FOCAL POINT

Cannabinoids and the Eye

OTCQB: SKYE
March 2023

FORWARD LOOKING STATEMENTS

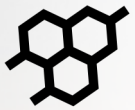
This presentation contains “forward-looking statements”, including statements regarding Skye Bioscience, Inc. “Skye Bioscience and/or the Company”, within the meaning of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995. All statements in this presentation, whether written or oral, that refer to expected or anticipated future actions and results of Skye Bioscience are forward-looking statements. In addition, any statements that refer to expectations, projections or other characterizations of future events or circumstances are forward-looking statements. These forward-looking statements reflect our current projections and expectations about future events as of the date of this presentation. Skye Bioscience cannot give any assurance that such forward-looking statements will prove to be correct. The reader is cautioned not to place undue reliance on these forward-looking statements.

The information provided in this presentation does not identify or include any risk or exposures of Skye Bioscience that would materially adversely affect the performance or risk of the company. For a description of the risks and uncertainties related to the business of Skye Bioscience, see our Annual Report or Form 10-K filed with the Securities and Exchange Commission and our subsequent periodic reports filed with the Securities and Exchange Commission.

All information contained in this presentation is provided as of the date of the presentation and is subject to change without notice. Neither Skye Bioscience, nor any other person undertakes any obligation to update or revise publicly any of the forward-looking statements set out herein, whether as a result of new information, future events or otherwise, except as required by law. This presentation shall not constitute an offer to sell or the solicitation of an offer to sell or the solicitation of an offer to buy any securities of Skye Bioscience, nor shall there be any sale of securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction. This is presented as a source of information and not an investment recommendation.

INVESTMENT SUMMARY

Innovation in ophthalmology to unlock the potential of novel cannabinoid derivatives



Phase 1: dosing started for CB1R agonist program in Dec-22
Phase 2: Received FDA okay to proceed for its Investigational New Drug application; plan to start in USA H1 2023

Transformative new class of therapeutics may play a role in multiple ocular indications

Preclinical foundation for glaucoma with strong ocular R&D capability and pipeline

Multiple academic collaborations to expand pipeline of novel cannabinoid derivatives

Pursuing collaboration and partnership opportunities for programs

STRATEGY FOR GROWTH AND VALUE CREATION

Advance distinct new class of therapeutics to positively impact health of patients with ocular and other diseases

Seeking to affect the endocannabinoid system (ECS) for therapeutic outcomes via the development of cannabinoid derivatives and small molecule drugs

Expand ophthalmology-focused pipeline with new target indications/products in 2023

Clinical plan designed for relevant outcomes with optimized time and cost

TARGETING GLAUCOMA: LARGE MARKET, UNMET NEEDS

World's leading cause of irreversible blindness

$7B drug market

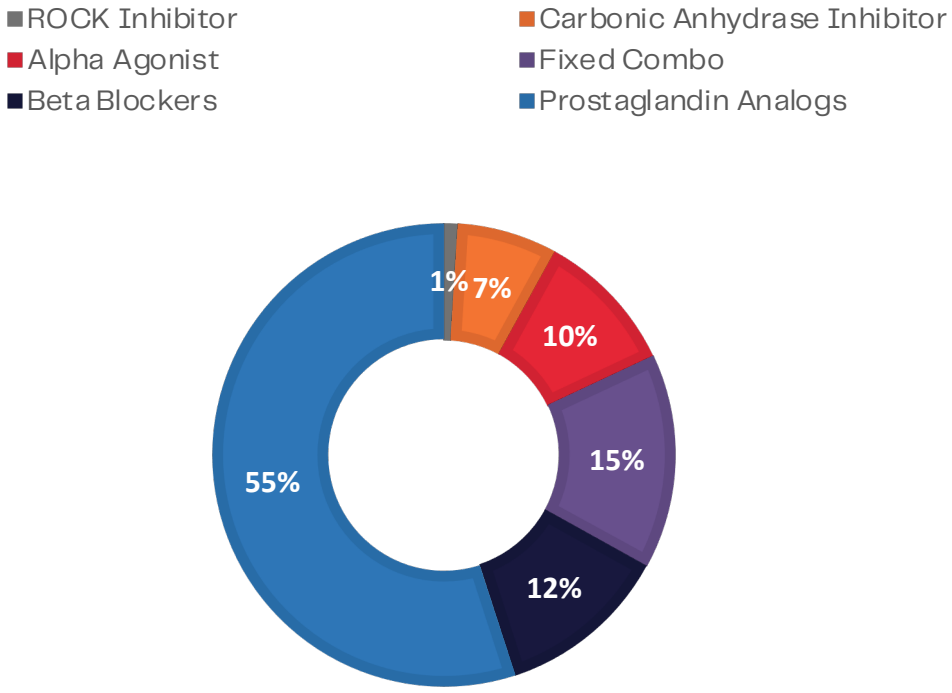
~60M patients worldwide

~110M patients by 2026

40% fail 1st line therapy[1]

50% require 2 therapies[1,2]

MARKET PREDOMINATLY LEGACY CLASSES OF DRUGS AND GENERIC COMPOUNDS



1 Kass et al, Delaying treatment of ocular hypertension: the ocular hypertension treatment study. Arch Ophthalmolgy, 2010; 128:276–287
2 Lichter et al. Interim clinical outcomes in The Collaborative Initial Glaucoma Treatment Study Comparing initial treatment randomized to medications or surgery. Ophthalmology. 2001;108:1943–1953

LEADING CAUSE OF BLINDNESS: GLAUCOMA

Causes progressive damage to the optic nerve resulting in irreversible vison loss

Open Angle Glaucoma (OAG)

- Chronic, progressive optic neuropathy characterized by acquired atrophy of the optic nerve and loss of retinal ganglion cells and their axons; associated with an open anterior chamber angle[1,2]

Etiology & Classification

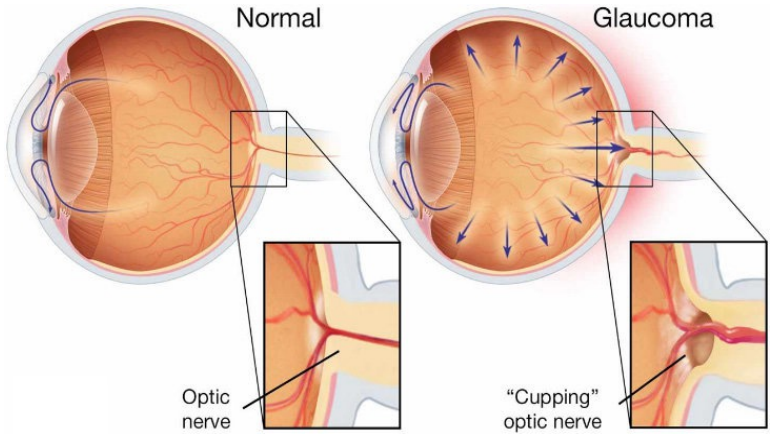
- Primary open-angle glaucoma (POAG) primary subtype of glaucoma; **increased resistance to drainage of the aqueous humor in the trabecular meshwork**, and the angle between the cornea and the iris remain open
- Secondary open-angle glaucoma (less common subtype) is a result of other secondary causes (i.e. eye injury, side effects of medication, diabetes, etc.)

Symptoms & Patient Outcomes

- Blurred vision, eye pain, high intraocular pressure (IOP), haloed vision, nausea, and blind spots in vision[3]
- 6 – 12% of patients with POAG progress to blindness at an incidence rate of ~1% per year[4]

Patient Characteristics

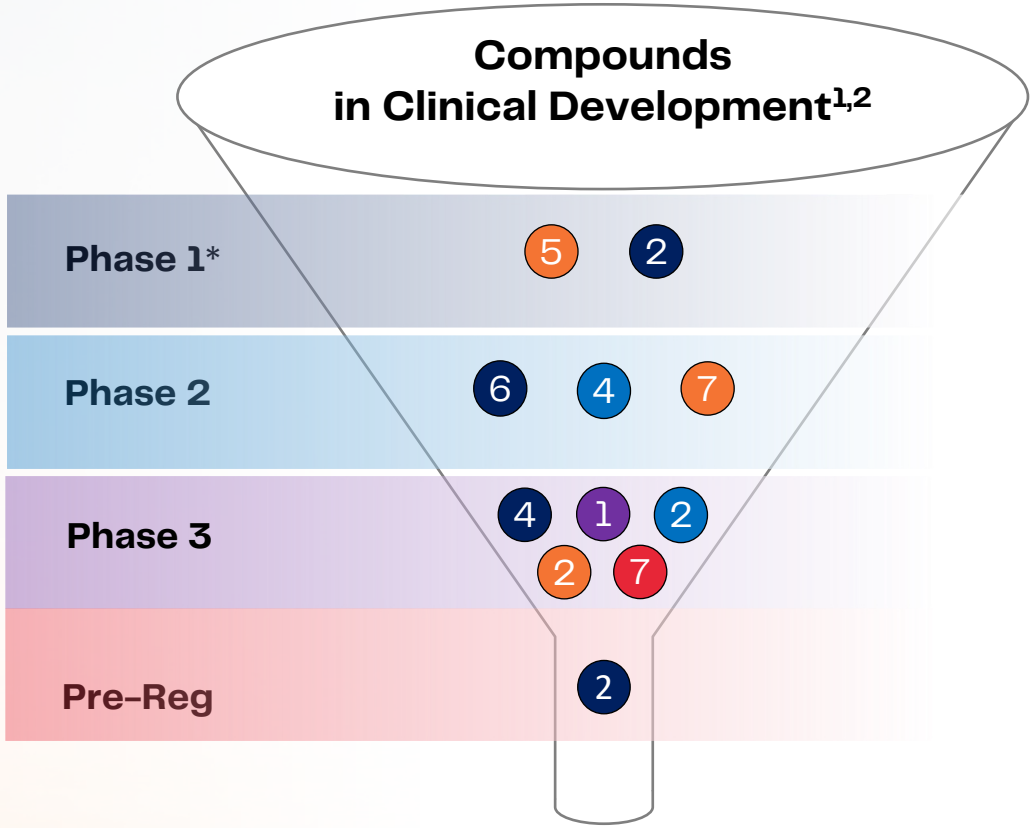
- Major risk factors: age (>60 yrs.), family history, ethnicity, certain medical conditions, and eye injury[3]
- Often undiagnosed in patients as symptoms often do not appear until advanced stages[5]



1 Gupta. Am Fam Physician. 2016;93(8):668; 2 Prum. Ophthalmol. 2016; 123(1):41 3 Glaucoma Research Foundation;
4 Rossetti. PLoS One. 2015 Aug 24;10(8):e0136632; 5 UpToDate; 6 Weinreb. JAMA. 2014; 311(18):1901.

