Company Overview

Investor Presentation

July 2018

Important Information

The information in this presentation does not contain all of the information that a potential investor should review before investing in Aerie shares. The descriptions of Aerie Pharmaceuticals, Inc. (the "Company" or "Aerie") in this presentation are qualified in their entirety by reference to reports filed with the SEC. Certain information in this presentation has been obtained from outside sources or anecdotal in nature. While such information is believed to be reliable for the purposes used herein, no representations are made as to the accuracy or completeness thereof and we take no responsibility for such information.

Any discussion of the potential use or expected success of Rhopressa® (netarsudil ophthalmic solution) 0.02%, with respect to foreign approval or additional indications, and our current or any future product candidates is subject to regulatory approval. In addition, any discussion of U.S. Food and Drug Administration ("FDA") approval of Rhopressa® does not guarantee successful commercialization of Rhopressa® or FDA approval of Roclatan™. For more information on Rhopressa®, refer to the full Rhopressa® product label at http://investors.aeriepharma.com, and refer to www.rhopressa.com for prescribing information.

The information in this presentation is current only as of its date and may have changed or may change in the future. We undertake no obligation to update this information in light of new information, future events or otherwise. We are not making any representation or warranty that the information in this presentation is accurate or complete.

Certain statements in this presentation, including any guidance or timelines presented herein, are "forward-looking statements" within the meaning of the federal securities laws. Words such as "may," "will," "should," "would," "could," "believe," "expects," "anticipates," "plans," "intends," "estimates," "targets," "projects," "potential" or similar expressions are intended to identify these forward-looking statements. These statements are based on the Company's current plans and expectations. Known and unknown risks, uncertainties and other factors could cause actual results to differ materially from those contemplated by the statements. In evaluating these statements, you should specifically consider various factors that may cause our actual results to differ materially from any forward-looking statements. In particular, FDA approval of Rhopressa® does not constitute approval of Roclatan™, and there can be no assurance that we will receive FDA approval for Roclatan™ or any future product candidates. Any top line data presented herein is preliminary and based solely on information available to us as of the date of this presentation and additional information about the results may be disclosed at any time. In addition, the preclinical research discussed in this presentation is preliminary and the outcome of such preclinical studies may not be predictive of the outcome of later trials. Any future clinical trial results may not demonstrate safety and efficacy sufficient to obtain regulatory approval related to the preclinical research findings discussed in this presentation. These risks and uncertainties are described more fully in the quarterly and annual reports that we file with the SEC, particularly in the sections titled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations." Such forward-looking statements only speak as of the date they are made. We undertake no obligation to publicly update or revise any forward-looking statements, whether because of new information, future events or otherwise, except as otherwise required by law.

Aerie Overview

Aerie IOP–Reducing Products (IP 2030+)

- **Rhopressa®** **(netarsudil ophthalmic solution) 0.02%**
  - ***Successfully launched in U.S. April 30, 2018***
- **Roclatan™** **(netarsudil / latanoprost ophthalmic solution) 0.02% / 0.005%**
  - ***U.S. NDA accepted, PDUFA set for March 14, 2019***
- **Globalization Plan Under Way** – Europe and Japan

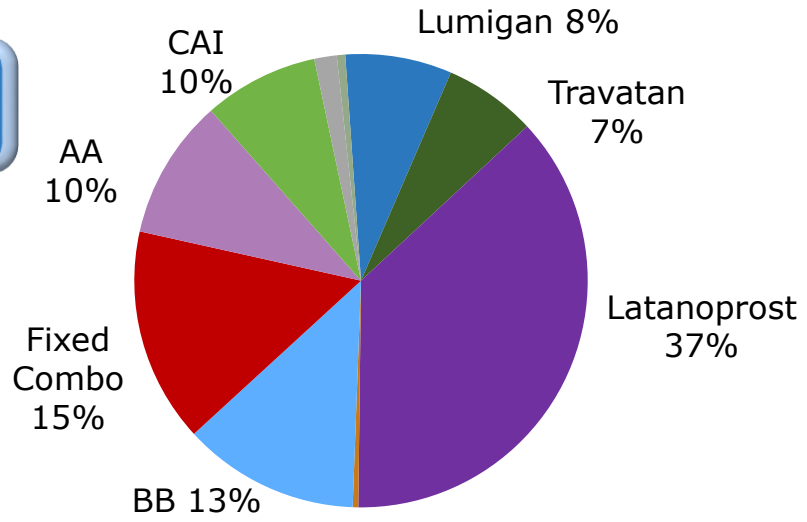
Pipeline Activities

- **Rhopressa®** – 24-hour IOP reduction, normal tension glaucoma, etc.
- **Retina Program** – AR-13503 and AR-1105 implants
- **Beyond Ophthalmology** – potential for Aerie-owned molecules

