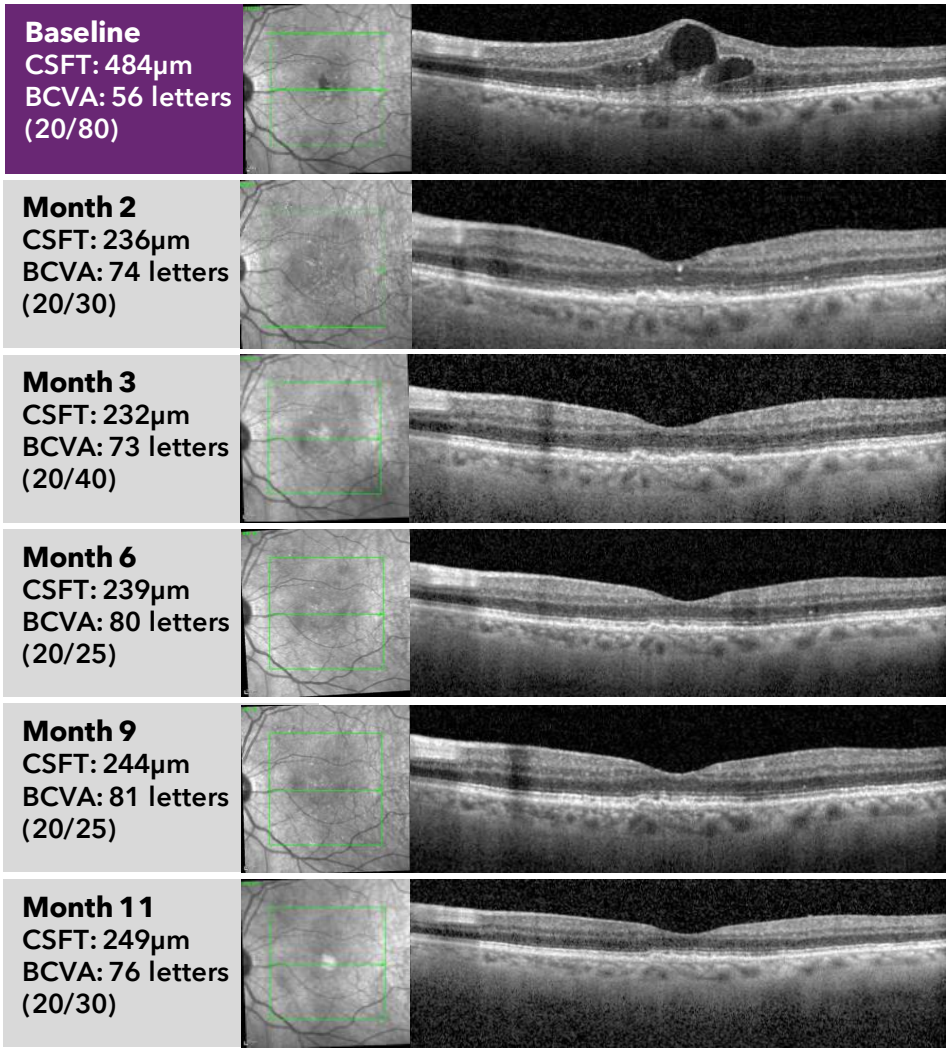
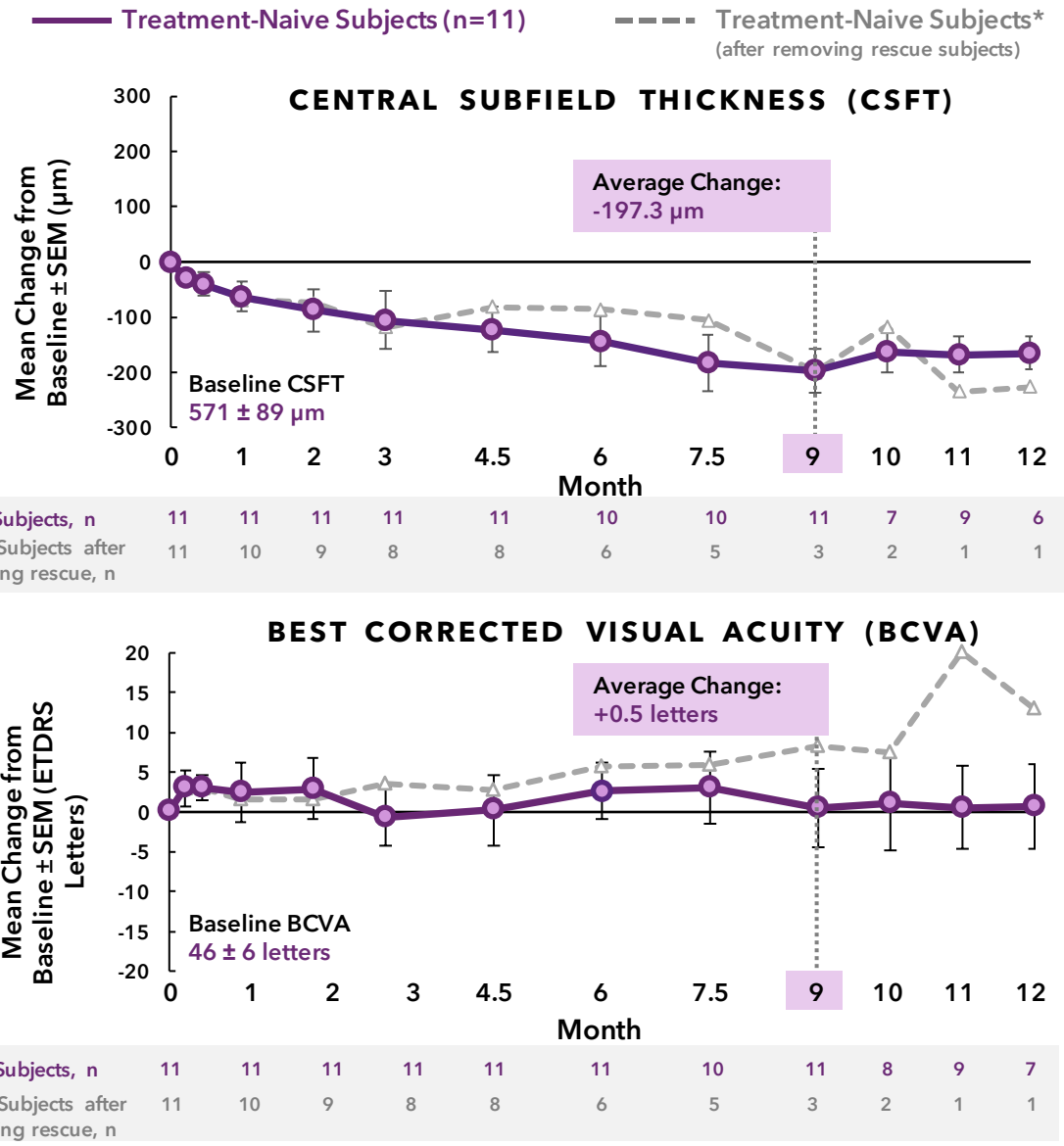
AXPAXLI: AUSTRALIA DOSE-ESCALATION TRIAL

