CLEARSIDE BIOMEDICAL

Corporate Presentation

January 2023

Forward-Looking Statements

This presentation contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, as amended. The words "may," "will," "could," "would," "should," "expect," "plan," "anticipate," "intend," "believe," "estimate," "predict," "project," "potential," "continue," "target" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Clearside Biomedical, Inc.'s views as of the date of this presentation about future events and are subject to risks, uncertainties, assumptions, and changes in circumstances that may cause Clearside's actual results, performance, or achievements to differ significantly from those expressed or implied in any forward-looking statement. Although Clearside believes that the expectations reflected in the forward-looking statements are reasonable, Clearside cannot guarantee future events, results, performance, or achievements. Some of the key factors that could cause actual results to differ from Clearside's expectations include its plans to develop and potentially commercialize its product candidates; Clearside's planned clinical trials and preclinical studies for its product candidates; the timing of and Clearside's ability to obtain and maintain regulatory approvals for its product candidates; the extent of clinical trials potentially required for Clearside's product candidates; the clinical utility and market acceptance of Clearside's product candidates; Clearside's commercialization, marketing and manufacturing capabilities and strategy; Clearside's intellectual property position; and Clearside's ability to identify additional product candidates with significant commercial potential that are consistent with its commercial objectives. For further information regarding these risks, uncertainties and other factors you should read the "Risk Factors" section of Clearside's Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on March 11, 2022, and Clearside's other Periodic Reports filed with the SEC. Clearside expressly disclaims any obligation to update or revise the information herein, including the forward-looking statements, except as required by law. This presentation also contains estimates and other statistical data made by independent parties and by Clearside relating to market size and growth and other data about its industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. In addition, projections, assumptions and estimates of Clearside's future performance and the future performance of the markets in which Clearside operates are necessarily subject to a high degree of uncertainty and risk.

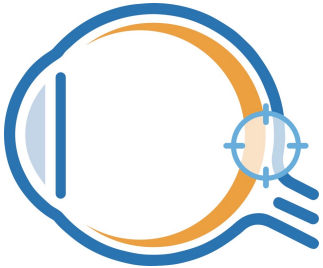
Developing and Delivering Treatments that Restore and Preserve Vision for Serious Back of the Eye Diseases

Versatile Therapeutic Platform

SCS Microinjector® with proprietary drug formulations target the suprachoroidal space

- First FDA Approved Product: XIPERE™
- Proprietary Access to the Suprachoroidal Space (SCS®)
- Utilization Across Small Molecules and Gene Therapy
- Ability to Target Multiple Ocular Diseases
- Internal Research & Development Pipeline
- External Collaborations for Pipeline Expansion

Core Advantages of Treating Via the Suprachoroidal Space (SCS®)



TARGETED

for efficacy

The back of the eye is the location of many irreversible and debilitating visual impairments

COMPARTMENTALIZED

for safety

Drug is compartmentalized in the suprachoroidal space, which helps keep it away from non-diseased tissues and entirely behind the visual field

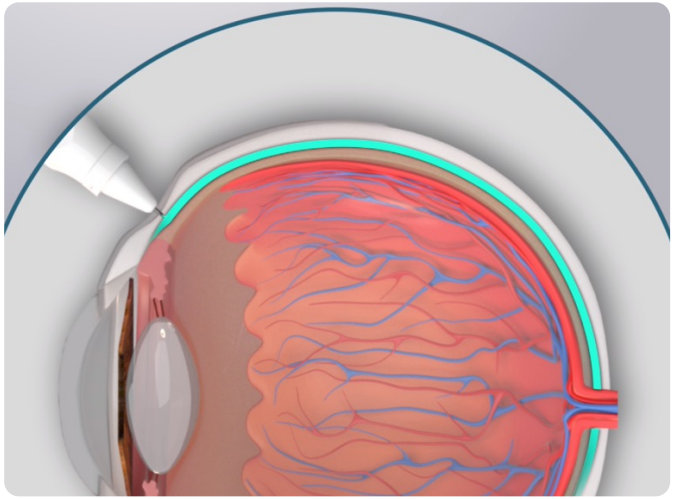
BIOAVAILABLE & PROLONGED DRUG LEVELS

for durability

Fluid spreads circumferentially and posteriorly when injected within the suprachoroidal space, bathing the choroid and adjacent areas with drug

Sources: Rai UDJ, Young SA, Thrimawithana TR, et al. The suprachoroidal pathway: a new drug delivery route to the back of the eye. Drug Discov Today. 2015;20(4):491-495. | Moisseiev E, Loewenstein A, Yiu G. The suprachoroidal space: from potential space to a space with potential. Clin Ophthalmol. 2016;10:173-178. | Chiang B, Jung JH, Prausnitz MR. The suprachoroidal space as a route of administration to the posterior segment of the eye. Adv Drug Deliv Rev. 2018;126:58-66.

Clearside's SCS Microinjector®: The Only Commercially-Accepted Approach for Suprachoroidal Drug Delivery



SUPRACHOROIDAL SPACE INJECTION

Novel SCS Microinjector® allows for precise delivery into the suprachoroidal space

- **SCS injection procedure commercially accepted by retinal physicians following launch of XIPERE®**
  - Thousands of SCS injections performed
- **Safety profile comparable to intravitreal injections[1]**
  - No Serious Adverse Events (SAEs) involving lens injury, suprachoroidal hemorrhage, or endophthalmitis have been observed
- **6 clinical trials ongoing including partner programs**

Sources: Clearside data on file | [1]Kurup, et. al, Macula Society 2021 *Safety of the Suprachoroidal Injection Procedure Utilizing SCS Microinjector® across Three Retinal Disorders*

XIPERE™: First FDA Approved Suprachoroidal Therapy Establishes Foundation for Small Molecule Suspension Pipeline

XIPERE®
(triamcinolone acetonide injectable suspension) 40 mg/mL

- Macular edema is the leading cause of vision loss in patients with non-infectious uveitis
- Commercialization and development partnerships With Bausch + Lomb and Arctic Vision to enhance value and expand patient access
- NDA approved on October 22, 2021;
- Launched Q1 2022 in US by Bausch + Lomb

- First approved therapeutic delivered into the suprachoroidal space
- First therapy for macular edema associated with uveitis
- First commercial product developed by Clearside
- First trial for uveitic macular edema using visual acuity change as a primary endpoint*

XIPERE® (triamcinolone acetonide injectable suspension), for suprachoroidal use has received U.S. FDA Approval. Please see Important Safety Information for XIPERE in the Full Prescribing Information: https://www.bauschhealth.com/Portals/25/Pdf/PI/XIPERE-PI.pdf. | *Clearside's Phase 3 PEACHTREE Trial

Pioneers in the Suprachoroidal Space (SCS®) with Patented Technology

KEY INTELLECTUAL PROPERTY COMPONENTS

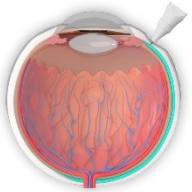
1. Comprehensive IP portfolio that includes protection of: SCS delivery technology, proprietary SCS Microinjector, treatment of various conditions with SCS administration of therapeutic products
2. 24 U.S. and >50 European and International issued patents with multiple pending patent applications
3. Granted patents provide exclusivity for our delivery technology and product candidates to mid-2030s with pending applications potentially extending exclusivity beyond 2040

DEVICE PATENTS

- SCS Microinjector® features
- Methods of using SCS Microinjector for drug delivery
- Device using an adjustable needle

DRUG PATENTS

- Administration of any drug to the suprachoroidal space by microinjection
- Administration of any drug to the eye by inserting a microinjector into the sclera