Rhopressa®: Market Perspective

2017 U.S. Glaucoma Market

- ~$3B Market, 37M TRx, 61M bottles
- Half of volume first-line (PGAs)
- Half of volume 2-3X/Day Adjuncts



Rhopressa®: HCP's Positioning as Concomitant Therapy

- New drug class per drug databases
- Once-daily dosing directed at site of pathology, the trabecular meshwork
- Consistent IOP reduction over 12 months and across all IOPs tested, as demonstrated in clinical trials

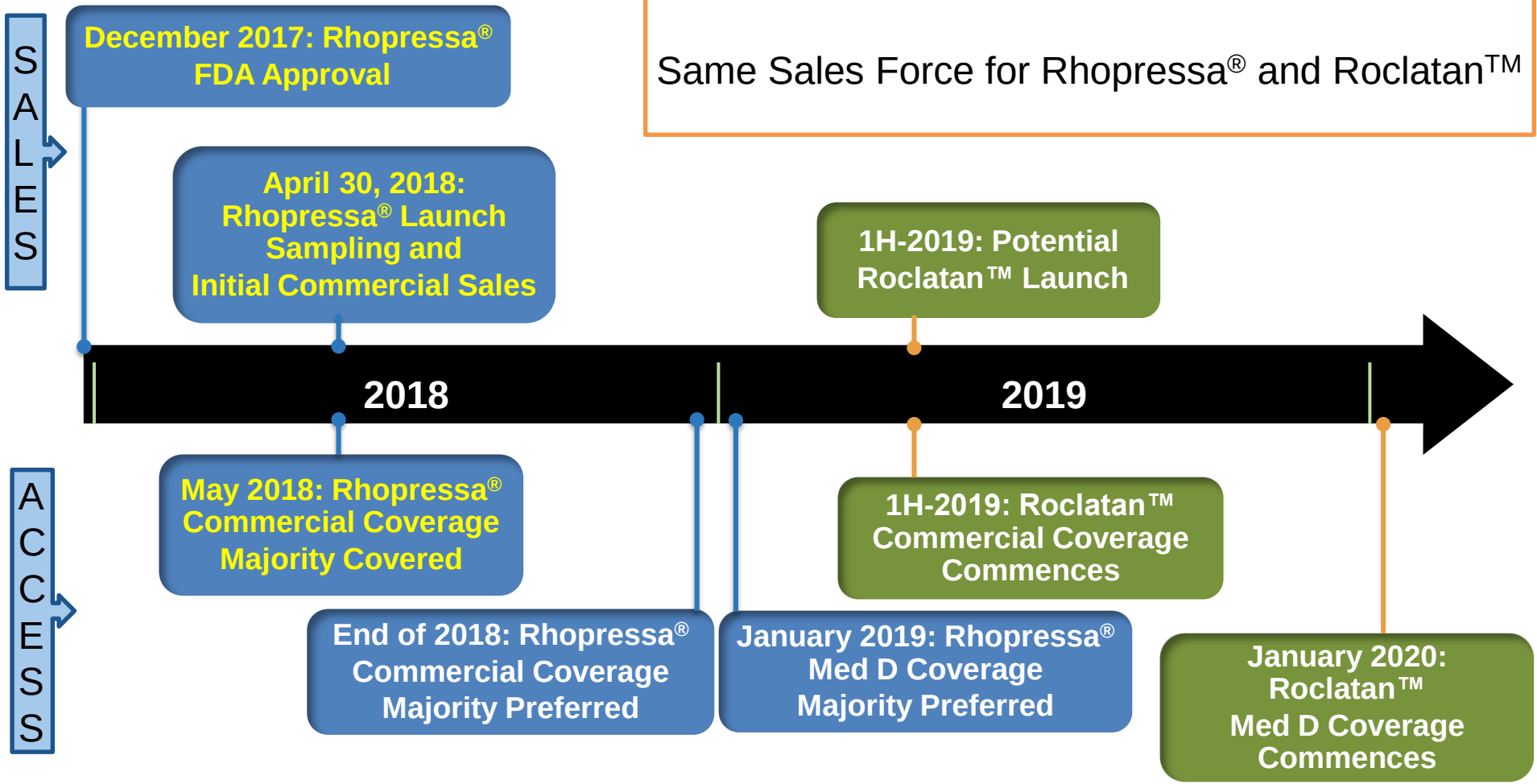
Refer to the full Rhopressa® product label at http://investors.aeriepharma.com and www.rhopressa.com for prescribing information