INDUSTRY GLAUCOMA PIPELINE LACKS INNOVATION

Late-stage assets dominated by legacy mechanisms of action



- Prostaglandins
- Adrenergic
- Rho Kinase
- Combinations
- Other**

**Carbonic Anhydrase 2 Inhibitor, Receptor Type Tyrosine Protein Phosphatase Beta Inhibitor, Cholinergic Muscarinic Receptor Agonist, Sulfonamide Protein Kinase Inhibitor, C1q Inhibitor, Potent Corticosteroid Agent, Ciliary Neurotrophic Factor (CNTF), KATP Channel Vessel Relaxer

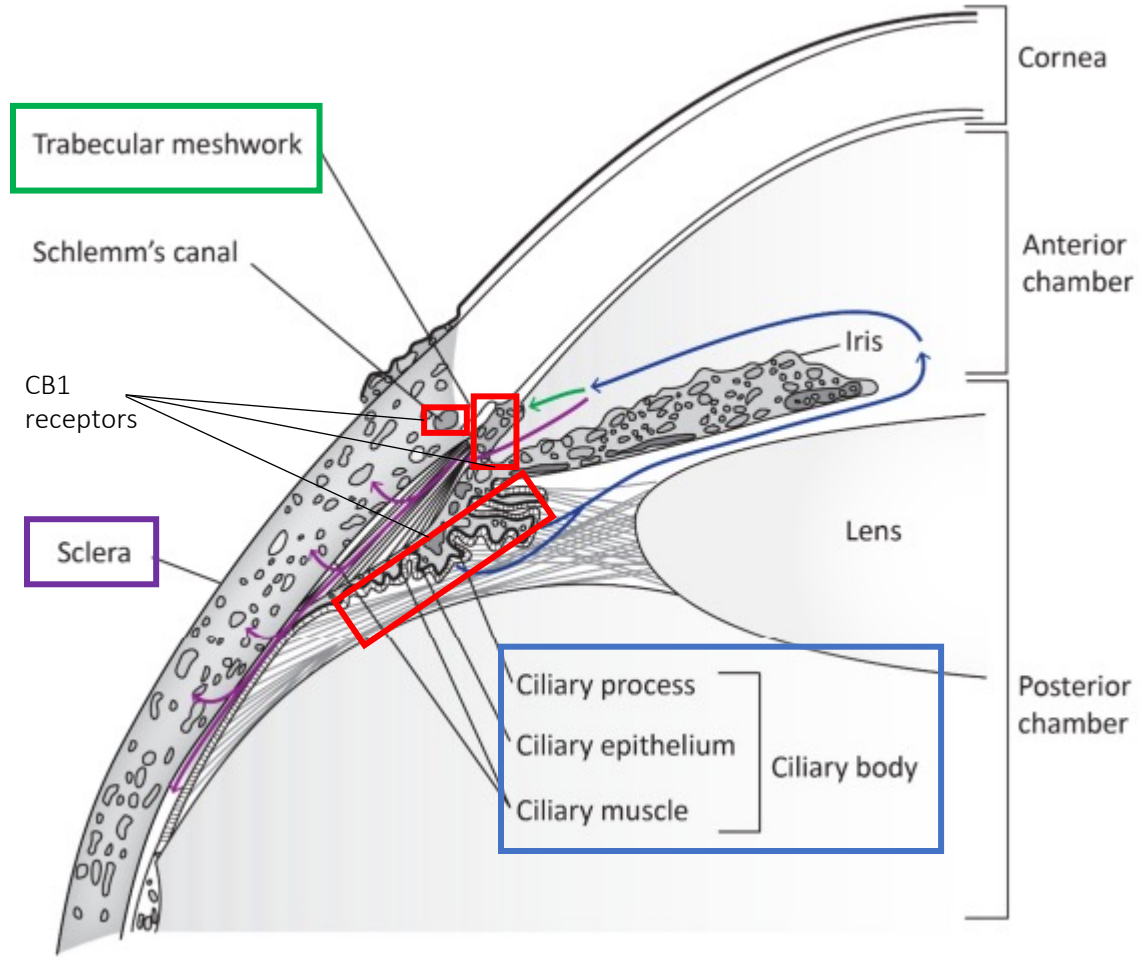
SIGNIFICANT OPPORTUNITY FOR NEW AND IMPROVED CLASSES OF THERAPY

[1] GlobalData; [2] Clinicaltrials.gov
* Compounds listed based on the most recent trial completed or initiated

ABNORMAL AQUEOUS HUMOR DYNAMICS: KEY ROLE

Increased intraocular pressure due to reduced aqueous humor outflow is key issue

- Aqueous humor **(blue)**, produced from the ciliary body, provides nourishment and maintains shape of the eye
- Flows from posterior chamber to anterior chamber. Filtered and drained out of the eye through two outflow pathways: trabecular meshwork **(green)** and uveoscleral pathway **(purple)**
- In a healthy eye, production and drainage are balanced to maintain optimal intraocular pressure or IOP
- Inflammation and fibrosis in trabecular meshwork can diminish outflow of aqueous humor, resulting in increased IOP
- **CB1 receptors** in tissues involved in aqueous humor production and drainage play a role in modulating flow of aqueous humor and health of eye tissue
- CB1R represents a new therapeutic target



Adapted from: Cairns et al, The Endocannabinoid System as a Therapeutic Target in Glaucoma. Neural Plasticity, 2016; Article ID 9364091

THE LONG HISTORY OF GLAUCOMA AND CANNABINOIDS

Since 2020 Skye has rapidly progressed SBI-100 OE into the clinic

LEGEND
- Inhalation studies
- Oral studies
- Eye drop studies
- **Skye and new management**

- Developed proprietary eye drop formulation
- Manufactured first GMP clinical batches
- Completed IND-enabling studies
- Dosed first patients in SBI-100 OE Phase 1
- Received IND FDA OK to proceed
- Phase 2 study to be initiated in 2023

2022

2020

2014 **SBI-100 licensed from UM**

2009 **SBI-100 discovered and patented by UM**

7.5mg dronabinol reduced IOP within 2 hours (N=8) Plange et al.

2007

Oral THC reduced IOP at lowest (5%) dose (N=8) Tomida et al.

2006

No IOP decrease using THC eye drops formulated in mineral oil (N=8) Jay et al.; (N=14) Merritt et al

1982

1981

1981 Oral THC derivative reduces IOP by up to 42% (N=37) Tiedeman et al

1980 23.4% decrease in IOP after smoking cannabis (N=18) Merritt et al

1976 24% decrease in IOP from oral THC (N=120) Hepler et al

1976 34% decrease in IOP after smoking cannabis (N=136) Hepler et al

1971 First report that smoking cannabis can reduce intraocular pressure (N=11) Hepler & Frank

UNLOCKING CANNABINOID THERAPEUTIC POTENTIAL

Rationally designed drugs to prove potential of cannabinoids as therapeutic agents

Mechanistic Rationale

- Cannabinoid receptors are highly expressed in the eye
- CB1 receptor known to have impact on multiple eye diseases
- Previous trials show clear benefit of cannabis/ cannabinoids in glaucoma

Shortcomings of Previous Research

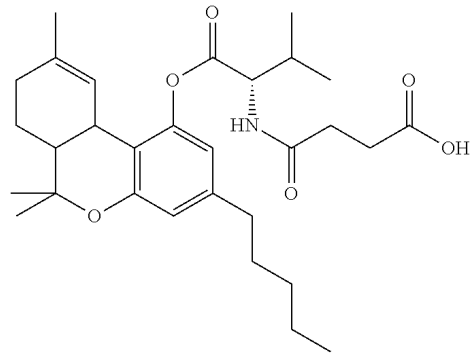
- Natural THC is insoluble and poorly bioavailable when delivered topically
- Oral/inhaled THC results in unwanted side effects
- Limited to no IP on natural THC

Novel Cannabinoids

- Prodrug approach and proprietary formulation ensures improved delivery and reduced toxicity
- Strong IP
- Proof of concept for other indications