CASE STUDY: IN TREATMENT NAÏVE SUBJECTS, AXPAXLI MONOTHERAPY HAD A CLINICALLY-MEANINGFUL REDUCTION IN RETINAL FLUID

Cohort 3a (600 µg): **Treatment Naïve Subject**



Patient only received AXPAXLI, no anti-VEGF injections

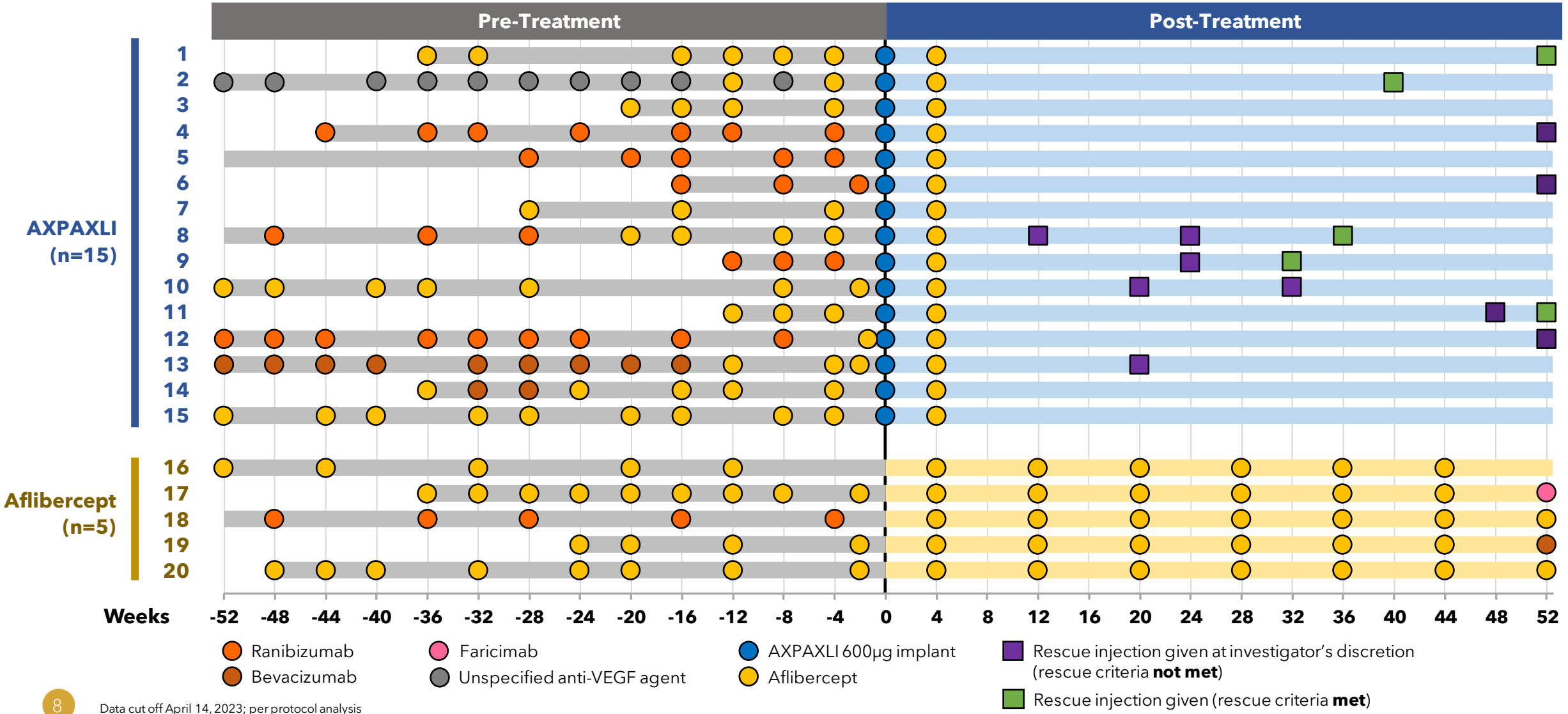


Interim review, unmonitored data: data cut off August 5, 2022

*Number of treatment-naïve subjects in each cohort. Cohort 1 (n=2), Cohort 2 (n=2), Cohort 3a (n=5), and Cohort 3b (n=2)