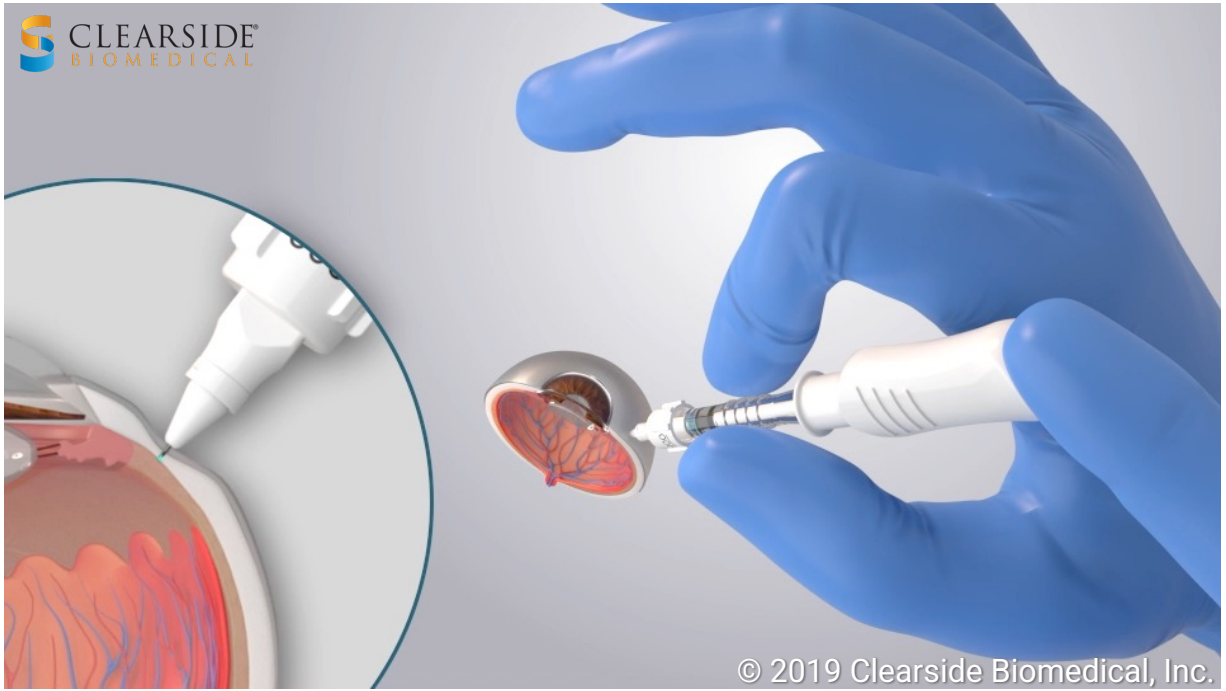


DISEASE PATENTS

- Methods of treating posterior ocular disorders by SCS administration

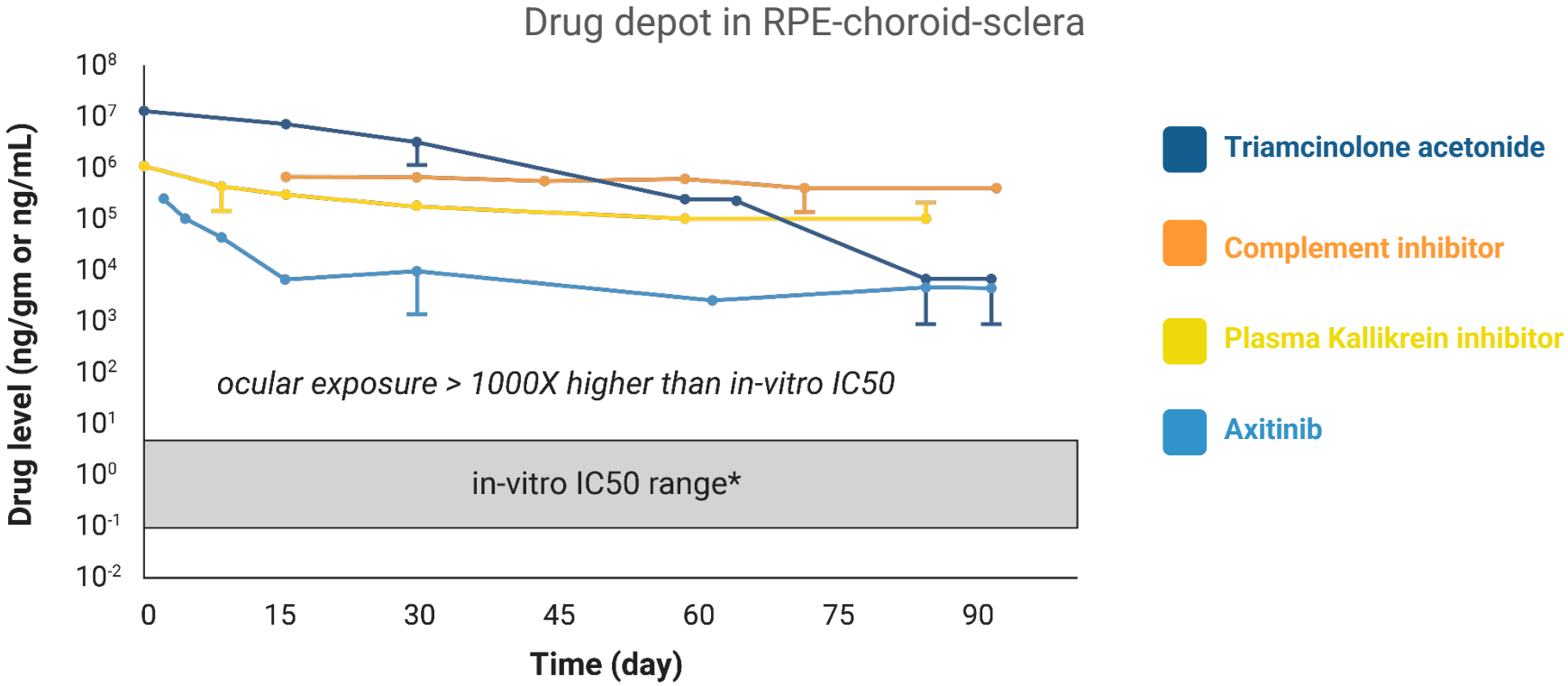
Suprachoroidal Delivery via SCS Microinjector®

Exclusive Access to the Back of the Eye Using Clearside's Proprietary SCS Microinjector®



CLS-AX Delivered with SCS Microinjector® for Wet AMD

Preclinical Data Supports Durability Potential of Small Molecule Suspensions Delivered into the Suprachoroidal Space

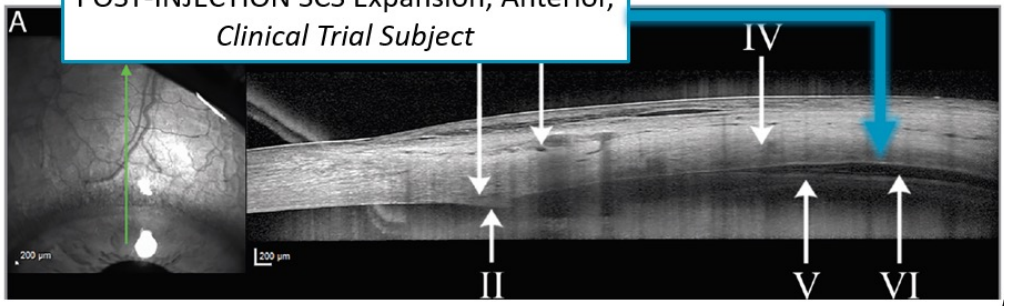


Sources for in-vitro IC50 range*: Stellato et al. *J Allergy Clin Immol.* 1999 volume 104, number 3, part 1 | Yuan et al. *Haematologica* 2017 Mar, 102(3) 466-475 | Inlyta, EMA 2012 May; CHMP assessment report | 2014 R13 HAE conference, Che, Wilson, Babu, Preclinical Characterization of BCX4161, an oral plasma kallikrein inhibitor, for the treatment of Hereditary Angioedema.

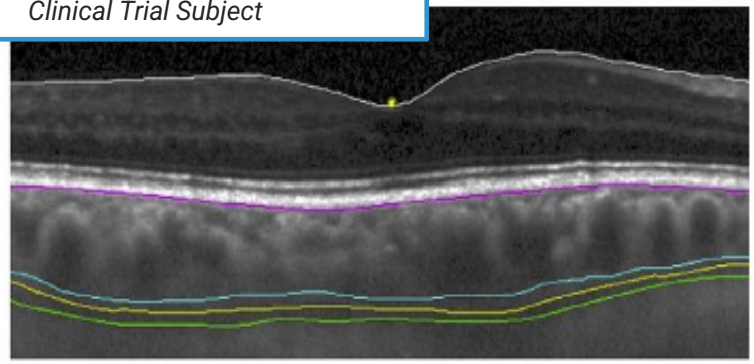
SCS Microinjector Expands the SCS Circumferentially and Posteriorly to Deliver Drugs to the Macula

- A natural pressure gradient exists such that IOP > Anterior SCS Pressure > Posterior SCS Pressure
  - This gradient drives injectate towards the lower pressured posterior SCS
- OCT images demonstrate expansion of the SCS after injection, including the macula SCS in humans
- Suprachoroidally injected drug levels are similar peripherally and centrally in the retina and SCS in a preclinical model

POST-INJECTION SCS Expansion, Anterior, *Clinical Trial Subject*



POST INJECTION SCS Expansion, Posterior, *Clinical Trial Subject*



Sources: Lampen SIR, Khurana RN, Noronha G, Brown DM, Wykoff CC. Suprachoroidal Space Alterations Following Delivery of Triamcinolone Acetonide: Post-Hoc Analysis of the Phase 1/2 HULK Study of Patients With Diabetic Macular Edema. Ophthalmic Surg Lasers Imaging Retina. 2018;49(9):692-697. doi:10.3928/23258160-20180831-07, | Kansara VS, Cooper M, Sesenoglu-Laird O, Muya L, Moen R, Ciulla TA. Suprachoroidally Delivered DNA Nanoparticles Transfect Retina and Retinal Pigment Epithelium/Choroid in Rabbits. Transl Vis Sci Technol. 2020;9(13):21. Published 2020 Dec 15. doi:10.1167/tvst.9.13.21 | Leroy Muya, Viral Kansara, Thomas Ciulla; Pharmacokinetics and Ocular Tolerability of Suprachoroidal CLS-AX (axitinib injectable suspension) in rabbits. Invest. Ophthalmol. Vis. Sci. 2020;61(7):4925 | Emi K, Pederson JE, Toris CB. Hydrostatic pressure of the suprachoroidal space. Invest Ophthalmol Vis Sci. 1989;30(2):233-238. Willoughby et al., Choroidal Changes After SuprachoroidalInjection of Triamcinolone Acetonide in EyesWith Macular Edema Secondary to Retinal VeinOcclusion, American Journal of Ophthalmology, Feb 2018.