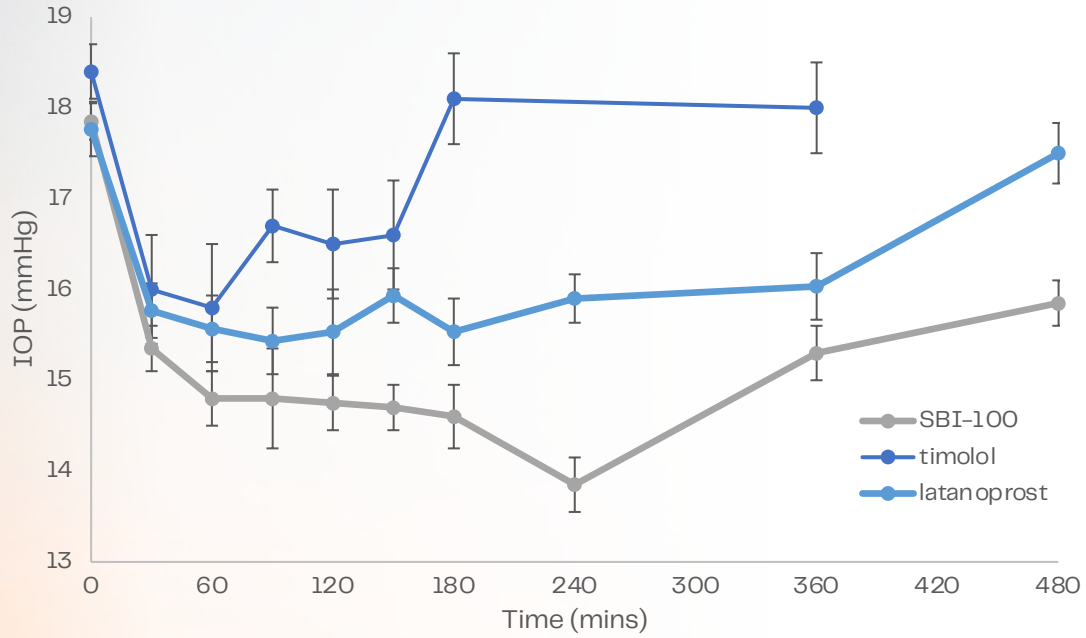
LEAD CLINICAL ASSET: SBI-100 OPHTHALMIC EMULSION

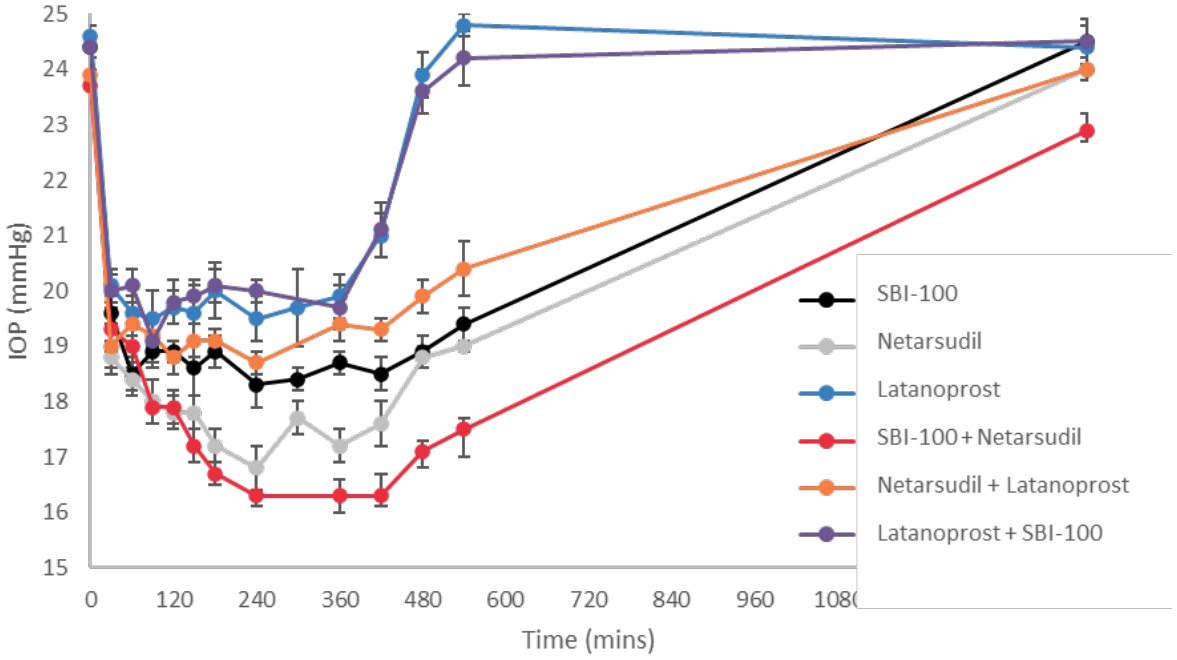
Novel proprietary cannabinoid-derived eye drop formulation

DESIGN FACTOR	RATIONALE	SBI-100 STRUCTURE
Tetrahydrocannabinol (THC)	SBI-100 is a prodrug of THC. The active drug is not water soluble and has poor bioavailability.	 Chemical Formula: $C_{30}H_{43}NO_6$ Molecular Weight: 513.6655 THC-valinate-hemisuccinate (15)
Prodrug design	Overcomes weaknesses of THC by improving solubility, stability and bioavailability. Prodrug is rapidly cleaved once delivered into the eye.	
Prodrug moiety (valine-hemisuccinate)	Valine-hemisuccinate added to THC using a scalable and proprietary synthetic method under GMP control.	
Nanoemulsion formulation (ophthalmic emulsion)	Improves delivery of SBI-100 into multiple structures of the eye.	

SBI-100 DEMONSTRATES SUPERIOR IOP LOWERING

Nonclinical comparison with standard of care drugs shows favorable characteristics



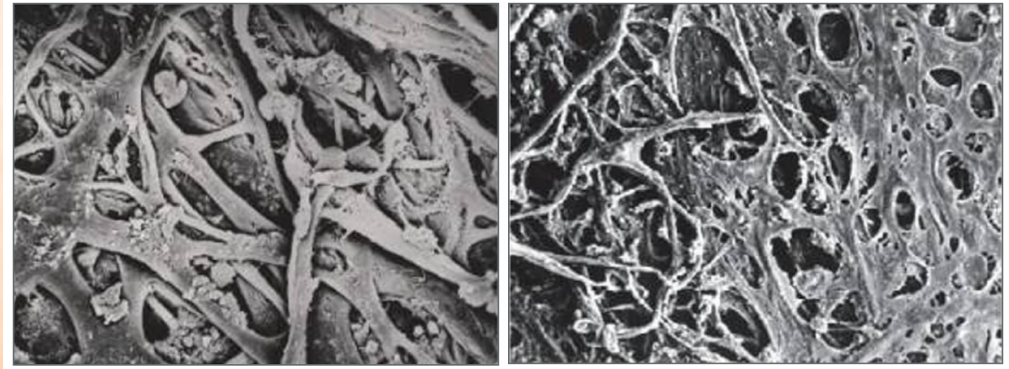


In multiple preclinical studies, SBI-100 demonstrated superior IOP lowering compared to leading therapies as a single agent

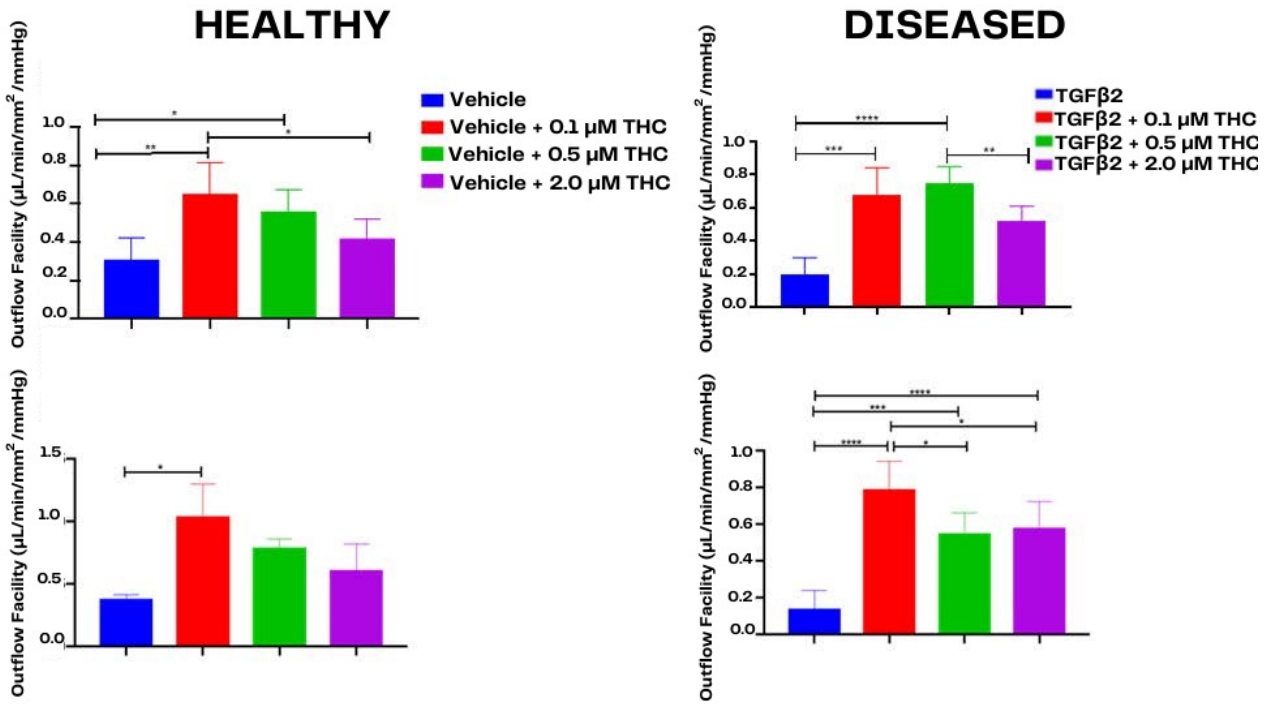
In preclinical studies, SBI-100 demonstrated enhanced efficacy when combined with other approved therapies