AXPAXLI: US RANDOMIZED TRIAL

89% REDUCTION IN ANTI-VEGF TREATMENT BURDEN FOLLOWING AXPAXLI AT 12 MONTHS



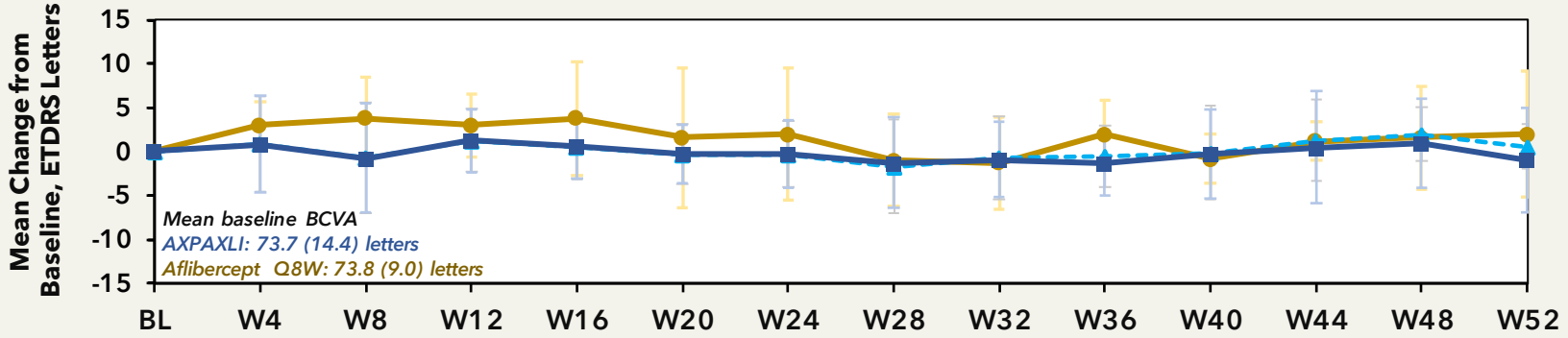
Data cut off April 14, 2023; per protocol analysis
Reduction in treatment burden calculation includes all rescue injections
Sham injection was given at Week 0 in the Aflibercept Arm and at Weeks 12, 20, 28, 36 and 44 in the AXPAXLI Arm (not shown). At Week 52, subjects in the aflibercept group were treated with wet AMD standard of care at the investigator's discretion.

AXPAXLI: US RANDOMIZED TRIAL

VISION AND CSFT WITH AXPAXLI WERE COMPARABLE TO STANDARD OF CARE AFLIBERCEPT Q8W

AXPAXLI US randomized trial evaluating wet AMD subjects with controlled retinal fluid

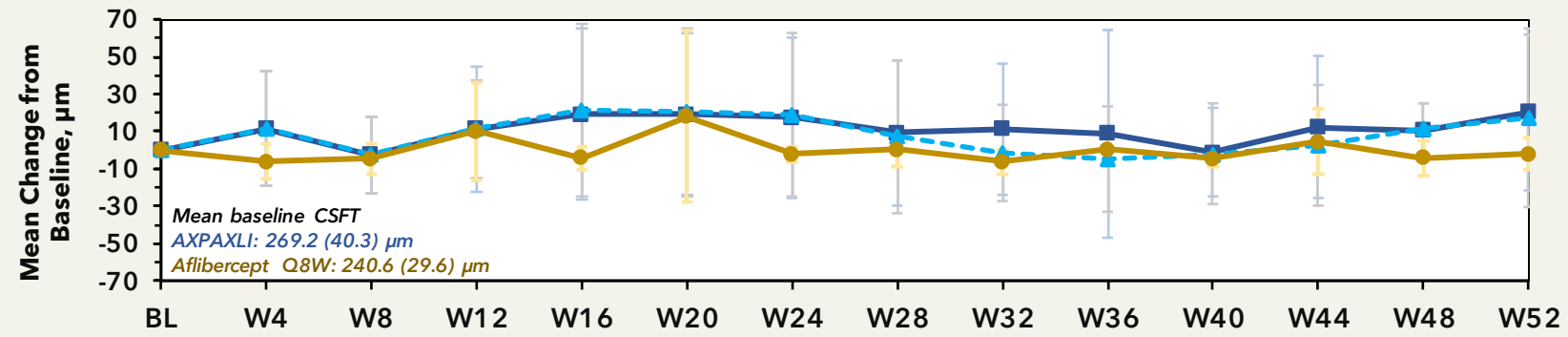
BEST CORRECTED VISUAL ACUITY



Mean (SD) change in BCVA from baseline to Week 52:

- **AXPAXLI: -1.0 (6.0) letters**
- **AXPAXLI: +0.6 (2.6) letters** (censoring rescued subjects)
- **Aflibercept Q8W: +2.0 (7.2) letters**

CENTRAL SUBFIELD THICKNESS



Mean (SD) change in CSFT from baseline to Week 52:

- **AXPAXLI: +20.2 (41.6) µm**
- **AXPAXLI: +17.2 (47.6) µm** (censoring rescued subjects)
- **Aflibercept Q8W: -2.2 (8.5) µm**

AXPAXLI arm*(N=15) — AXPAXLI arm (censoring rescued subjects)† — Aflibercept Q8W (N=5)

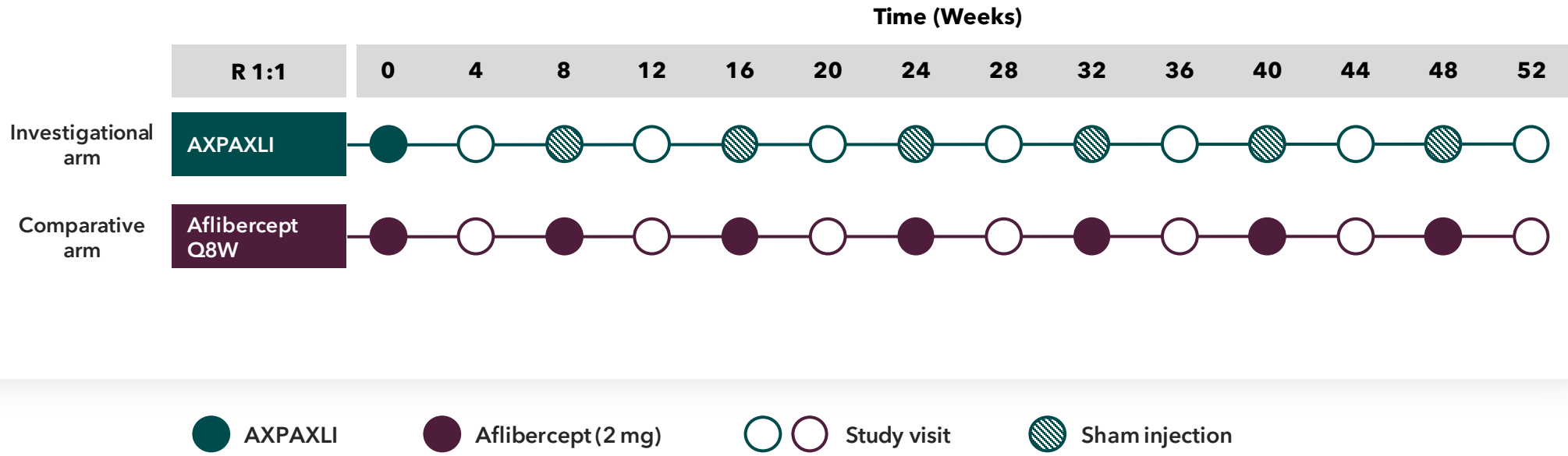
Data cut off April 14, 2023; Error bars represent standard deviation
* AXPAXLI arm received AXPAXLI at baseline and a single aflibercept injection at Week 4; n=14 in AXPAXLI arm at Weeks 8, 28, 40 and 48 due to missed visits
† Sample size for AXPAXLI arm (censoring rescued subjects): n=15 at Baseline and Weeks 4 and 12; n=14 at Week 8 (missed visit) and Weeks 16 and 20; n=12 at Week 24 and n=11 at Weeks 28, 32, 36 and 40; n=10 at Week 44; n=9 at Weeks 48 and 52
BCVA=best corrected visual acuity; BL=baseline; CSFT=central subfield thickness; ETDRS=Early Treatment Diabetic Retinopathy Study; W, week
Reference: Khanani AM. 12-Month Update on Randomized, Controlled, Trial of OTX-TKI (Axitinib Intravitreal Implant) for the Treatment of Wet AMD. Presented at the Clinical Trials at the Summit Meeting. June 10, 2023. Park City, UT>