Graph Source: IQVIA TRx Data
CAI: Carbonic Anhydrase Inhibitor
AA: Alpha Agonist
BB: Beta Blocker

U.S. Launch Timeline

100 Experienced Territory Managers On Board
Targeting 14,000 Eye Care Professionals

Same Sales Force for Rhopressa® and Roclatan™



All forward-looking dates are estimates. The Roclatan™ NDA was filed in May 2018 and has not yet been approved by the FDA.

Rhopressa®: Commercialization Status (7/13/18)

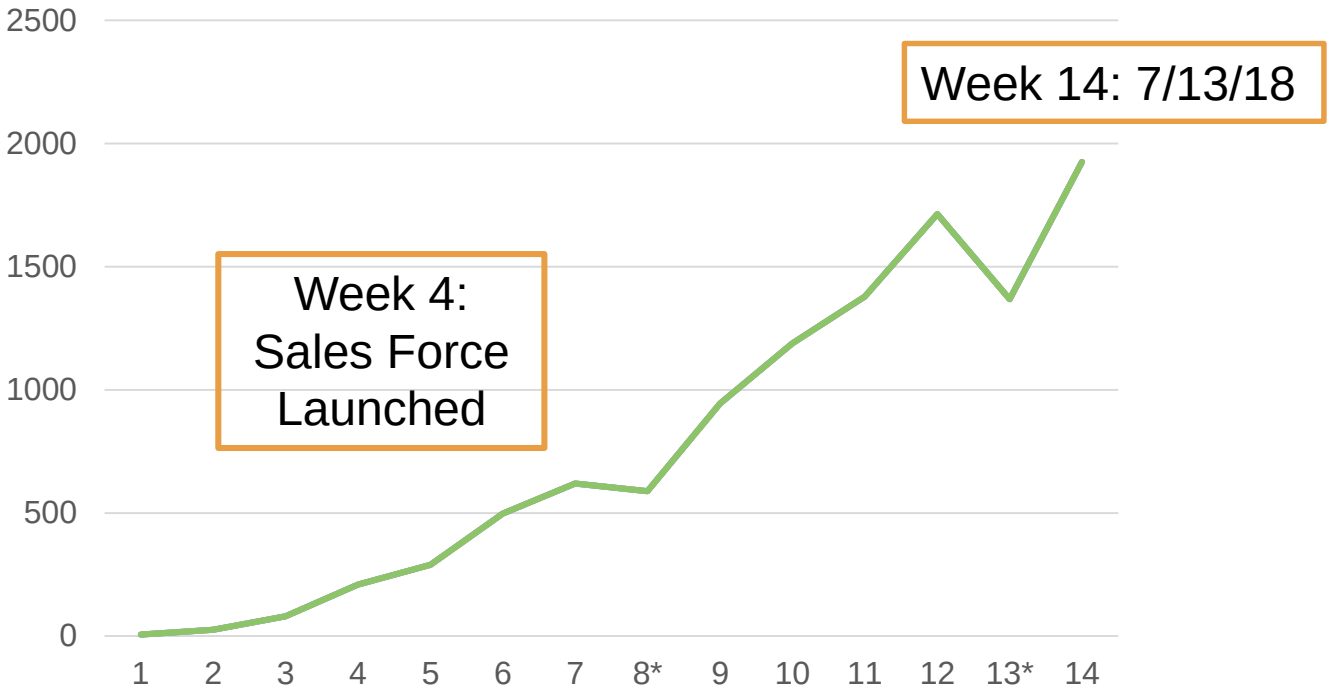
- Full Commercial Team on board
- Medical Affairs and Compliance Teams in place
- Adequate product in inventory and supply chain
- Market Access contracts with top Medicare Part D and Commercial Payers rapidly advancing
  - Covered Market is ~50/50 Commercial / Part D
  - Part D coverage generally commences January 2019; for those uncovered, prior authorization success rate for Rhopressa® of ~85%

~70% of Commercial lives already covered:
~25% Tier 2 (preferred brand tier) + ~45% Tier 3

~10% Medicare Part D lives already covered in Tier 2

Rhopressa® Launch Update

Weekly IQVIA Total Rx's:



* Holiday Weeks

Examples of Early Rhopressa® Feedback

Product Performance:

End-stage glaucoma patient at brink of needing surgery. Patient on maximal medical therapy (PGA/Combo/CAI) with IOP of 18 mmHg. Added Rhopressa® and IOP dropped to 13 mmHg, avoiding surgery.