INCREASED OUTFLOW VIA TRABECULAR MESHWORK

- The trabecular meshwork (TM) accounts for 90% of aqueous humor outflow (drainage)
- Restricted outflow through TM and fibrosis in tissue may be key to underlying pathophysiology of glaucoma
- The TM is avascular and depends on outflow for nutrients and health; restricted outflow leads to further structural deterioration
- In a 3D model of human TM cells, SBI-100's active pharmaceutical ingredient significantly increased outflow in both healthy and disease-simulated tissue



Normal TM (left), POAG TM (right)



REDUCED MARKERS OF INFLAMMATION & FIBROSIS

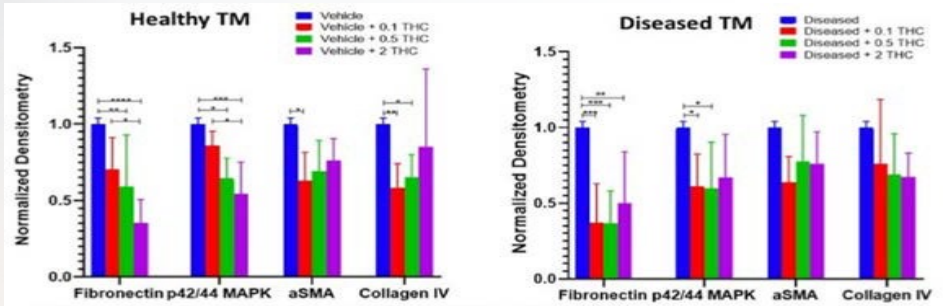


Figure 2. Protein analysis of markers linked to fibrosis at the 3D HTM after 6 days of treatment with THC. All samples of three donors were analyzed using Two-way ANOVA ****P<0.0001, ***P<0.001, **P<0.01, *P<0.05, N ≥ 4 per donor.

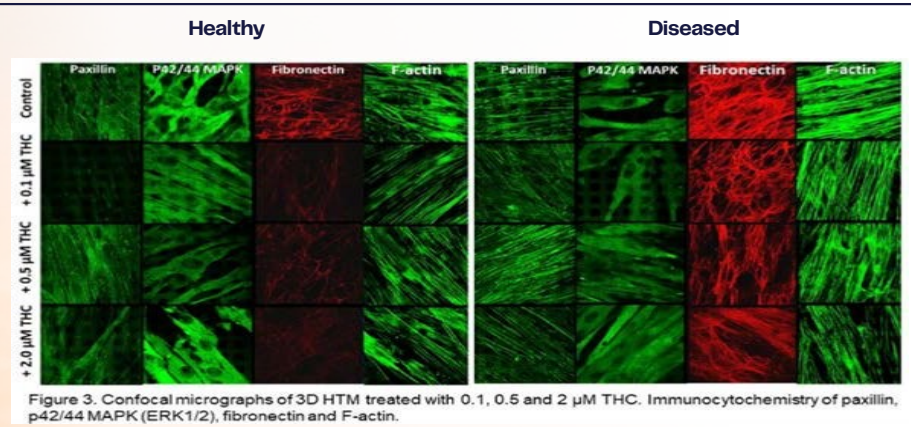
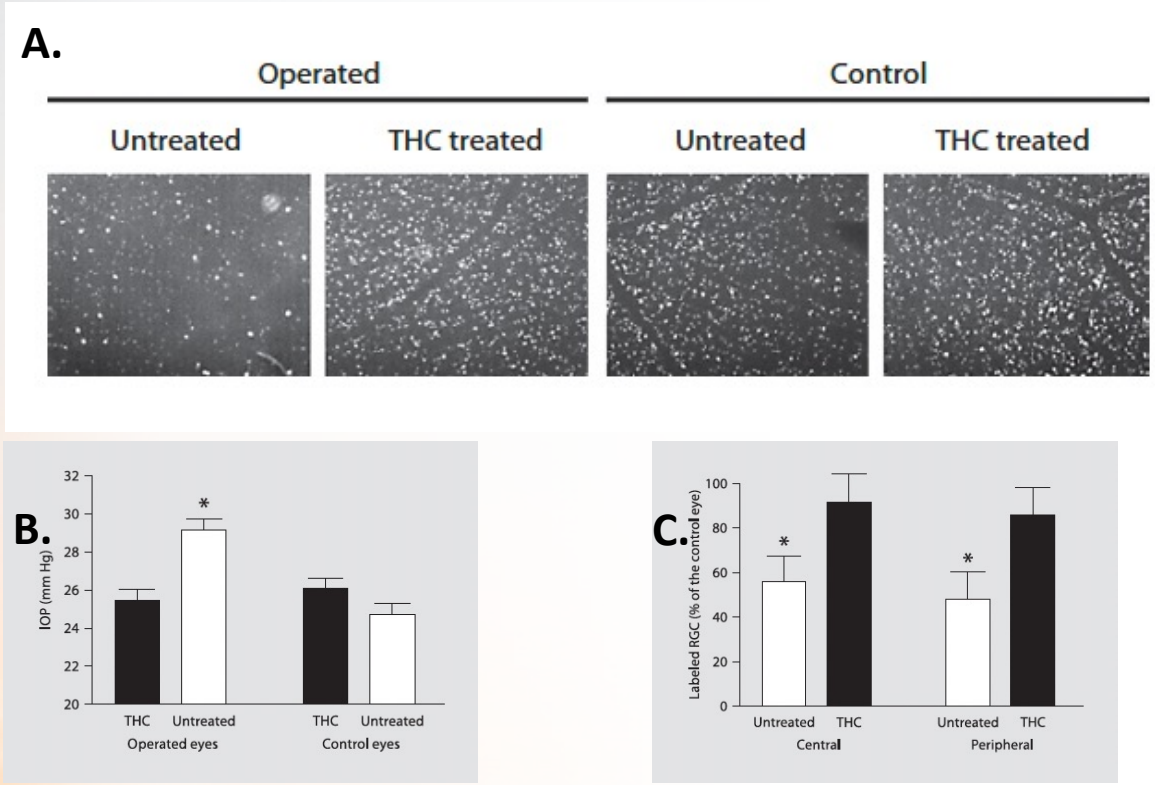


Figure 3. Confocal micrographs of 3D HTM treated with 0.1, 0.5 and 2 µM THC. Immunocytochemistry of paxillin, p42/44 MAPK (ERK1/2), fibronectin and F-actin.

- SBI-100 significantly reduced markers associated with fibrosis and inflammation, which are associated with glaucoma
- Potentially disease-modifying through extracellular matrix remodeling of the trabecular meshwork
- Multi-factorial mechanism of action, including anti-inflammatory and anti-fibrotic responses
- Potential new class of treatment with therapeutic attributes distinct from existing IOP-lowering drugs

SBI-100 HAS POTENTIAL NEUROPROTECTIVE BENEFITS

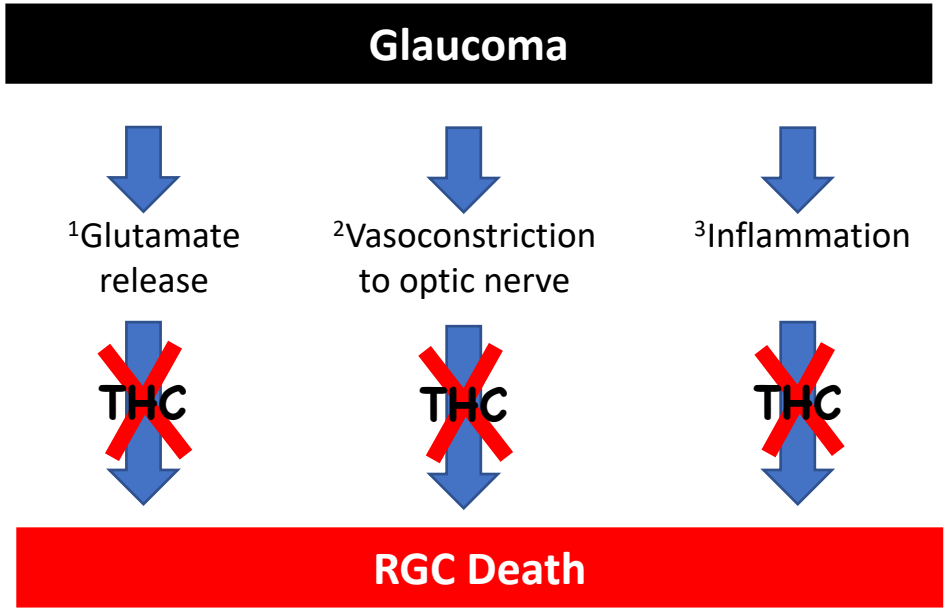
THC preserves retinal ganglion cells in glaucomatous rat model



A) Whole-mount of rats of control and glaucomatous rat eyes. **B**) Reduction of IOP by THC. **C)** Increase in RGC survival in post THC treatment in control and glaucomatous rats.