WET AMD NONINFERIORITY TRIALS USING SHAM INJECTIONS SEEM NO LONGER ACCEPTABLE TO THE FDA

FDA recommends a comparative arm in which "dosing frequency, criterion for dosing adjustments and criterion for interventions are the same" for investigational arm[1]

TRIAL DESIGN CHALLENGES

- Aflibercept Q8W arm has a different dosing frequency than AXPAXLI arm
- FDA does not recommend sham injections
- Saline injections increase risk of safety events (repeated use as seen below not preferred)



Reference: 1. Neovascular Age-Related Macular Degeneration: Developing Drugs for Treatment Guidance for Industry. US Food and Drug Administration. Published February 6, 2023. Accessed September 21, 2023. https://www.fda.gov/media/165606/download.

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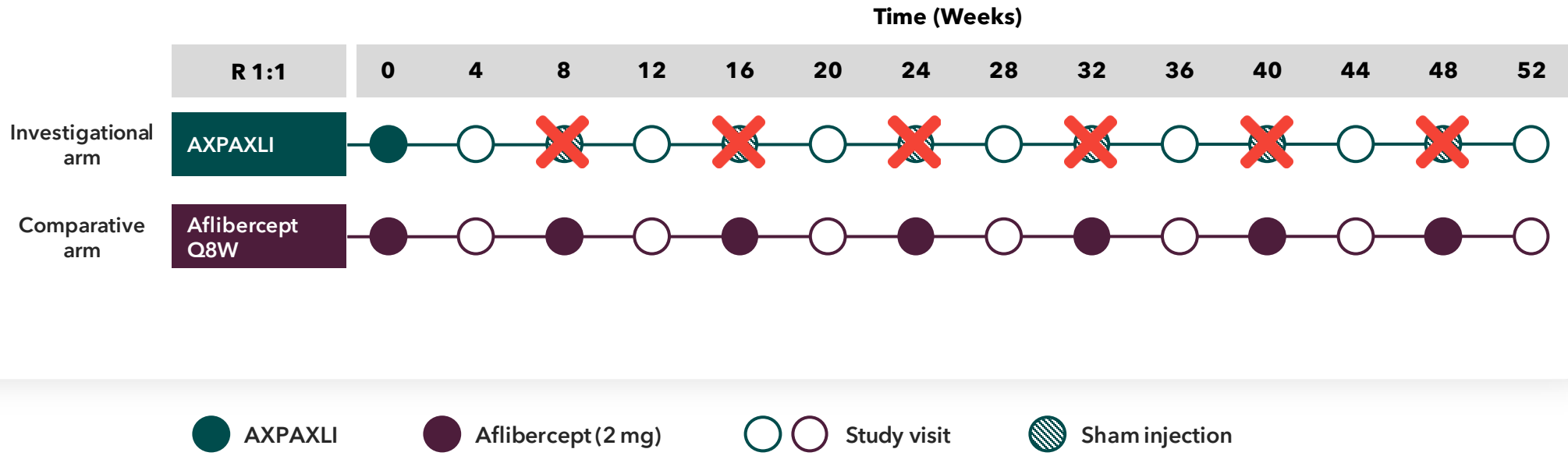

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TO MAINTAIN MASKING, TRIAL WOULD REQUIRE A THIRD ARM WITH CONTROL INJECTION MATCHING INVESTIGATIONAL ARM

With the addition of a second control arm, AXPAXLI would need to demonstrate non-inferiority over aflibercept Q8W arm and superiority over control injection arm