Patient on maximal drug therapy and inadequately controlled at 16 mmHg, with patient requiring surgery as next step. Patient IOP reduced to 12 mmHg with Rhopressa® and surgery canceled.

Physician added Rhopressa® to a patient already on four medications, and Rhopressa® reduced IOP from 33 mmHg to 19 mmHg.

Physician's first experience with Rhopressa®, patient's IOP was cut in half from 30 mmHg to 15 mmHg.

Examples of Early Rhopressa® Feedback

Physician Perspectives:

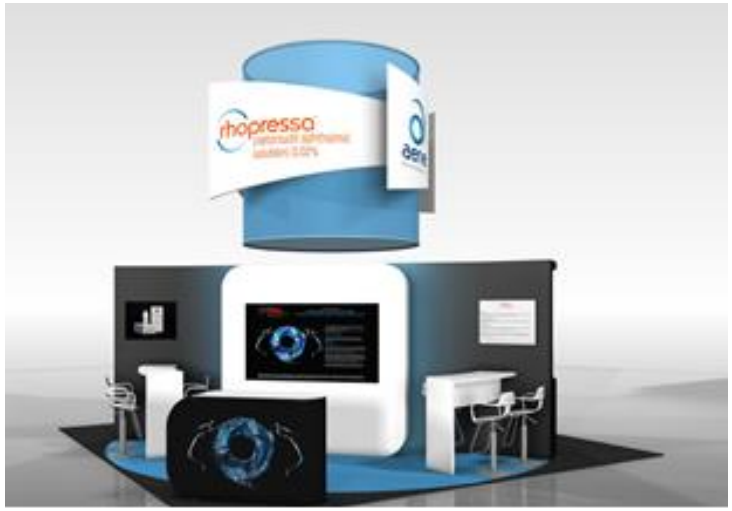
"This is the biggest thing to happen in glaucoma since Xalatan® came out over 20 years ago"

"I have been waiting for Rhopressa® for a while and so excited it's finally here"

"…utilizing my 'new tool' frequently…"

Active Engagement at Key Conferences

American Glaucoma Society (AGS) March 2018



Association of Research in Vision and Ophthalmology (ARVO) April 2018

American Society of Cataract and Refractive Surgeons (ASCRS) April 2018

European Glaucoma Society (EGS) Florence, Italy May 2018

Roclatan™ Combination Product Candidate

Roclatan™ (netarsudil / latanoprost ophthalmic solution) 0.02% / 0.005%

Positioning as First Line Therapy:

- Benefits of Rhopressa® while also targeting the secondary drain
- Achieved statistical superiority to market-leading latanoprost
  - At each of nine time points in each of the two P3 trials
- Potential to become the most efficacious IOP-reducing medication for glaucoma or ocular hypertension, if approved

NDA Submitted as 505(b)(2), PDUFA set for March 14, 2019

Roclatan™ Efficacy and Safety

Efficacy:

- Roclatan™ demonstrated statistical superiority over its components (market-leading PGA latanoprost and Rhopressa®) in Mercury 1 and 2 Phase 3 trials, at all measured time points

- Consistent incremental IOP-reduction over latanoprost and Rhopressa® in the range of 1 to 3 mmHg