Crandall et al., Ophthalmic Res 2007;39:69-75

Mechanisms of RGC Death in Glaucoma and THC Neuroprotective Benefits

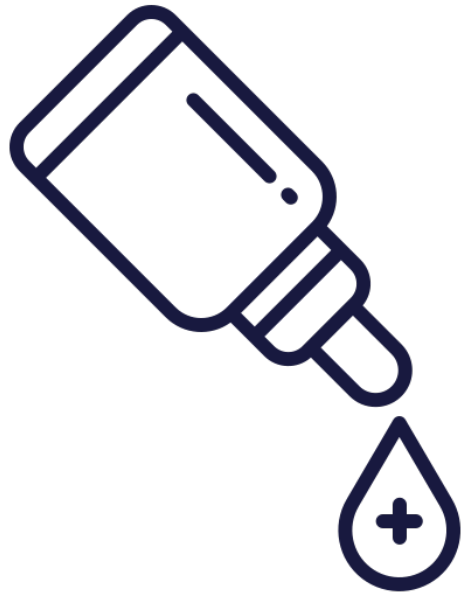


[1] *El-Remessey et al., Am. J. Pathol. 2003 Nov;163(5):1997-2008*
[2] *Green et al., Exp.Eye Res. 1978;26:65-69*
[3] *Krishnan et al., Neuroscience. 2015;284:536-545*

SBI-100 OE: ADDRESSES ISSUES WITH CURRENT TREATMENTS

✓ **Targets area of disease**

- Most drugs do not target the main site of disease-causing increased IOP -- the trabecular meshwork (TM)
- SBI-100 OE directly targets the TM as well as uveoscleral pathways, and may increase flow through the eye
- SBI-100 OE may decrease fibrosis in the TM, the main cause of blockage to flow



✓ **Neuroprotective capabilities**

- Current treatments are not neuroprotective.
- This new class of molecule has shown potential benefits to promote health and survival of optic nerve cells – sparing retinal ganglion cells (RGCs) – in glaucoma models

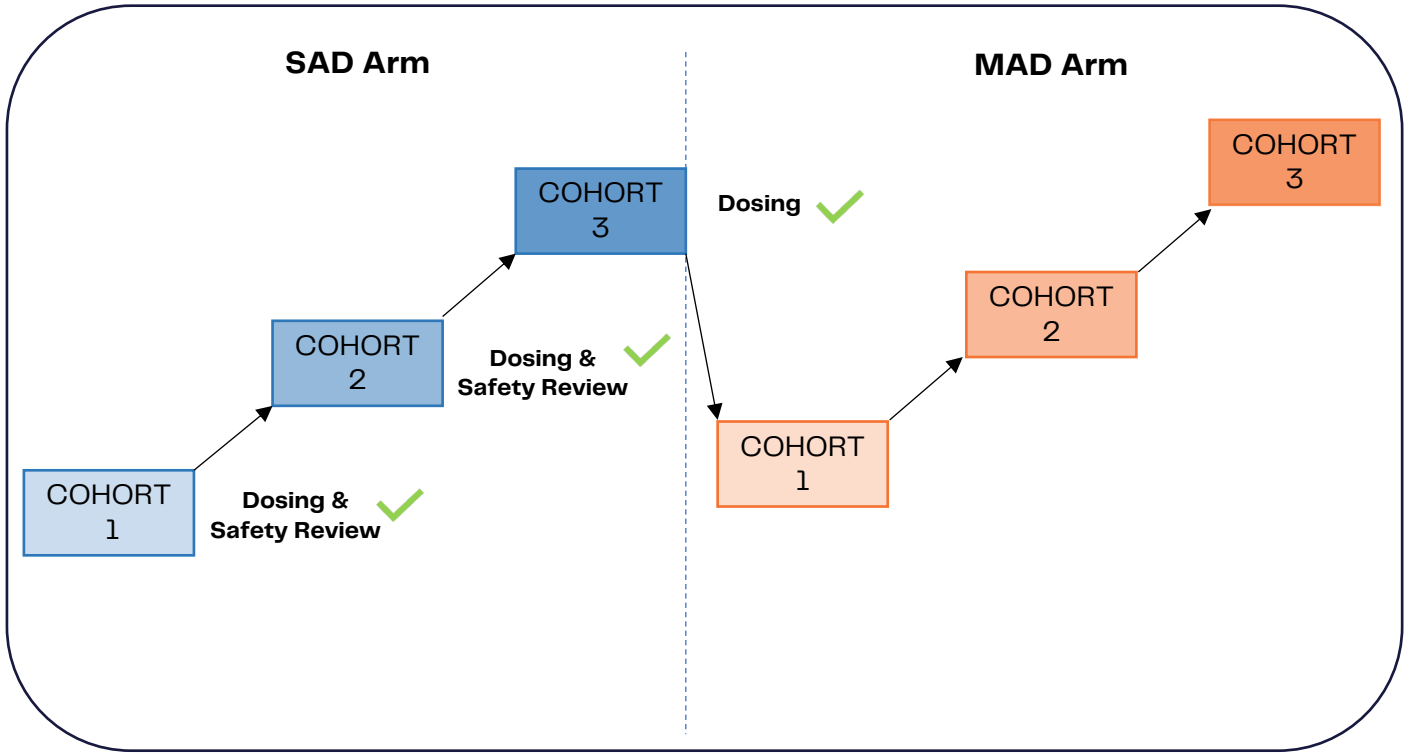
✓ **Potential combination and add-on to current therapies**

- Other drugs cause local and systemic side effects
- Most drugs do not combine well with each other

SBI-100 OE: PHASE 1 SAFETY SAD/MAD DESIGN IN HEALTHY VOLUNTEERS

Dosing of SAD arm complete; dosing of MAD arm planned for Q2 2023

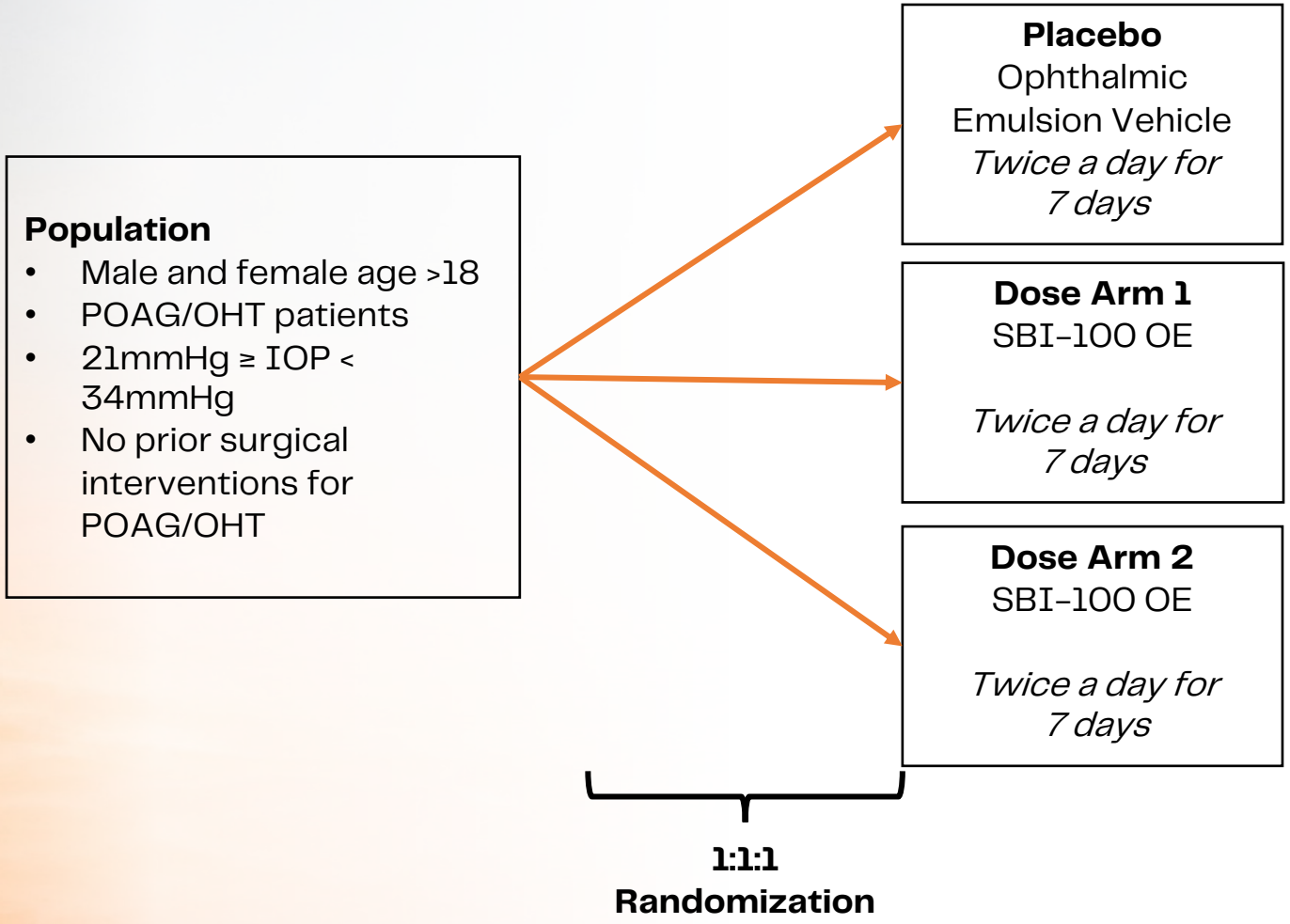
- Randomized, double-masked, placebo-controlled
- Evaluate safety, tolerability, and effect on intraocular pressure in healthy subjects in single and multiple ascending dose arms
- ~48 subjects topically administered SBI-100 OE or placebo on a single eye in SAD and MAD arms
- Safety review committee meetings held prior to each dose escalation and between SAD/MAD
- As a new chemical entity and regulated controlled substance, demonstrating safety in a controlled healthy volunteer study is important for development of SBI-100 OE