TRIAL DESIGN CHALLENGES

- Aflibercept Q8W arm has a different dosing frequency than AXPAXLI arm
- FDA does not recommend sham injections
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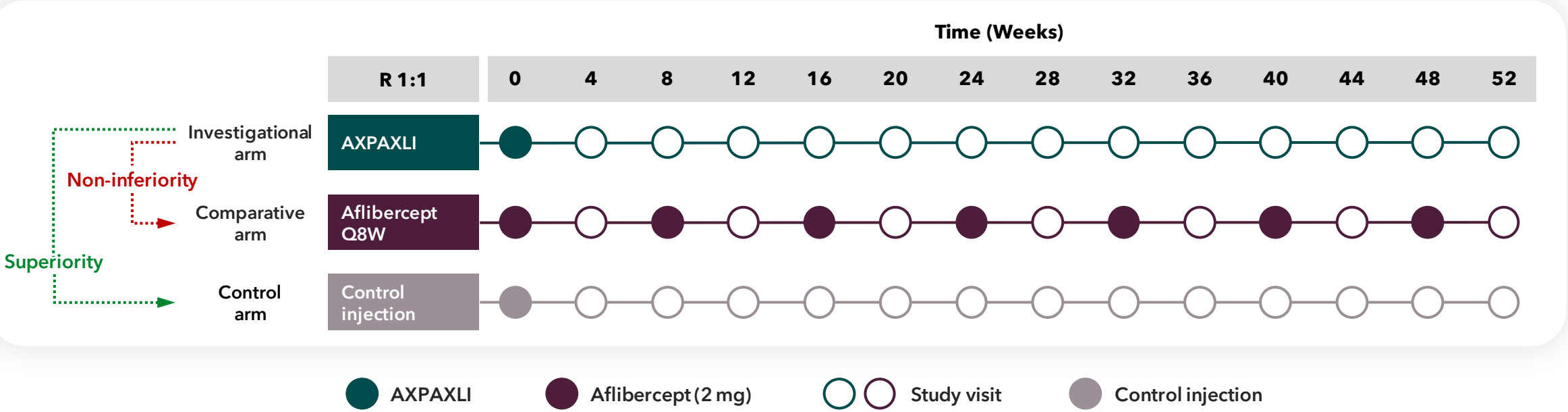


CURRENT FDA GUIDANCE ALLOWS THREE WAYS TO DEMONSTRATE SUPERIORITY

FDA RECOMMENDS ENDPOINTS DEMONSTRATING THE FOLLOWING FOR SUPERIORITY TRIALS[1]

≥15 LETTER *DECREASE*

Statistically significant smaller percentage of patients with ≥15 letter decrease at 9 months or later

≥15 LETTER *INCREASE*

Statistically significant greater percentage of patients with ≥15 letter increase at 9 months or later

≥15 LETTER *DIFFERENCE*

Statistically significant difference between groups in mean BCVA of ≥15 letter at 9 months or later

We plan to continue to collaborate with the FDA and the retina community to identify other endpoints that align with current treatment approaches

Reference: 1. Neovascular Age-Related Macular Degeneration: Developing Drugs for Treatment Guidance for Industry. US Food and Drug Administration. Published February 6, 2023. Accessed September 21, 2023. https://www.fda.gov/media/165606/download.

PATIENT SAFETY, ENROLLMENT FEASIBILITY & AXPAXLI LIKELIHOOD OF SUCCESS WERE KEY CONSIDERATIONS

FDA RECOMMENDS ENDPOINTS DEMONSTRATING THE FOLLOWING FOR SUPERIORITY TRIALS[1]

≥15 LETTER *DECREASE*

Statistically significant smaller percentage of patients with ≥15 letter decrease at 9 months or later

≥15 LETTER *INCREASE*

Statistically significant greater percentage of patients with ≥15 letter increase at 9 months or later

≥15 LETTER *DIFFERENCE*

Statistically significant difference between groups in mean BCVA of ≥15 letter at 9 months or later

Factors Considered in Clinical Trial Design

1 SAFETY OF STUDY PARTICIPANTS

- Screen **treatment-naïve subjects who have reasonably good VA**, and improve their VA to 20/20, with the goal of maintaining it at or above baseline level
- KOLs and clinical trialists generally find it permissible to have a **control arm treated with single dose aflibercept** understanding a 15 letter loss in this specific patient population is equivalent to 20/40