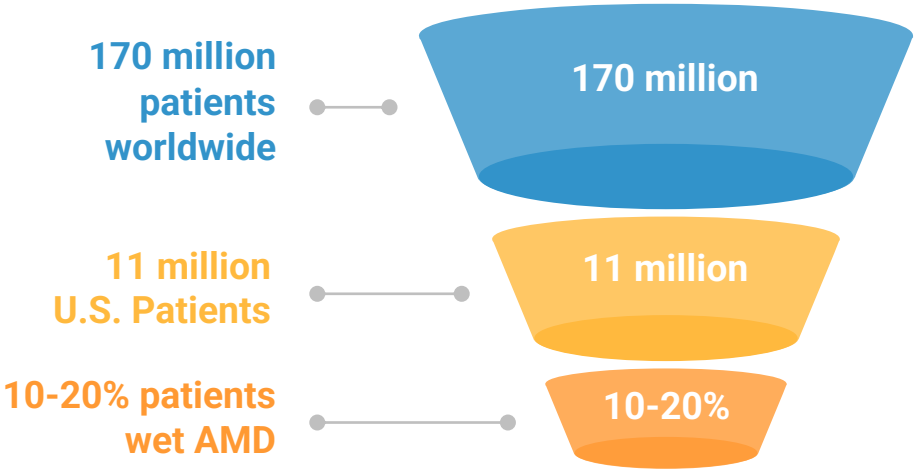
CLS-AX

(axitinib injectable suspension)

for Suprachoroidal Injection

Age-Related Macular Degeneration (AMD)

A large and growing market opportunity



- AMD causes a progressive loss of central vision and is the most common cause of blindness in individuals over age 55
  - Neovascular or Wet AMD accounts for the majority of blindness
- U.S. prevalence expected to increase to 22 million by the year 2050
- Global prevalence expected to increase to 288 million by the year 2040
- Current treatments require frequent injections causing reduced compliance
  - Under-treatment contributes to limited outcomes

Sources: Medscape: F Ryan Prall, MD, et al Assistant Professor of Ophthalmology, Indiana University School of Medicine | Pennington, Katie L and DeAngelis, Margaret M Eye and Vision, Epidemiology of age-related macular degeneration (AMD): associations with cardiovascular disease phenotypes and lipid factors , Dec 22, 2016.

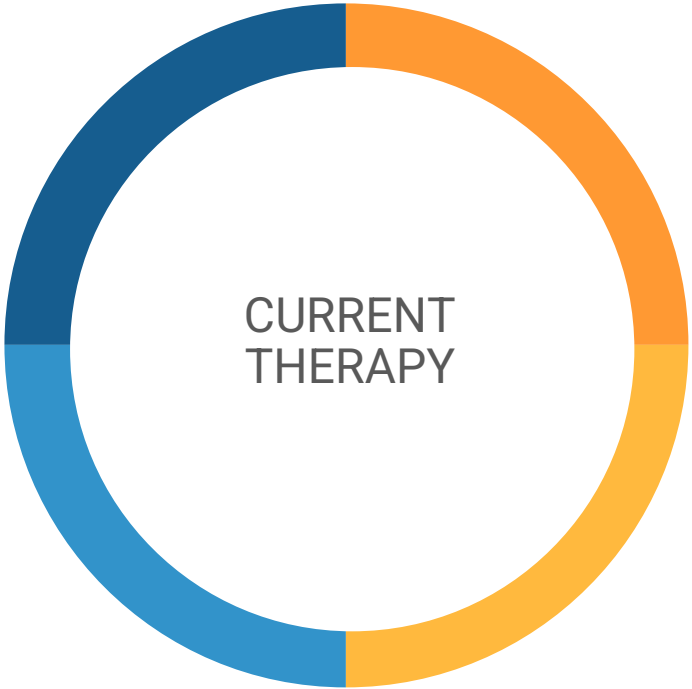
Current Wet AMD Therapies Lead to Under-Treatment and Limited "Real-World" Clinical Outcomes

LIMITED OUTCOMES WITH CURRENT REGIMENS

With on-label anti-VEGF dosing, at 1 year[1-3]:
~1/5 of patients lose BCVA
~1/2 do not achieve ≥ 20/40
~2/3 do not gain ≥ 3 lines BCVA

CEILING OF EFFICACY

In clinical trials, more intensive anti-VEGF regimens or dosage yield no additional BCVA benefit[1,6,7]



TREATMENT BURDEN

On-label dosing involves fixed frequent injections

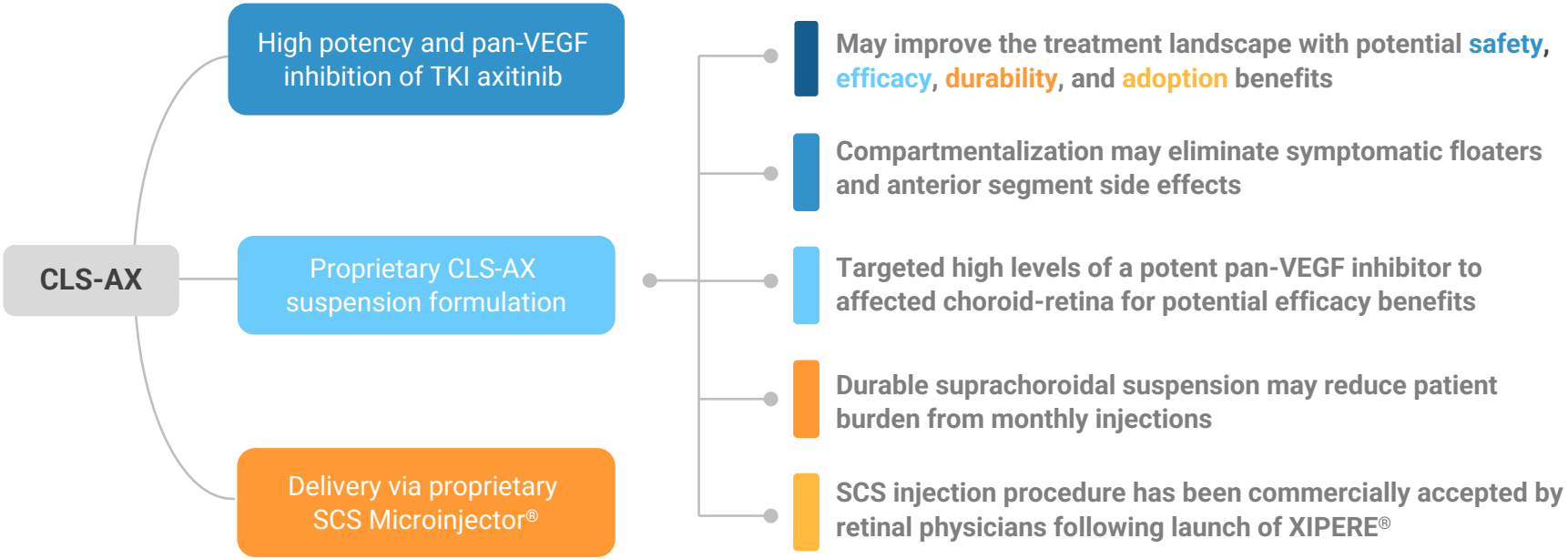
UNDERTREATMENT AND LIMITED REAL-WORLD OUTCOMES

In clinical practice, patients cannot maintain intensive on-label dosing and are undertreated, improving by only 1-3 letters at 1 year[4,5]

Sources: 1. Heier JS et al. *Ophthalmology.* 2012;119:2537-2548. | 2. Brown DM et al. Ophthalmology. 2009;116:57-65.e5. | 3. Rosenfeld PJ et al. N Engl J Med. 2006;355:1419-1431. | 4. Ciulla TA et al. Ophthalmology Retina. 2019 May 25. pii: S2468-6530(19)30280-5. | 5. Rao P, Lum F, Wood K, et al. Ophthalmology. 2018;125:522e528. | 6. Busbee BG et al. Ophthalmology. 2013;120:1046-1056. | 7. Schmidt-Erfurth U et al. Ophthalmology. 2014;121:193-201.

CLS-AX (axitinib injectable suspension) for Suprachoroidal Use

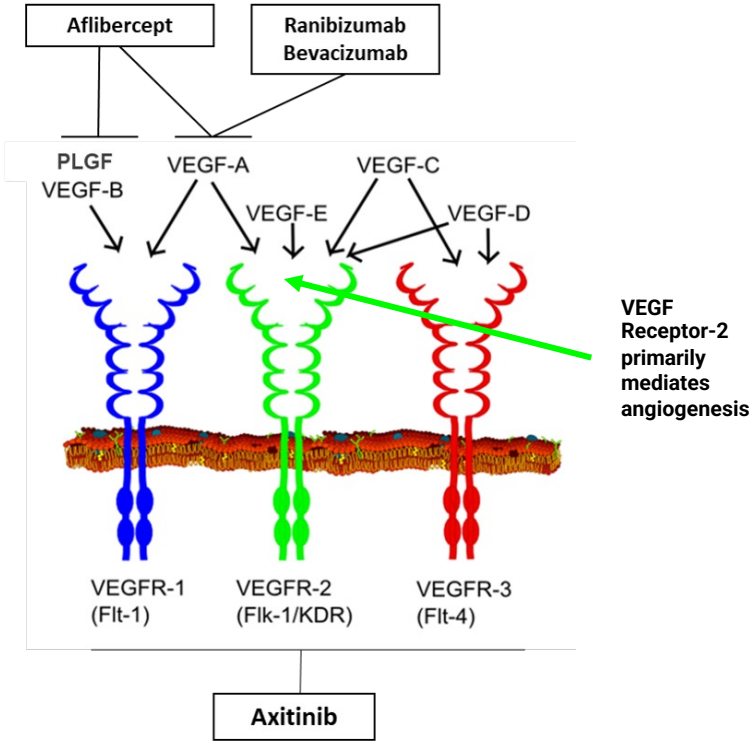
Leveraging a Highly Potent Pan-VEGF Inhibitor with Suprachoroidal Delivery



Axitinib is a tyrosine kinase inhibitor (TKI) | XIPERE® (triamcinolone acetonide injectable suspension), for suprachoroidal use has received U.S. FDA Approval. Please see Important Safety Information for XIPERE in the Full Prescribing Information: https://www.bauschhealth.com/Portals/25/Pdf/PI/XIPERE-PI.pdf. | Source: Viral S. Kansara, Leroy W. Muya, Thomas A. Ciulla; Evaluation of Long-Lasting Potential of Suprachoroidal Axitinib Suspension Via Ocular and Systemic Disposition in Rabbits. *Trans. Vis. Sci. Tech*. 2021;10(7):19.