The study comprises 2 arms of 3 cohorts with 8 participants each (6 receiving SBI-100 OE and 2 placebo)

PROPOSED PHASE 2 STUDY DESIGN

First ever cannabinoid eye drop for glaucoma to enter human efficacy study



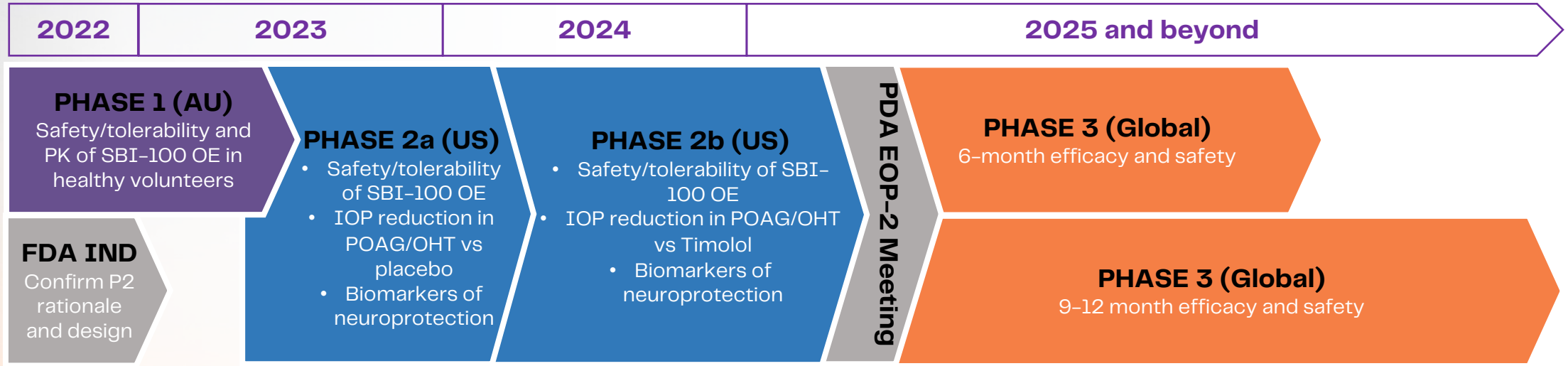
Primary endpoint

- Change in IOP from baseline versus placebo

Secondary endpoints

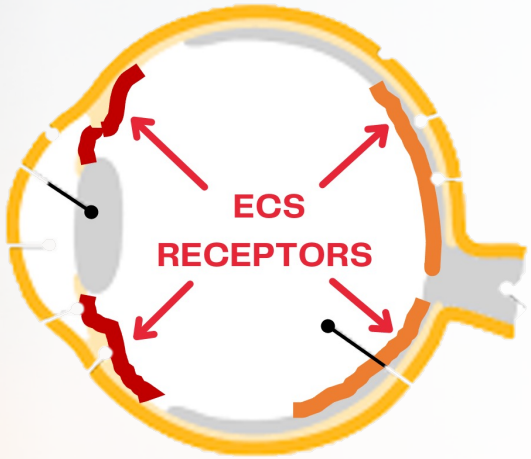
- Measure of psychotropic effects
- Biomarkers of neuroprotection
- Safety and tolerability

SBI-100 OE – REGULATORY AND CLINICAL DEVELOPMENT



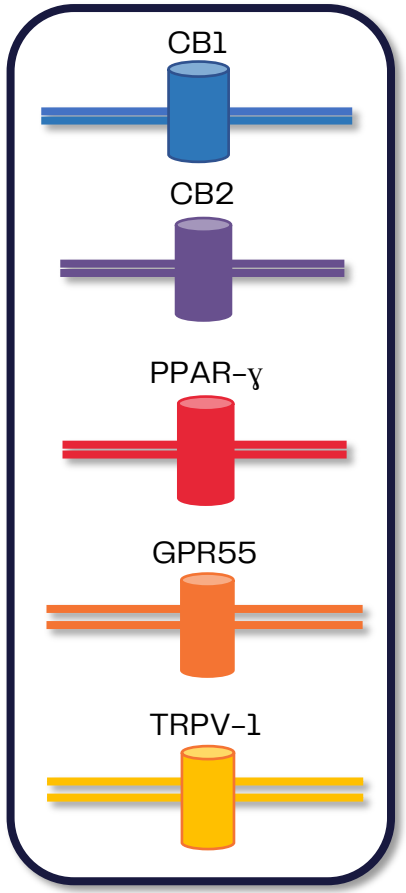
- Phase 1 safety and PK data will guide Phase 2a and Phase 2b study doses.
- Phase 2a study designed as POC to demonstrate IOP reducing capability of SBI-100 OE
- Phase 2b study designed to establish non-inferiority to standard of care (timolol)
- Phase 3 studies expected to start in 2025

NOVEL CLASS OF TARGETS FOR OPHTHALMOLOGY



- ECS plays vital role in controlling an array of functions in the body
- Affecting the ECS may provide therapeutic benefit for multiple diseases, including in the eye
- ECS receptors found throughout the eye shown to be involved in a broad set of ocular functions and pathologies

ECS receptors in the eye



Relate to many ocular pathologies

- Intraocular pressure
- Nociception (pain)
- Inflammation
- Neovascularization
- Wound healing
- Neuroprotection
- Fibrosis
- Pain

Cannabinoid receptor–rich environment of eye creates an opportunity for drugs targeting these receptors to modulate ocular disease

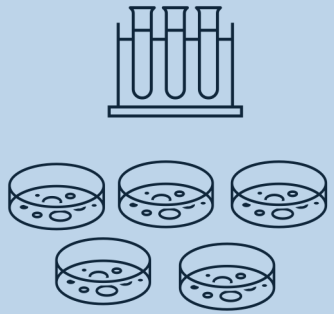
R&D PLATFORM FOR OCULAR DISEASES

Cannabinoid Pharmaceutical Innovation Program (CPIP)

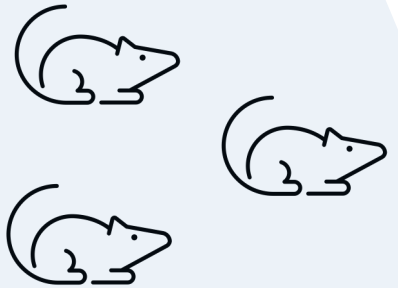
DISCOVERY

80+ novel compounds

IN VITRO SCREENING

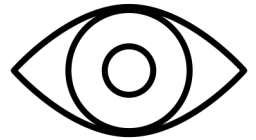


TARGET ENGAGEMENT IN VIVO MODELS



OCULAR INDICATIONS

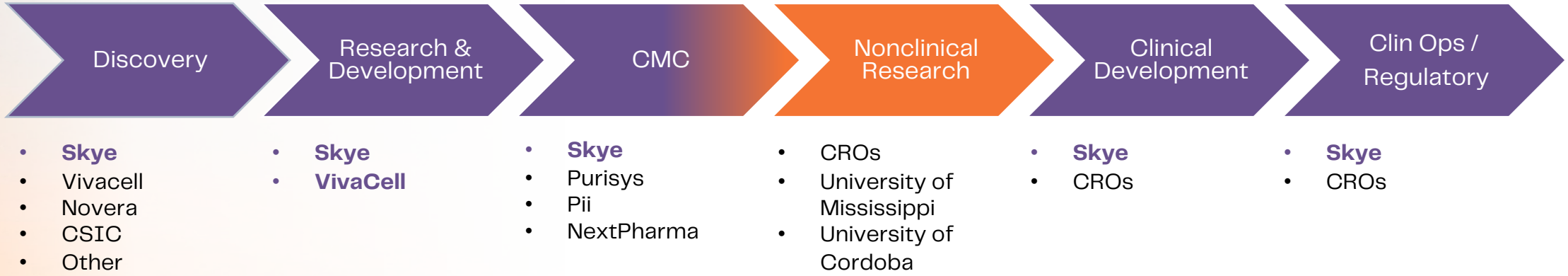
Dry eye
Ocular pain
Uveitis



AMD
Diabetic retinopathy
Uveitis

EXPERT DRUG DEVELOPMENT CAPABILITY

Internal/external resources provide knowledge/flexibility to advance controlled substances through the pharmaceutical drug development path



CATALYSTS TO ADVANCE OUR INNOVATION & GROWTH

Ocular applications to unlock potential of novel class of cannabinoid derivatives

SBI-100 OE: PHASE 1

- ✓ Q1-22: Completion of GLP toxicology studies
- ✓ Q2-22: AUS Human Research Ethics Committee (HREC) approval to start Phase 1 study
- ✓ Q4-22: Begin Phase 1 enrollment
- ✓ Q4-22: Begin P1 dosing
- ❑ Q2-23: Phase 1 data