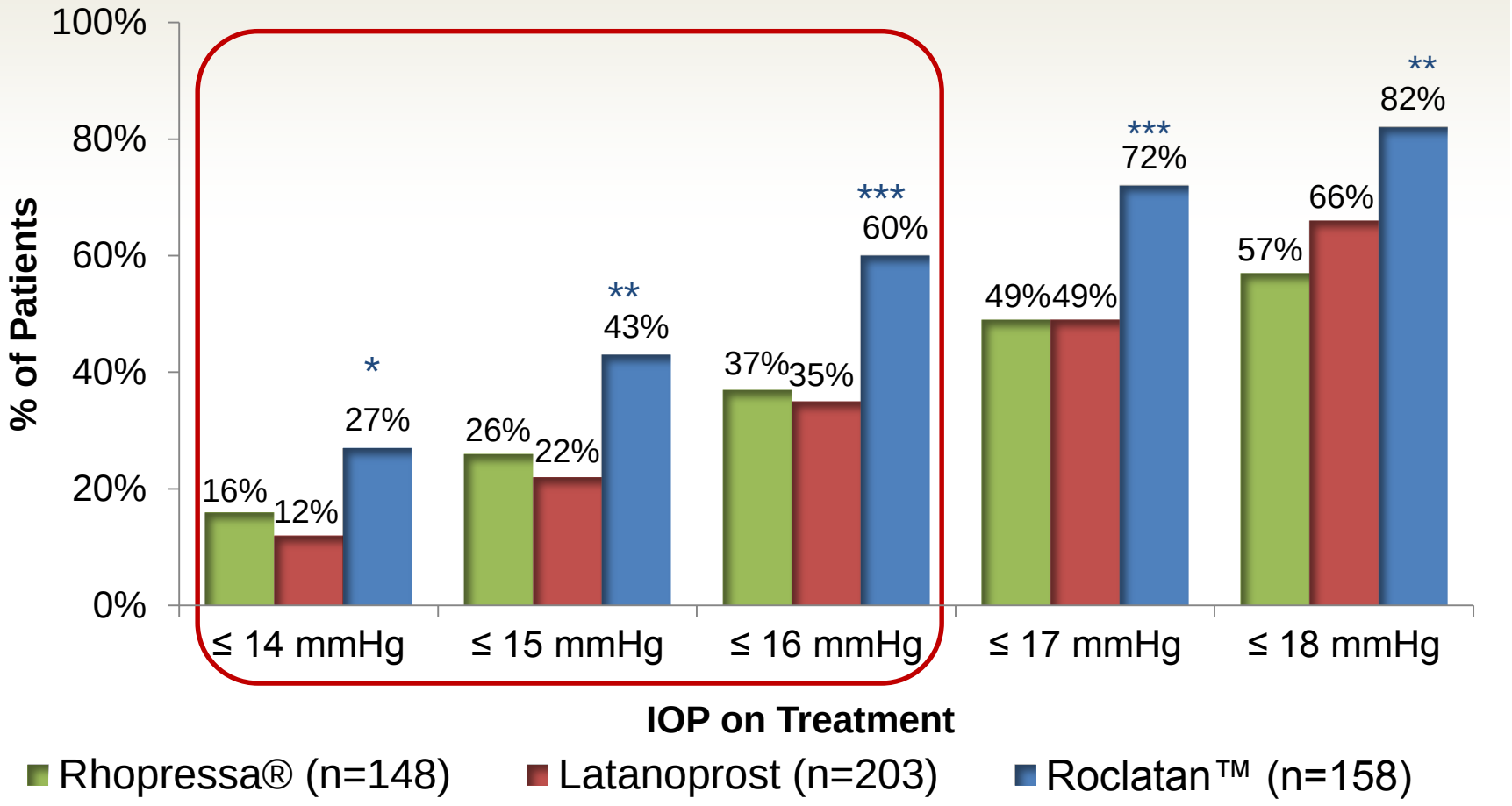
Safety:

- No treatment-related serious adverse events and minimal evidence of treatment-related systemic effects. The most common adverse event is conjunctival hyperemia with ~60% incidence, majority mild and sporadic and present in 20% of subjects at baseline

- Other ocular AEs occurring in ~5-15% of subjects receiving Roclatan™ included: cornea verticillata, conjunctival hemorrhage, eye pruritus, lacrimation increased, visual acuity reduced, blepharitis and punctate keratitis

Roclatan™ Phase 3 Month 12 Responder Analysis: Goal is to Achieve Lowest IOP Possible