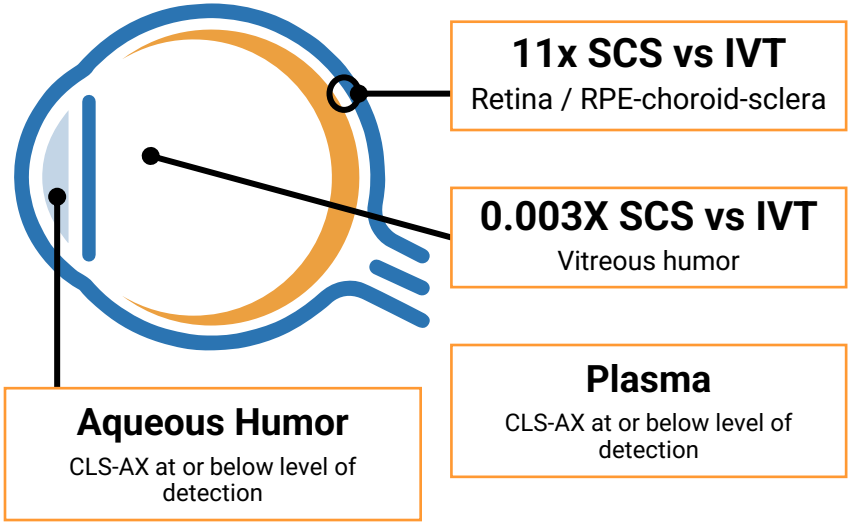
Axitinib: a Highly Potent, Pan-VEGF TKI to Treat Wet AMD

- Axitinib's intrinsic pan-VEGF inhibition through receptor blockade
  - Approved treatments are focused VEGF-A inhibitors
- Inhibits **VEGFR-1**, **VEGFR-2**, **VEGFR-3** receptors
  - More active than anti-VEGF-A in *in-vitro* angiogenesis model[1-2]
- Highly potent tyrosine kinase inhibitor (TKI)
  - >10x more potent than other TKIs in preclinical studies
  - Better ocular cell biocompatibility than other TKIs[3]
  - More active than other TKIs for experimental corneal neovascularization in preclinical models
- Preclinical data showed axitinib inhibition and regression of angiogenesis



Sources: 1. Cabral T et al. Bevacizumab Injection in Patients with Neovascular Age-Related Macular Degeneration Increases Angiogenic Biomarkers. Ophthalmol Retina. 2018 January ; 2(1): 31–37. doi:10.1016/j.oret.2017.04.004. | 2. Lieu et al. The Association of Alternate VEGF Ligands with Resistance to Anti-VEGF Therapy in Metastatic Colorectal Cancer. PLoS ONE 8(10): e77117. | 3. Theile et al. Multikinase Inhibitors as a New Approach in Neovascular Age-Related Macular Degeneration (AMD) Treatment: In Vitro Safety Evaluations of Axitinib, Pazopanib and Sorafenib for Intraocular Use. Klin Monatsbl Augenheilkd 2013; 230: 247-254. | Image by Mikael Häggström, used with permission. Häggström, Mikael (2014). "Medical gallery of Mikael Häggström 2014". WikiJournal of Medicine 1 (2). DOI:10.15347/wjm/2014.008. ISSN 2002-4436. Public Domain.

CLS-AX Injected Suprachoroidally Provides Targeted Delivery Relative to Intravitreal Injection at Same Dose



11x SCS vs IVT
Retina / RPE-choroid-sclera

0.003X SCS vs IVT
Vitreous humor

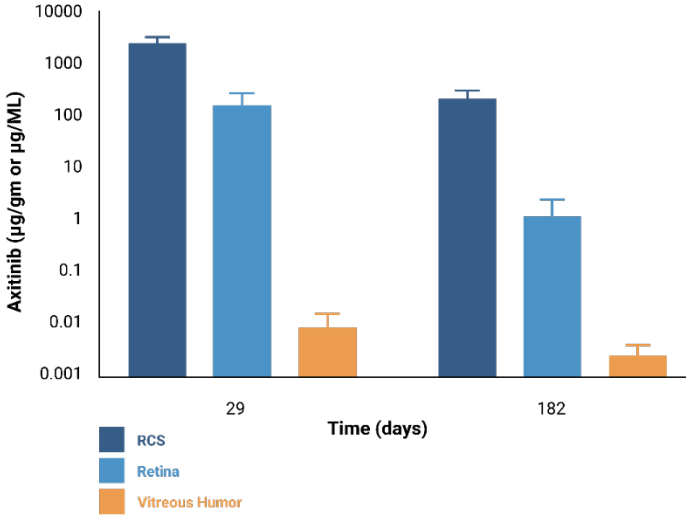
Plasma
CLS-AX at or below level of detection

Aqueous Humor
CLS-AX at or below level of detection

Rabbit Model Values: area under the curve ratios, SCS / IVT
SCS : 1 mg/eye, 100 µL. | IVT: 1 mg/eye, 25 µL
Single bilateral injection, 1-wk rabbit PK studies

CLS-AX has Potential for Meaningful Durability CLS-AX Levels to 6 Months

High Retina Levels: Sufficient to block VEGF pathway
Low Plasma Levels: <1 ng/mL



Rabbit toxicology study with single bilateral suprachoroidal injection of axitinib, 1.05 mg/eye (n=4 eyes/ timepoint)

Sources: Viral S. Kansara, Leroy W. Muya, Thomas A. Ciulla; Evaluation of Long-Lasting Potential of Suprachoroidal Axitinib Suspension Via Ocular and Systemic Disposition in Rabbits. *Trans. Vis. Sci. Tech*. 2021;10(7):19.
Abbreviations: SCS: Suprachoroidal Space | IVT: Intravitreal Injection | PK: Pharmacokinetic | RPE: Retinal pigment epithelium I RCS: RPE, Choroid, Sclera

OASIS RESULTS:
3-month final
6-month interim

OASIS (3 Month) and Extension Study (6 Month, Interim Data) Cohorts 3 and 4: Promising CLS-AX Safety Results, Durability and Biologic Effect

SAFETY RESULTS

- Excellent safety profile at all doses and timepoints
- No Serious Adverse Events
- No dose limiting toxicities
- No Adverse Events from inflammation

DURABILITY

In OASIS, to 3 months:

- ≥73% reduction in treatment burden

In Extension Study, to 6 months (interim data):

- ≥90% reduction in treatment burden

BIOLOGIC EFFECT

- Stable mean Best Corrected Visual Acuity (BCVA)
- Stable mean Central Subfield Thickness (CST)
- On optical coherence tomography (OCT), anatomical signs of tyrosine kinase inhibitor (TKI) biologic effect were observed in anti-VEGF treatment-experienced sub-responders

NEXT STEPS

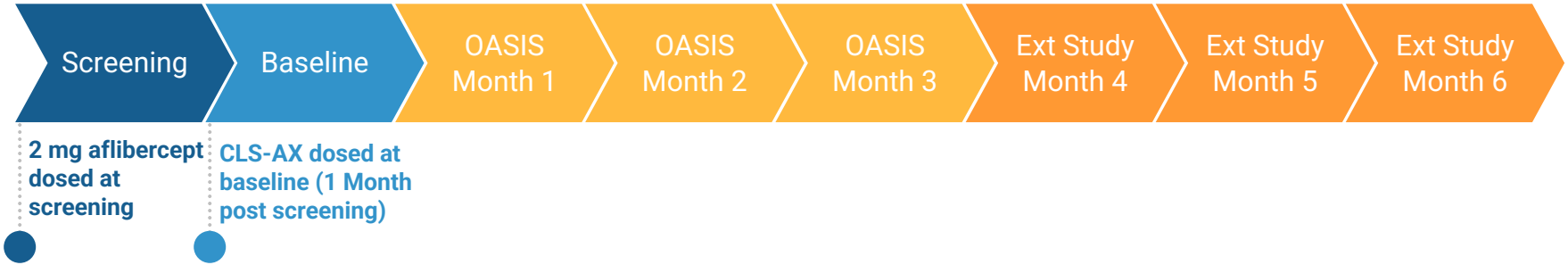
- Follow remaining patients in Extension Study with final data expected in Q1 2023
- Initiate Phase 2 clinical trial in Q1 2023

Source: Clearside data on file. | Extension Study interim data as of October 27, 2022.