SBI-100 OE: PHASE 2

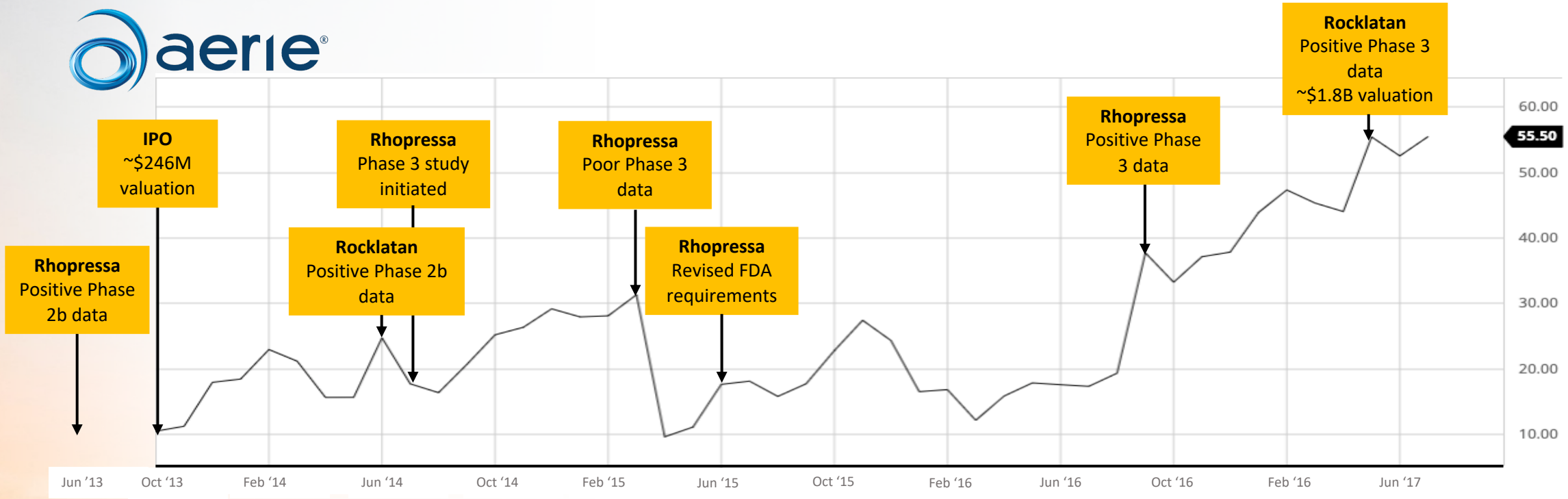
- ✓ Q4-21: Pre-IND meeting with the FDA
- ✓ Q4-22: Submit Investigational New Drug application to FDA
- ✓ Q1-23: IND authorization
- ❑ H1-23: Phase 2 initiation
- ❑ Q1-24: Phase 2 data

STRATEGIC MILESTONES

- ✓ Q4-21: Neuroprotection study to assess SBI-100 potential to spare vision loss
- ✓ H2-22: Close corporate acquisition for capital resources
- ❑ Early-stage research & pipeline expansion
- ❑ H1-23: Phase 2 efficacy study initiation. New product-driven intellectual property

CASE STUDY: VALUE CREATION VIA CLINICAL DEVELOPMENT

Ocular applications to unlock potential of novel class of cannabinoid derivatives



- AERI clinical results lead to important inflection points for the company.
- The glaucoma market is still in need of new classes of compounds, and AERI demonstrated that positive clinical development of compounds with new mechanisms of action are perceived favorably by the market.

SENIOR MANAGEMENT

Punit Dhillon

Chief Executive Officer & Chair

- Co-founded and led OncoSec (NASDAQ: ONCS), a cancer immunotherapy company, through early development and partnership with Merck to launch Phase 2/3 multi-center trial. Previously VP, Finance & Operations for Inovio Pharmaceuticals (NASDAQ: INO)

Kaitlyn Arsenault, CPA

Chief Financial Officer

- Over 14 years of experience in accounting, auditing, financial reporting, mergers and acquisitions, as well as business operations in the life science and technology sectors

Tu Diep, MSc

Chief Development Officer

- Over 15 years' experience in research, clinical and strategic operations, business process, CMC, regulatory affairs, and business development

Chris Twitty, PhD

Chief Scientific Officer

- 25+ years in R&D, drug pipeline expansion, CMC, non-clinical, regulatory, biomarker discovery and clinical biomarker strategies

BOARD OF DIRECTORS

Punit Dhillon

Chair

- Co-founded and led OncoSec (NASDAQ: ONCS), a cancer immunotherapy company, through early development and a partnership with Merck to launch a Phase 2/3 multi-center registration clinical trial. Previously VP, Finance & Operations for Inovio Pharmaceuticals (NASDAQ: INO).

Margaret Dalesandro, PhD

Director

- Over 25 years of drug development experience in pharmaceutical, biotechnology, and diagnostics industries. Currently President of Brecon Pharma Consulting.

Praveen Tyle, PhD

Director

- Over 37 years of broad pharmaceutical executive leadership. Currently President, CEO, and Director of Invectys, Inc. Experienced in ocular disorders with a wealth of academic insight. Previous senior leadership positions at Novartis and Bausch & Lomb.

Keith Ward, PhD

Director

- Over 25 years of experience in the biotech and pharmaceutical industry. Currently President and CEO of InterveXion Therapeutics. Previously served as Global Vice President of Pharmaceutical R&D at Bausch & Lomb.

Deborah Charych, PhD

Director

- Over 20 years' scientific leadership and drug development experience. Co-founder/former CTO of RayzeBio, raising $418M. Led preclinical and early clinical development at Nektar Therapeutics, leading to $1.8B deal with BMS,. Also led cannabinoid receptor system research.

ADVISORS

CLINICAL

Robert Ritch, MD

Prof. of Ophthalmology, Mt. Sinai

- Shelley and Steven Einhorn Distinguished Professor of Ophthalmology; Surgeon Director Emeritus and Chief, Glaucoma Services, The New York Eye & Ear Infirmary; Professor of Ophthalmology, The New York Medical College

Louis Pasquale, MD

Prof. of Ophthalmology, Mt. Sinai

- Professor Ophthalmology, Icahn School of Medicine, Chair, Department of Ophthalmology, Vice Chair of Translational Ophthalmology Research, Mount Sinai Healthcare System

Jeffery Goldberg, MD, PhD

Prof. of Ophthalmology, Stanford

- Professor and Chair of Ophthalmology and Director of Spencer Center for Vision Research at Byers Eye Institute, Stanford University

SCIENTIFIC

Eduardo Muñoz, MD, PhD

Prof. of Immunology, U. Córdoba

- Over 30 years of experience in biomedical research, focused on cannabinoids, pharmacology, and inflammation, providing deep expertise in the mechanism of actions of cannabinoids and the development of novel cannabinoid-derived molecules

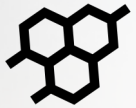
Giovanni Appendino, PhD

Prof. of Organic Chemistry, U. Piedmont

- Over 40 years of research in natural products, leading to the discovery and isolation of over 200 novel compounds, including novel cannabinoids and chemistry for cannabinoid-derived molecules

INVESTMENT SUMMARY

Bold innovation in ophthalmology to unlock the potential of proprietary cannabinoid derivatives



Enrolling Phase 1 for CB1R agonist program; Received FDA okay for IND to start studies in US, enabling planned Phase 2

Transformative new class of therapeutics may play a role in multiple ocular indications

Solid clinical and preclinical foundation for glaucoma with upcoming meaningful clinical inflection points

Engaging in academic collaborations to expand pipeline of novel cannabinoid derivatives

Pursuing partnership opportunities for programs

Capitalization

Cash and securities[1]

Common shares o/s	912.2 M
Options, warrants and RSUs	247.2 M
Common shares f/d	1,165 M
Cash	$8.6 M
Working capital	$7.5 M

OTCQB SKYE
Market cap: $24.6 M[2]

Incremental capital: sale of non-core operating facility for $9.48M

Closed sale of Verdélite to C3 Souvenir Holding for aggregate purchase price of $9.48M on 23/02/09

- $0.5 M deposit paid prior to close + $5.6 M paid on 23/02/10
- $0.12 M payable by June 2023 + $0.37 M payable in 5 monthly installments + interest (8%/annum) starting 23/12/31
- Balance of $2.80M payable in 3 installments 18, 30, 42 months after closing + applicable interest

[1]Skye and EHT figures combined on proforma basis as of 22/09/30 [2]23/03/09

THANK YOU

To learn more, please contact:
Punit Dhillon
Chief Executive Officer & Chair
ir@skyebioscience.com
+1 (858) 410-0266