2 ENROLLMENT FEASIBILITY

- Clinical trialists acknowledge this **subset of wAMD patients is available** and commonly excluded from other clinical trials due to screen fails

3 BEST DEMONSTRATES AXPAXLI'S POTENTIAL EFFICACY AND DURABILITY

- **Durability of AXPAXLI is illustrated best** with this endpoint through a superiority design

We plan to continue to collaborate with the FDA and the retina community to identify other endpoints that align with current treatment approaches

Reference: 1. Neovascular Age-Related Macular Degeneration: Developing Drugs for Treatment Guidance for Industry. US Food and Drug Administration. Published February 6, 2023. Accessed September 21, 2023. https://www.fda.gov/media/165606/download.

SOL: AXPAXLI PIVOTAL CLINICAL TRIAL IN WET AMD

Multi-center, double-masked, randomized, parallel-group trial

DESIGN

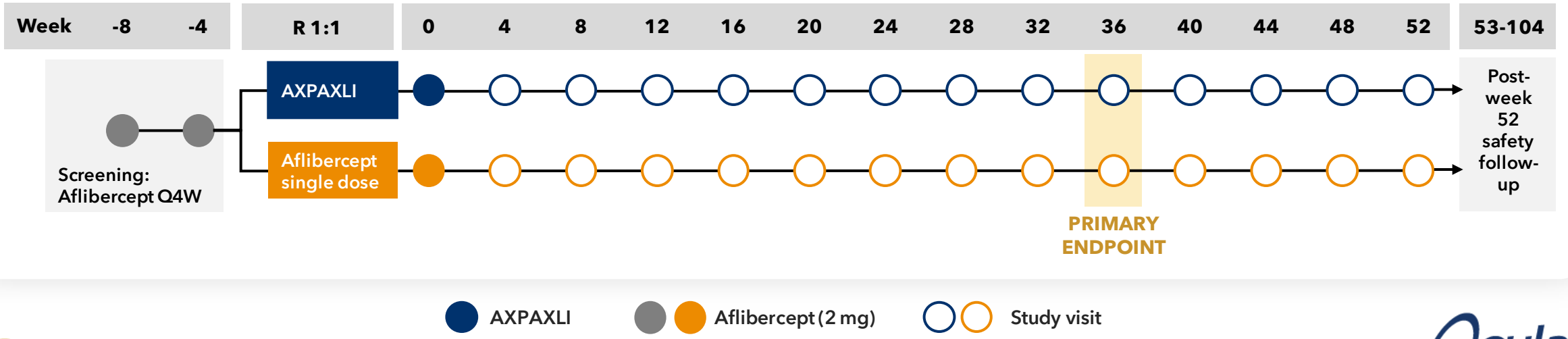
- Primarily conducted in the U.S.
- Two arm trial with ~150 subjects per group

KEY INCLUSION CRITERIA

- Subjects who are treatment naïve in the study eye with a diagnosis of choroidal neovascularization or sub foveal neovascularization at screening
- Visual acuity of **20/20 at Day 1**

PRIMARY ENDPOINT

Proportion of subjects who maintained visual acuity, defined as <15 ETDRS letters of BCVA loss at Week 36



Trial design is pending confirmation of a Special Protocol Assessment submitted to the US Food and Drug Administration (FDA)

UPCOMING MILESTONES

SEP 2023

- ☑ Submit Special Protocol Assessment (SPA)
- ☑ IRB Approval
- ☑ Initiate contracting with study sites

NOV 2023

- ☑ Agreement on protocol and analysis with FDA

DEC 2023

- Screen first subject

Q1 2024

- Interim data from HELIOS Phase 1 trial of AXPAXLI in DR
- Top-line data from OTX-TIC Phase 2 trial

H2 2024

- Prepare to initiate second pivotal wAMD trial†

†Subject to obtaining necessary financing

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Committed to safeguarding vision and enhancing lives