OASIS and Extension Study: CLS-AX Phase 1/2a Clinical Trial in Treatment-Experienced Wet AMD Patients with Active Disease at Screening

TRIAL DESIGN AND OBJECTIVES

- Open-label study with a primary endpoint to evaluate safety and tolerability of escalating single doses of CLS-AX administered through suprachoroidal injection following IVT aflibercept
- Wet AMD patients with ≥2 anti-VEGF treatments in the prior 4 months, reading center confirmation of persistent active disease
- Dose-escalation of CLS-AX (in mg): Cohort 1 at 0.03; Cohort 2 at 0.1; Cohort 3 at 0.5; Cohort 4 at 1.0
- Secondary endpoints: visual function, ocular anatomy, and need for additional treatment
- Monthly assessment for additional treatment with aflibercept: loss from best measurement of ≥10 letters in BCVA with exudation; increase in CST >75 microns; a vision-threatening hemorrhage
- 6-Month follow-up after CLS-AX via a 3-month Extension Study



Note: aflibercept is dosed via intravitreal injection (IVT); CLS-AX is dosed via suprachoroidal injection | clinicaltrials.gov NCT# 04626128
Active Disease definition: Active subfoveal choroidal neovascularization (CNV) secondary to AMD in the study eye confirmed by an independent reading center as leakage from a subfoveal CNV on fluorescein angiography and intra-retinal or sub-retinal fluid on OCT central subfield)

OASIS Enrolled Heavily anti-VEGF Treatment-Experienced Wet AMD Patients

Patients were sub-responders with active disease at screening confirmed by reading center

Why target this patient population instead of treatment naïve or patients with controlled disease?

- Patients have a high need for effective therapy with lower treatment burden
- Minimizes the risk of false signals of biologic effect
- Facilitates assessment for biological effect in a difficult-to-treat nAMD patient population
- Facilitates assessment of an appropriate dose, not only based on both safety but also on biologic effect
- Represents a significant number of patients in clinical practice, with >30% sub-responders
- De-risks future clinical studies

Desired outcomes in this heavily treated patient population:

- Demonstrate safety and tolerability of CLS-AX
- Maintain stability of visual acuity and central subfield thickness with lower treatment burden

Enrolling difficult to treat anti-VEGF sub-responders allowed observation of possible signs of biologic effect while minimizing false signals

Core et at. Predominantly Persistent Intraretinal Fluid in the Comparison of Age-related Macular Degeneration Treatments Trials. Ophthalmol Retina. 2022 Sep;6(9):771-785. | Waldstein et al. Morphology and visual acuity in aflibercept and ranibizumab therapy for neovascular age-related macular degeneration in the VIEW trials. Ophthalmology 2016;123:1521-1529.

Active Disease definition: Active subfoveal choroidal neovascularization (CNV) secondary to AMD in the study eye confirmed by an independent reading center as leakage from a subfoveal CNV on fluorescein angiography and intra-retinal or sub-retinal fluid on OCT central subfield)

CLS-AX Demonstrated a Positive Safety Profile in All Four Cohorts

3-Month Final Data & 6-Month Interim Data

SAFETY RESULTS

Excellent Safety Profile at all doses and timepoints

- No serious adverse events (SAEs)
- No treatment emergent adverse events (TEAEs) related to study treatment
- No dose limiting toxicities
- No adverse events related to inflammation, vasculitis or vascular occlusion
- No vitreous “floaters” or dispersion of CLS-AX into the vitreous
- No retinal detachment
- No endophthalmitis
- No adverse events related to intraocular pressure

Source: Clearside data on file. | Extension Study interim data as of October 27, 2022.

OASIS (3 Month): CLS-AX Reduced Treatment Burden Across All Cohorts

Reduction in Treatment Burden
All Therapies

Cohort	Number of Participants	Avg Monthly Injections Before CLS-AX Administration	Avg Monthly Injections After CLS-AX Administration	% Reduction
4	8	0.88	0.25	**72.9**
3	8	0.75	0.13	**79.2**
2	5	0.93	0.37	63.3
1	6	0.94	0.28	69.4

Reduction in Treatment Burden
Therapies Per Protocol Criteria

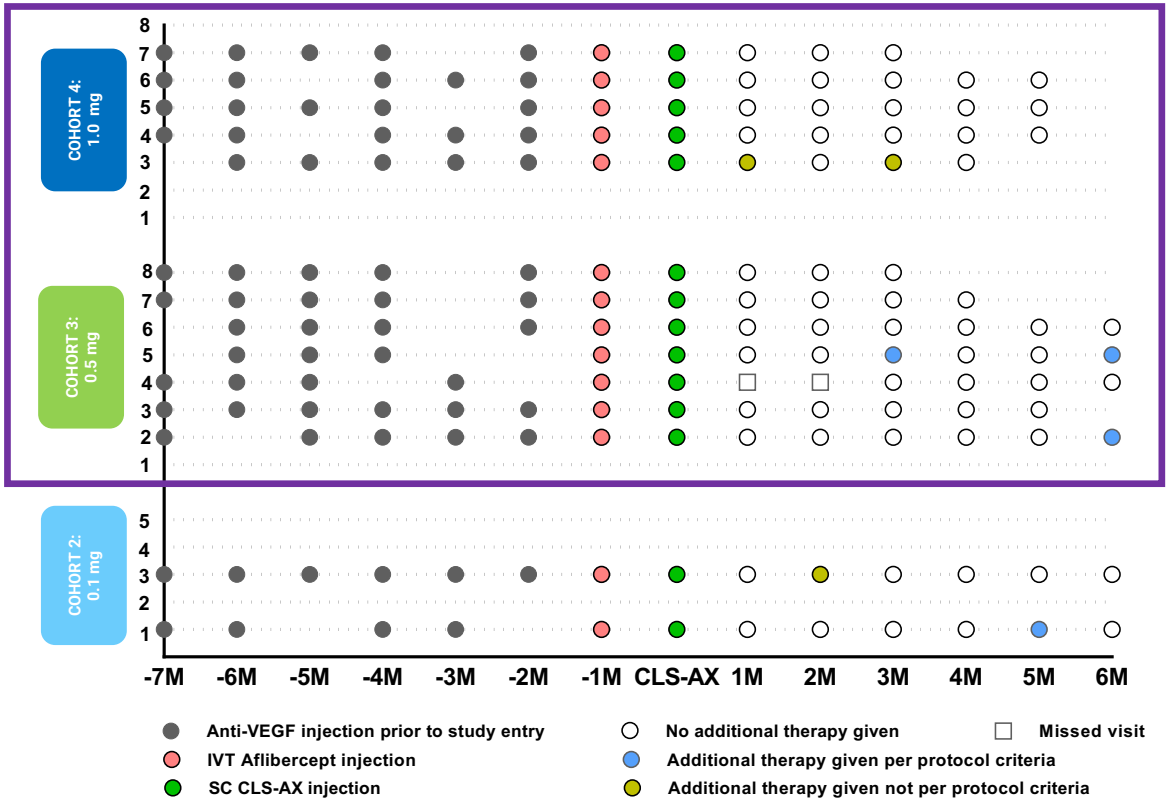
Cohort	Number of Participants	Avg Monthly Injections Before CLS-AX Administration	Avg Monthly Injections After CLS-AX Administration	% Reduction
4	4	0.83	0	**100**
3	8	0.75	0.13	**79.2**
2	2	0.83	0.17	83.3
1	6	0.94	0.28	69.4

73 – 100% Reduction in Treatment Burden in Cohorts 3 and 4

CLEARSIDE BIOMEDICAL

Note: Average Monthly Injections Before CLS-AX Administration = # treatments three months prior / 3.
Average Monthly Injections After CLS-AX Administration = # treatments / # months of follow-up.
% Reduction = Average of individual reductions calculated as (after – before) / before × 100%.
Source: Clearside data on file.

Extension Study (6 Month, Interim Data): Prior Anti-VEGF Therapies and All Additional Therapies