Appendix

CLINICAL RESEARCH SHOWS CANNABINOIDS LOWER IOP

Subjects	Administration route	Observations
15 male, 18-30 years old	Smoking marijuana (12 mg Δ^9 THC)	Significant **IOP decrease** after 80 min, more frequent users showered lower or no IOP drop
10 healthy volunteers, 20-30 years old	0.022 or 0.044 mg/kg of Δ^9 THC intravenously	**IOP decrease** in 9 patients with low dose and all subjects with high dose
256 glaucomatous patients	Smoking marijuana (1-4% Δ^9 THC) or 5-20 mg oral Δ^9 THC	Most patients showed **IOP reduction**, additive effect was seen with conventional glaucoma drugs
A 23-year-old male (suffers HPPD), 4 young subjects (control), 23 -28 years old	Smoking marijuana	HPPD in patient, no change in the controls
9 patients with end-stage open-angle glaucoma, 38-77 years old	Smoking marijuana or oral Δ^9 THC capsules	**Lower IOP**, development of tolerance and significant systemic toxicity that limit the usefulness
6 patients with ocular hypertension or early primary open-angle glaucoma	Single sublingual preparation (5 mg Δ^9 THC or 20 and 40 mg CBD)	Significant **IOP decrease** by Δ^9 – THC, 40 mg CBD produced a transient IOP increase, no significant side effect
8 patients with glaucoma resistant to conventional treatments, 53-72 years old	Topical application of WIN55212-2	**IOP decreased** directly through CB1
18 patients suffering glaucoma	Single oral dose of nabilone (0.5 mg)	**IOP decreased** by 27.9%, 2-6h after administration, no visual side effect
32 patients suffering glaucoma	BW29Y (5 or 10 mg) or BWI46Y (4, 8, or 12 mg)	BW29Y: ineffective, BWI46Y: **IOP drop**, lightheaded, dizzy, disorientation, blood pressure drop

HPPD: Hallucinogen persisting perception disorder; IOP: intraocular pressure; Δ^9 THC: Δ^9 tetrahydrocannabinol; CBD: cannabidiol; WIN55212–2, Nabilone, BW29Y, BWI46Y: synthetic cannabinoids.

Adapted from Y. Panahi et al. / Biomedicine & Pharmacotherapy 86 (2017) 620–627

PRODRUG STRATEGY TO EFFECTIVELY DELIVER THC

Ion-pairing of prodrug allows for enhanced permeability at physiological pH

- Hingorani et al aimed to improve the transcorneal permeability of THC through prodrug derivatization and formulation
- In vitro corneal permeability of THC and its hemisuccinate (THC-HS) and hemiglutarate (THC-HG) ester prodrugs and WIN 55212-2 (WIN), was determined in isolated rabbit cornea
- **Results demonstrate that prodrugs could be an effective strategy for topical delivery of THC**

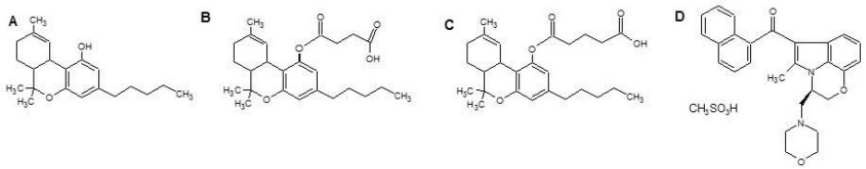


Figure 1.
Chemical structures of A) Δ^9-Tetrahydrocannabinol (THC), B) Δ^9-Tetrahydrocannbinol Hemisuccinate (THC-HS) and C) Δ^9-Tetrahydrocannbinol Hemiglutarate (THC-HG) D) WIN 55-212-2 (WIN).

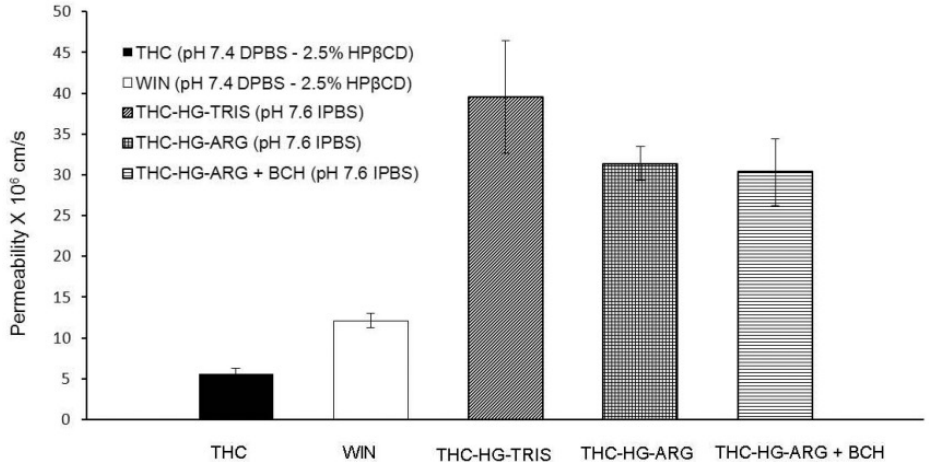
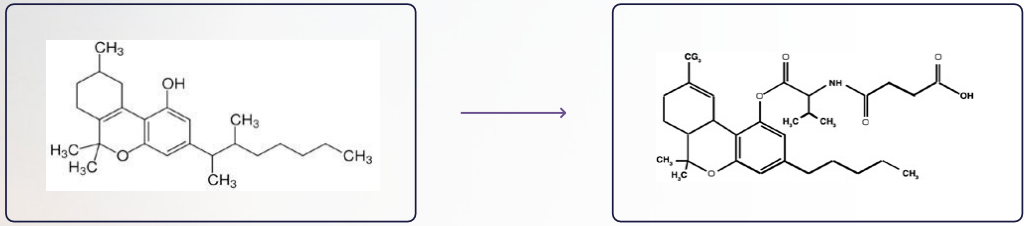


Figure 4.
Comparative permeability (in terms of total THC) of THC, WIN, THC-HG-ARG complex, THC-HG-ARG complex + BCH and THC-HG-TRIS complex at 34 °C across isolated rabbit corneas. The legends indicate the donor solution pH and composition. Receiver medium was 2.5 % HPβCD in DPBS (pH 7.4) for THC and WIN, while for the ion-pair complexes the receiver solution was IPBS containing 2.5% HPβCD (pH 7.4). Results are depicted as a mean ± SD (n=3). *$p < 0.05$.

Hingorani T., Gul W., Elsohly M., Repka MA., Majumdar S. Effect of ion pairing on in vitro transcorneal permeability of a delta(9) – tetrahydrocannabinol prodrug: potential in glaucoma therapy. *J Pharm Sci.* 2012; 101: 616–626.

WHAT'S DIFFERENT ABOUT TOPICAL ADMINISTRATION

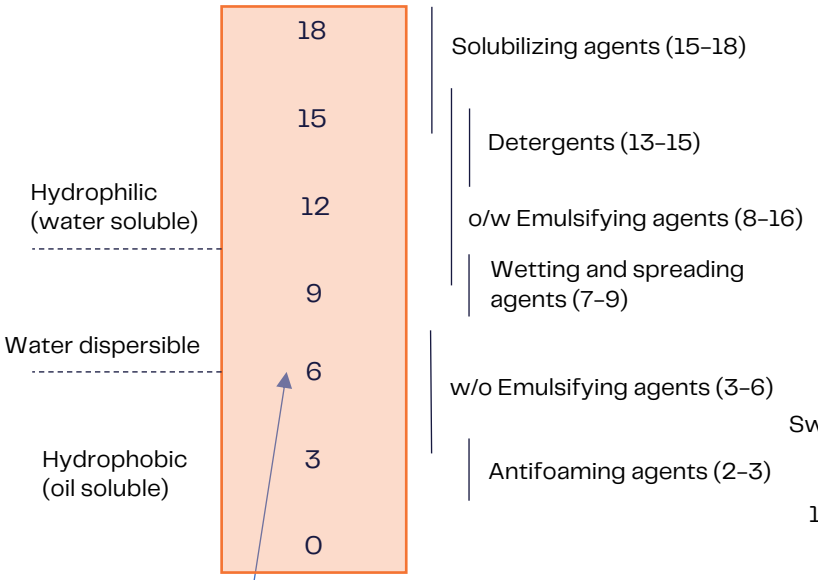
THC is very hydrophobic/lipophilic and insoluble; the ocular surface is aqueous



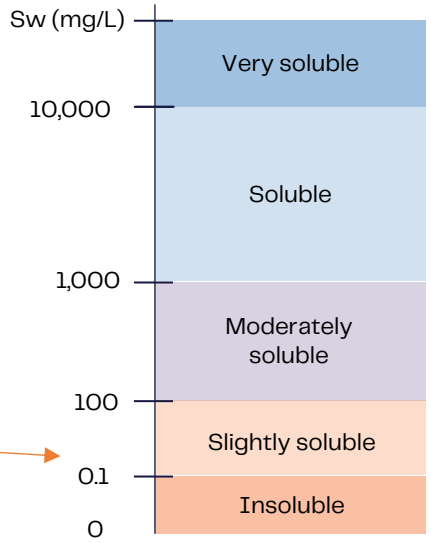
THC

SBI-100

- THC is lipophilic and not easily delivered into the eye topically
- SBI-100 is a prodrug of THC that increases solubility and polarity of THC, allowing it to better penetrate ocular tissue
- Inside the eye, SBI-100 is converted back into THC
- SBI-100 OE proprietary nanoemulsion formulation further enhances delivery of THC to ocular tissue, resulting in greater IOP-lowering effect and duration



- logP=6.42[1]
- Aqueous solubility= 2.8 mg/L



1. Jarho P, Pate DW, Brenneisen R, Jarvinen T. Hydroxypropyl-beta-cyclodextrin and its combination with hydroxypropyl-methylcellulose increases aqueous solubility of delta9-tetrahydrocannabinol. *Life Sci.* 1998; 63: PL381–PL384.