DURABILITY

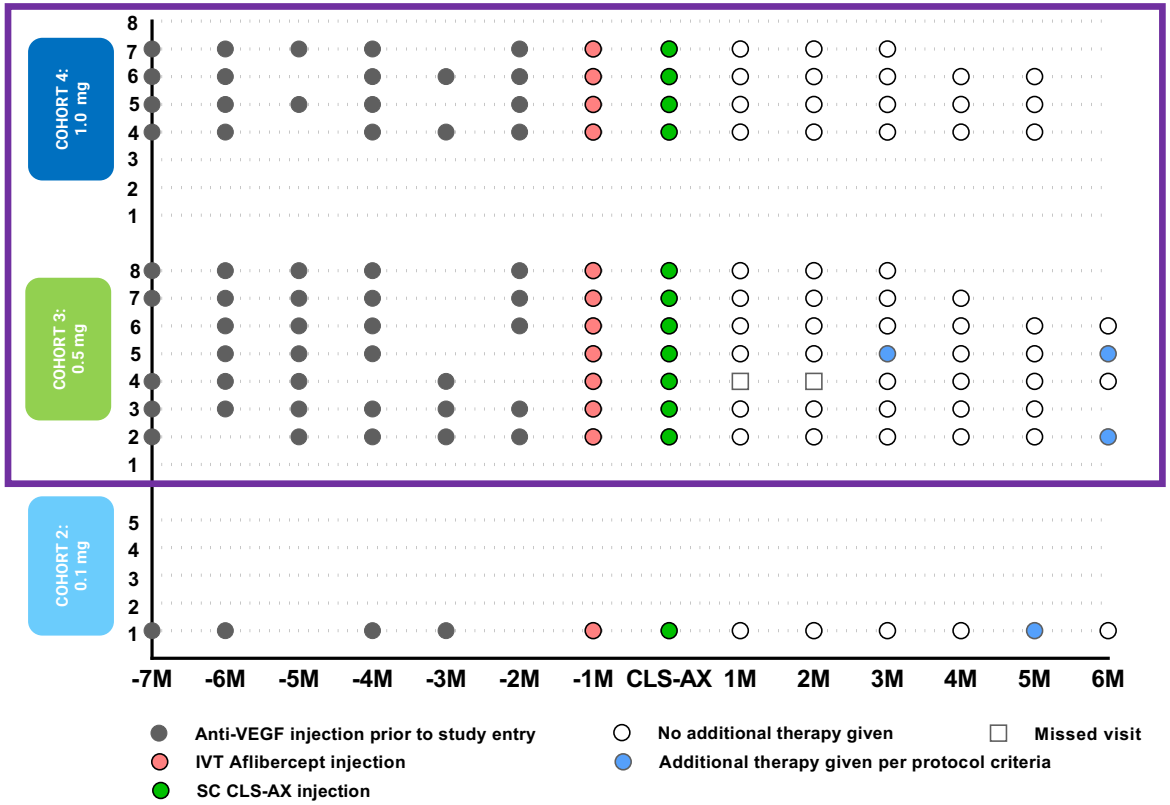
Cohorts 3 & 4

No Additional Therapy

To Month 4: 8/10
To Month 5: 7/8
To Month 6: 3/4

Source: Clearside data on file. | Extension Study interim data as of October 27, 2022.

Extension Study (6 Month, Interim Data): Prior Anti-VEGF Therapies and Additional Therapies Per Protocol Criteria



DURABILITY

Cohorts 3 & 4

No Additional Therapy

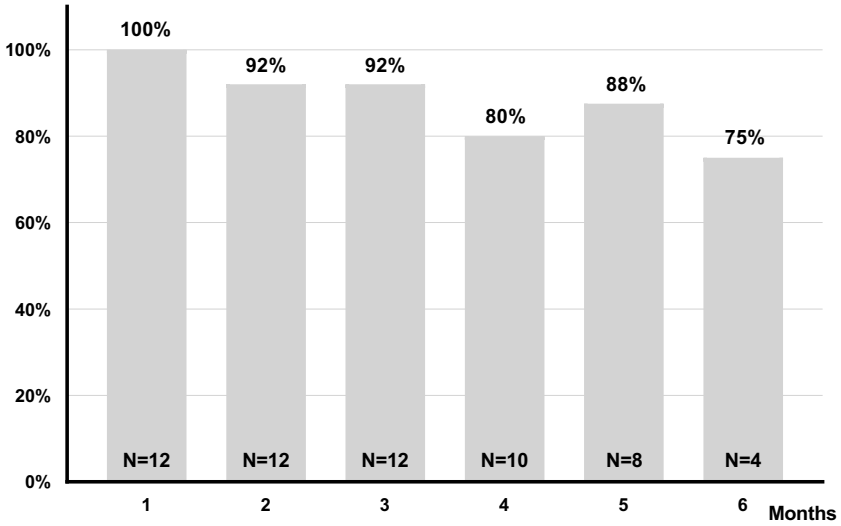
To Month 4: 8/9
To Month 5: 7/8
To Month 6: 3/4

Excludes patients whose first additional therapy was not per protocol-defined criteria.
Source: Clearside data on file. | Extension Study interim data as of October 27, 2022.

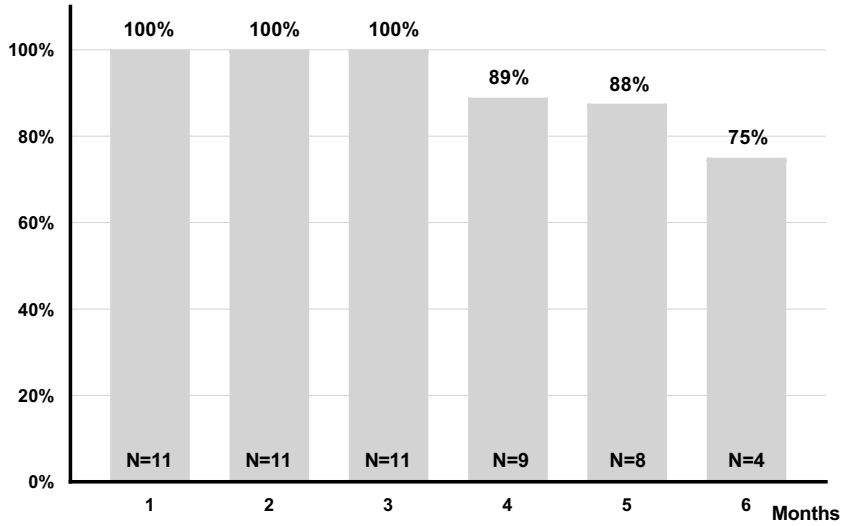
Extension Study (6 Month, Interim Data): Supplemental Anti-VEGF Injection-Free Rate up to Each Visit in Cohorts 3 and 4

Extension Study Interim Data: 75% of Patients with No Additional Therapy to Month 6

All Therapies



Therapies Per Protocol Criteria



Source: Clearside data on file. | Extension Study interim data as of October 27, 2022.

Extension Study (6 Month, Interim Data): CLS-AX Reduced Treatment Burden Across Cohorts

Reduction in Treatment Burden
All Therapies

Cohort	Number of Participants	Avg Monthly Injections Before CLS-AX Administration	Avg Monthly Injections After CLS-AX Administration	% Reduction
4	5	0.87	0.10	**90.0**
3	7	0.81	0.07	**90.0**
2	2	0.83	0.17	79.2

Reduction in Treatment Burden
Therapies Per Protocol Criteria

Cohort	Number of Participants	Avg Monthly Injections Before CLS-AX Administration	Avg Monthly Injections After CLS-AX Administration	% Reduction
4	4	0.83	0	**100**
3	7	0.81	0.07	**90.0**
2	1	0.67	0.17	75.0

90 – 100% Reduction in Treatment Burden in Cohorts 3 and 4

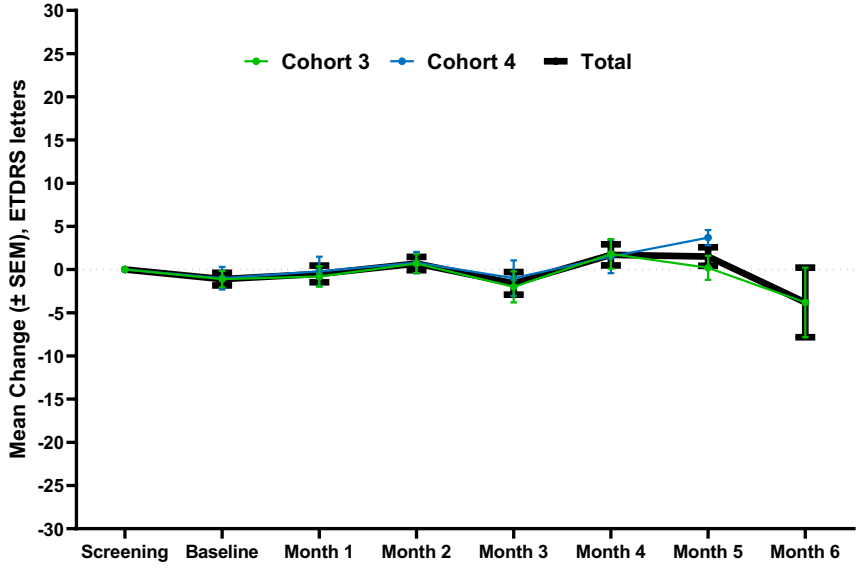
CLEARSIDE BIOMEDICAL

Note: Average Monthly Injections Before CLS-AX Administration = # treatments six months prior/ 6.
Average Monthly Injections After CLS-AX Administration = # treatments / # months of follow-up.
% Reduction = Average of individual reductions calculated as (after – before) / before × 100%.
Source: Clearside data on file. | Extension Study interim data as of October 27, 2022.

Extension Study (6 Month, Interim Data): Stable Visual Acuity

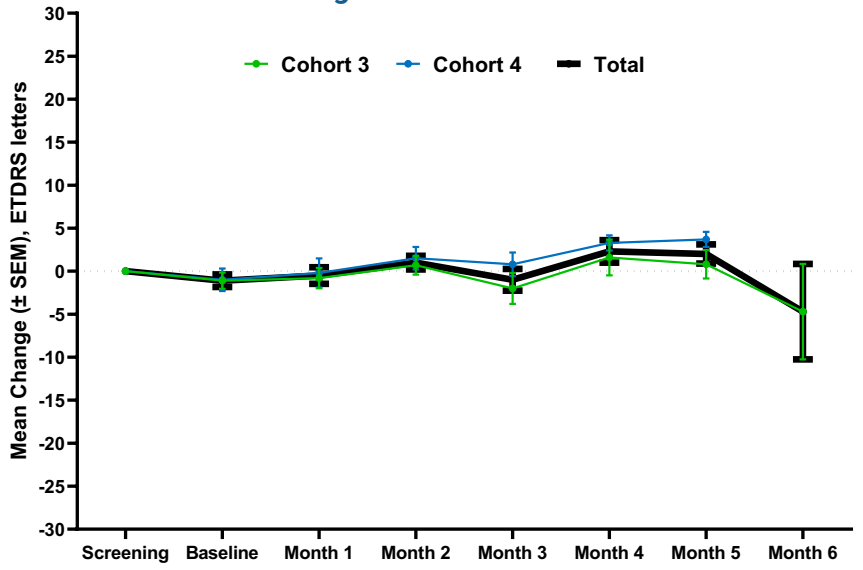
Mean Best Corrected Visual Acuity Letter Score, Change from Screening

All Data



Cohort, n	Scr	Bl	Mth 1	Mth 2	Mth 3	Mth 4	Mth 5	Mth 6
3	7	7	6	6	7	6	5	4
4	5	5	5	5	5	4	3	0

Excluding Data After Additional Treatment



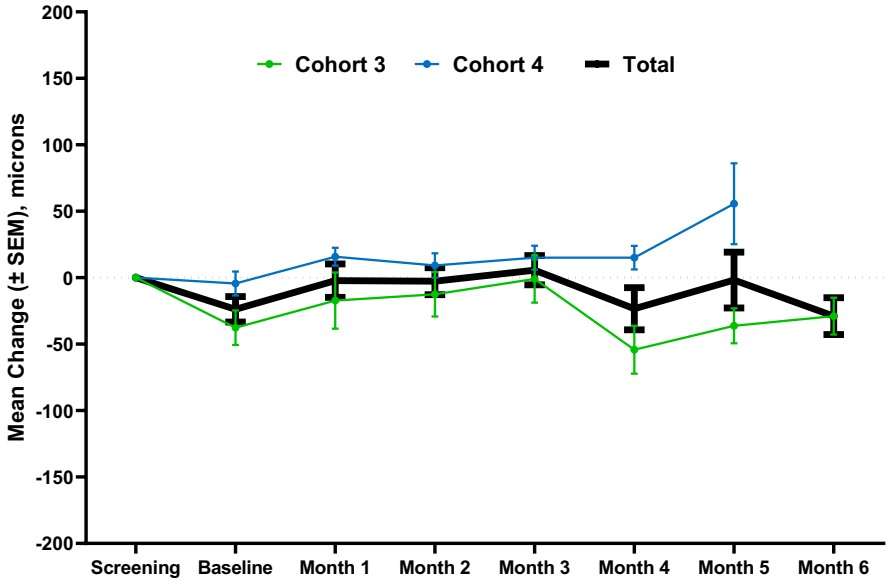
Cohort, n	Scr	Bl	Mth 1	Mth 2	Mth 3	Mth 4	Mth 5	Mth 6
3	7	7	6	6	7	5	4	3
4	5	5	5	4	4	3	3	0

Source: Clearside data on file. | Extension Study interim data as of October 27, 2022.

Extension Study (6 Month, Interim Data): Stable Central Subfield Thickness

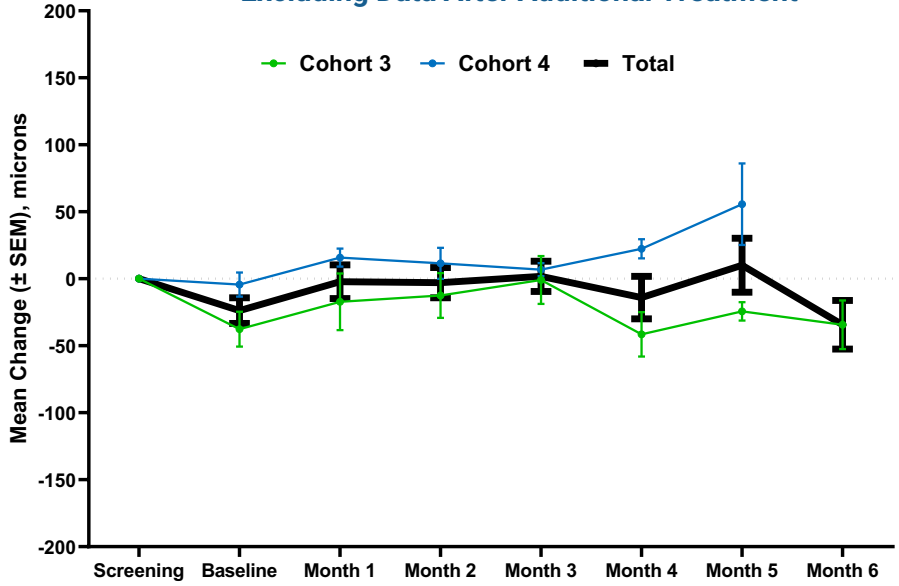
Mean Central Subfield Thickness, Change from Screening

All Data



Cohort, n	Scr	Bl	Mth 1	Mth 2	Mth 3	Mth 4	Mth 5	Mth 6
3	7	7	6	6	7	5	5	4
4	5	5	5	5	5	4	3	0

Excluding Data After Additional Treatment



Cohort, n	Scr	Bl	Mth 1	Mth 2	Mth 3	Mth 4	Mth 5	Mth 6
3	7	7	6	6	7	4	4	3
4	5	5	5	4	4	3	3	0

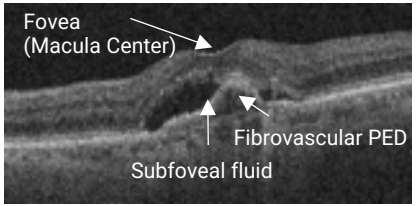
CLEARSIDE BIOMEDICAL

Source: Clearside data on file. | Extension Study interim data as of October 27, 2022.

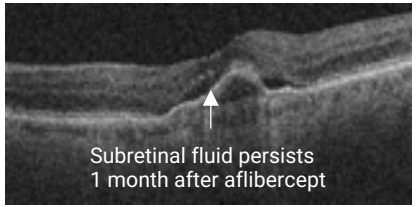
6 Month Case Study:
CLS-AX Demonstrated Biologic Effect in anti-VEGF Sub-responder

Cohort 3, Subject 2: 89 prior anti-VEGF injections with persistent subfoveal fluid 1 month after aflibercept at screen

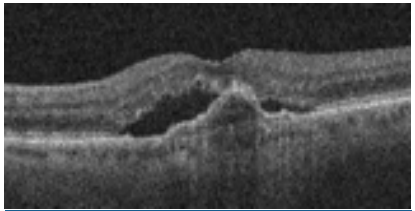
Subretinal fluid gradually resolves through 4 months after CLS-AX with stable BCVA and improved CST



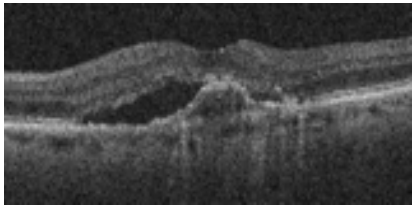
Screening: Aflibercept
BCVA 75, CST 265



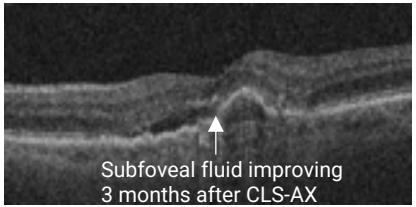
Baseline: CLS-AX
BCVA 73, CST 218



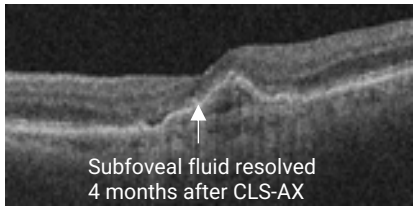
Month 1
BCVA 78, CST 277



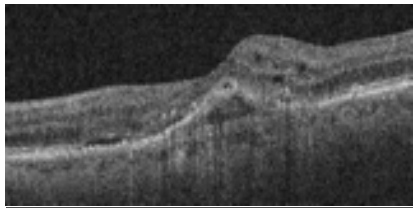
Month 2
BCVA 78, CST 253



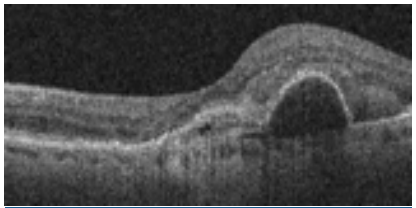
Month 3
BCVA 75, CST 221



Month 4
BCVA 74, CST 182



Month 5
BCVA 75, CST 223



Month 6: Additional therapy administered
BCVA 60, CST 224

Source: Clearside data on file. | Extension Study interim data as of October 27, 2022.

CLS-AX in Suprachoroidal Space Demonstrates Promising Safety Results, Durability and Biologic Effect in Anti-VEGF Treatment Experienced Sub-responders

	OASIS Results	Competitive Advantages
Safety (All Cohorts)	**Excellent Safety Profile at all doses and timepoints** • No SAEs, No TEAEs related to study treatment • No dose limiting toxicities • No AEs related to inflammation, vasculitis or vascular occlusion • No vitreous “floaters” or dispersion of CLS-AX into the vitreous • No retinal detachments or endophthalmitis • No AEs related to intraocular pressure	• As a well-characterized small molecule, less risk for inflammation than a novel biologic agent • No need for an operating room setting • No risk of implant migration and very low risk of vitreous "floaters" or haze • SCS injection procedure commercially accepted by retinal physicians following launch of XIPERE®
Durability (Cohorts 3&4)	**In OASIS, to 3-month timepoint (N=16):** • **69%** of patients did not receive additional therapy • **92%** of patients did not receive additional therapy per protocol • **≥73%** reduction in treatment burden **In Extension Study interim data (N=12):** • **To Month 5: 88% (7/8)** of patients did not receive addl therapy • **To Month 6: 75% (3/4)** of patients did not receive addl therapy • **≥90%** reduction in treatment burden	• CLS-AX showed preliminary signs of durability favorably comparing to other current and investigational intravitreally injected biologic agents • Based on interim extension data at higher doses, CLS-AX suprachoroidal suspension demonstrated it may have durability of effect that favorably compares to other extended release TKI formulations
Biologic Effect (Cohorts 3&4)	**CLS-AX showed signs of biologic effect:** • Stable mean BCVA • Stable mean CST • On OCT, anatomical signs of TKI biologic effect were observed in anti-VEGF treatment-experienced sub-responders	• The most potent TKI in nAMD trials, differentiated from focused VEGF-A blockade • Targeted high levels to affected choroid-retina may further leverage efficacy, particularly in anti-VEGF sub-responders

Source: Clearside data on file. | Extension Study interim data as of October 27, 2022 | XIPERE® (triamcinolone acetonide injectable suspension), for suprachoroidal use received U.S. FDA Approval in October 2021. Please see Important Safety Information for XIPERE in the Full Prescribing Information, 2022: https://www.bauschhealth.com/Portals/25/Pdf/PI/XIPERE-PI.pdf.

Strategic SCS Collaborations & Catalysts

Clinical Programs Utilizing Clearside's SCS Microinjector®

Clinical Development

PROGRAM	THERAPEUTC ENTITY	INDICATION	PHASE 1	PHASE 2	PHASE 3	APPROVAL
CLS-AX (axitinib): CLEARSIDE	Small Molecule	Wet AMD	Phase 1/2 Extension Study Ongoing		OASIS	
CLS-AX (axitinib): CLEARSIDE	Small Molecule	Wet AMD or Diabetic Retinopathy		Phase 2 Planned		
RGX-314: REGENXBIO	AAV-based Gene Therapy	Wet AMD (AAVIATE)				
RGX-314: REGENXBIO	AAV-based Gene Therapy	Diabetic Retinopathy (ALTITUDE)				
AU-011: AURA BIOSCIENCES	Viral-like Drug Conjugate	Ocular Oncology/Choroidal Melanoma				

XIPERE® Commercial Partners

PARTNER	INDICATION	LICENSED TERRITORY	PHASE 1	PHASE 2	PHASE 3	APPROVAL
BAUSCH + LOMB	Uveitic Macular Edema	U.S. & Canada				U.S.A.
ARCTIC VISION	Uveitic Macular Edema	Greater China, South Korea, ASEAN Countries, India, Australia, New Zealand			Arcatus™	
	Diabetic Macular Edema		Arcatus™			

CLEARSIDE BIOMEDICAL

XIPERE® (triamcinolone acetonide injectable suspension), for suprachoroidal use has received U.S. FDA Approval | In China, Arctic Vision is developing Arcatus™ (triamcinolone acetonide injectable suspension), formerly referred to as ARVN001, and known as XIPERE in the U.S.

Four Validating Partnerships to Drive Growth

REGENXBIO

aura

BAUSCH + LOMB

arctic VISION

VALIDATION: Validates our investment in suprachoroidal delivery using our SCS Microinjector

OPPORTUNITY: Maximizes the commercial and development opportunities for XIPERE in multiple geographic markets

EXPANSION: Expands our overall internal and collaborative product development pipeline

NON-DILUTIVE FUNDING: potential development and sales milestones, and potential royalties to fund our internal R&D pipeline*

*Subject to royalty financing agreement signed in August 2022

Enabling SCS Delivery of AAV Gene Therapy for Retinal Disease

THE OPPORTUNITY: GENE THERAPY FOR RETINAL DISEASES

- Exclusive worldwide rights to our SCS Microinjector for delivery of adeno-associated virus (AAV)-based therapeutics to the suprachoroidal space to treat wet AMD, diabetic retinopathy and certain other conditions for which anti-VEGF treatment is the standard of care
- Two ongoing multi-center, open-label, randomized, controlled, dose-escalation studies evaluating the efficacy, safety and tolerability of suprachoroidal delivery of RGX-314
- Delivery of gene therapy through the SCS may provide a targeted, in-office, non-surgical treatment approach option
- **First data ever presented utilizing gene therapy delivered into the suprachoroidal space**
- THE TERMS:
  - Up to $136M in regulatory, development and sales milestones across certain VEGF mediated retinal diseases
  - Mid single digit royalties on net sales of SCS Microinjector products

Utilizing SCS Drug Delivery for Ocular Oncology Phase 3 Trial

THE OPPORTUNITY: OCULAR ONCOLOGY

- Worldwide licensing agreement for the use of our SCS Microinjector to deliver their proprietary drug candidates into the SCS for the potential treatment of certain ocular cancers, including choroidal melanoma (CM)
- Non-surgical alternative to intravitreal delivery of Aura's oncology drug candidates via our SCS Microinjector
- CM is the most common, primary intraocular tumor in adults
- THE TERMS:
  - Up to $21M in regulatory and development milestones
  - Low to mid single digit royalties on net sales of SCS Microinjector products

AU-011 PHASE 2 CLINICAL TRIAL

- Evaluate Safety and Efficacy of AU-011 Via Suprachoroidal Administration in Subjects With Primary Indeterminate Lesions & Small Choroidal Melanoma
- **Positive interim data results (Q3 2022):**
  - Positive safety profile with tolerability up to three cycles of therapy : No treatment related SAEs or DLTs; no posterior inflammation; only Grade 1 anterior inflammation in 20% of patients
  - Reduction in tumor growth rate and tumor control: Cohorts 5-6 demonstrated stat sig reduction in tumor growth rate and an 88.9% (8/9) tumor control rate.
- **Planning Phase 3 trial using SCS administration:** 3-arm randomized, masked trial in ~75 CM patients

Source: Kim, et al, "A Phase 2 Trial of Belzupacap Sarotalocan (AU-011) A First-in-Class Targeted Therapy for Choroidal Melanoma via Suprachoroidal Administration", AAO, October 2, 2022.

XIPERE: Two Global Commercialization & Development Partners

XIPERE® (triamcinolone acetonide injectable suspension) 40 mg/mL

BAUSCH + LOMB

- License for the U.S. and Canada
- Received $20M in upfront, U.S. approval and pre-launch milestones
- Up to $57M in milestone payments
- Tiered royalties from the high-teens to 20%

arctic VISION

- License for Greater China, South Korea, ASEAN Countries, India, Australia, New Zealand
- Received $11M in upfront and U.S. approval payments
- Up to $33M in additional approvals, development and sales milestones
- Tiered royalties of 10% to 12%

Non-Dilutive Royalty Financing Provides Cash Runway into 2024

FUNDING

- Upfront cash payment of $32.5M, less certain expenses
- May receive up to $65 million dollars
  - Additional $12.5M deposited in an escrow account to be released to CLSD upon attainment of a pre-specified sales milestone for XIPERE by 3/31/24
  - Eligible for additional payment of $20M to CLSD upon attainment of a second, pre-specified 2024 XIPERE sales milestone
- Provides funding into 2024

TERMS

- Funder will receive royalties and milestone payments due to CLSD from XIPERE and certain SCS Microinjector license agreements
- Repayment capped at 2.5 times total payments received by CLSD. Then CLSD will keep any future royalty and milestone payments from these agreements
- Cap may be increased under certain circumstances after 2024
- **Excludes** all internally developed assets and programs, including CLS-AX, as well as any future in-licensed assets

Targeted Catalysts in 2023

CLEARSIDE PROGRAMS

CLS-AX (axitinib injectable suspension)

- **Q1:** Final OASIS Phase 1/2a data from 6-month extension study
- **Q1:** Phase 2 clinical trial initiation

Medical/Scientific meeting presentations

- **Q1:** Angiogenesis, Macula Society, Next Generation Ophthalmic Drug Delivery Summit - Suprachoroidal Delivery Workshop
- **Q2:** ARVO
- **Q3:** ASRS
- **Q4:** AAO, Retina Society

Publications

- Expert panel practice guidelines on Suprachoroidal Space (SCS®) delivery

PARTNER PROGRAMS

Bausch + Lomb: XIPERE® marketing in North America

Arctic Vision: XIPERE® (Arcatus™) development in China

- Phase 3 UME trial enrollment ongoing
- Phase 1 DME trial data

REGENXBIO: RGX-314 delivered via SCS Microinjector®

- Additional data from AAVIATE trial in wet AMD
- Additional data from ALTITUDE trial in DR

Aura Biosciences: AU-011 delivered via SCS Microinjector® in choroidal melanoma

- Additional data from Phase 2 trial
- Initiation of Phase 3 trial using SCS® administration

XIPERE® (triamcinolone acetonide injectable suspension) for suprachoroidal use | In China, Arctic Vision is developing Arcatus™ (triamcinolone acetonide injectable suspension), formerly referred to as ARVN001, and known as XIPERE in the U.S. | REGENXBIO (RGNX) trials involve suprachoroidal delivery of RGX-314 using the SCS Microinjector | Aura Biosciences trials involve suprachoroidal delivery of AU-011 using the SCS Microinjector

CLEARSIDE BIOMEDICAL

Nasdaq: CLSD