At Month 12: % of Patients with IOP Reduced to 18 mmHg or Lower



*p<0.05, **p<0.01, ***p<0.0001

++Data on File
Based on Mercury 1 Interim Analysis 2

Roclatan™ Next Steps

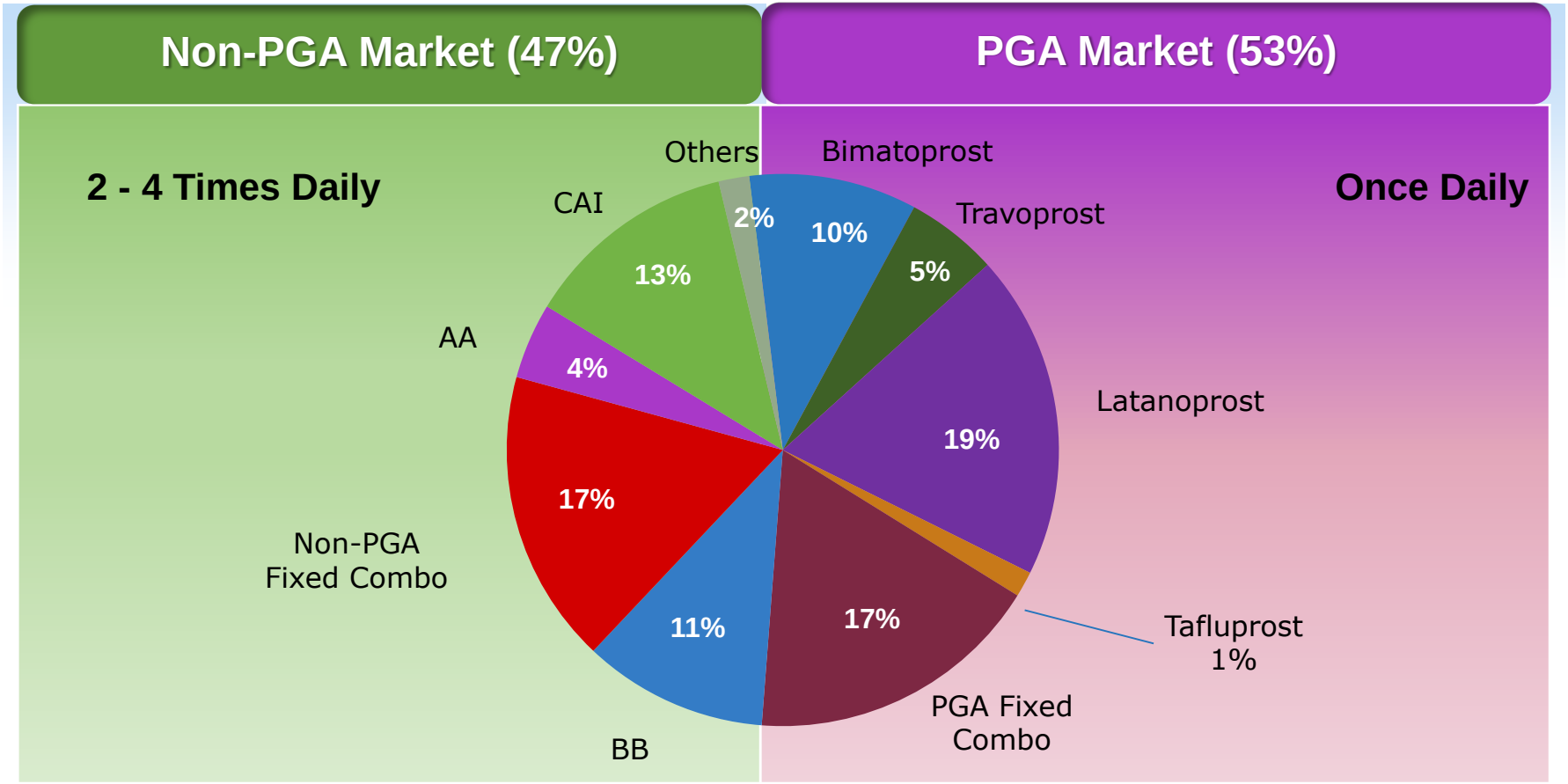
- Roclatan™ NDA submission accepted, with March 14, 2019 PDUFA
- Current U.S. sales force will be trained on Roclatan™ in advance of PDUFA
- Commercial formulary access expected to be finalized post-approval
- Medicare Part D formulary submission to payers expected in April 2019

Expanding Aerie Franchise: Europe and Japan

- **Europe** (2017 Europe "Big 5" Glaucoma Market: 91M units per year, 1.5X U.S. units)
  - Expect to file MAA for Rhopressa® in 2H 2018
  - Current clinical plan expected to satisfy European regulatory requirements (including Rocket 4 for Rhopressa® and Mercury 3 for Roclatan™)
  - Mercury 3: 6-month safety and 90-day efficacy registration trial comparing Roclatan™ for non-inferiority to a fixed-dose combo in Europe (Ganfort®)
  - Construction of Ireland Plant in process to support worldwide commercial supply
- **Japan** (2017 Glaucoma Market: 54M units per year)
  - Plan to advance clinical development on our own
  - Phase 1 completed and Phase 2 under way in the U.S. on Japanese and Japanese-Americans, initiated 4Q 2017
  - Phase 3 trials expected to be conducted in Japan

Europe Glaucoma Market:
Aerie Expects to Commercialize on Its Own (if approved)

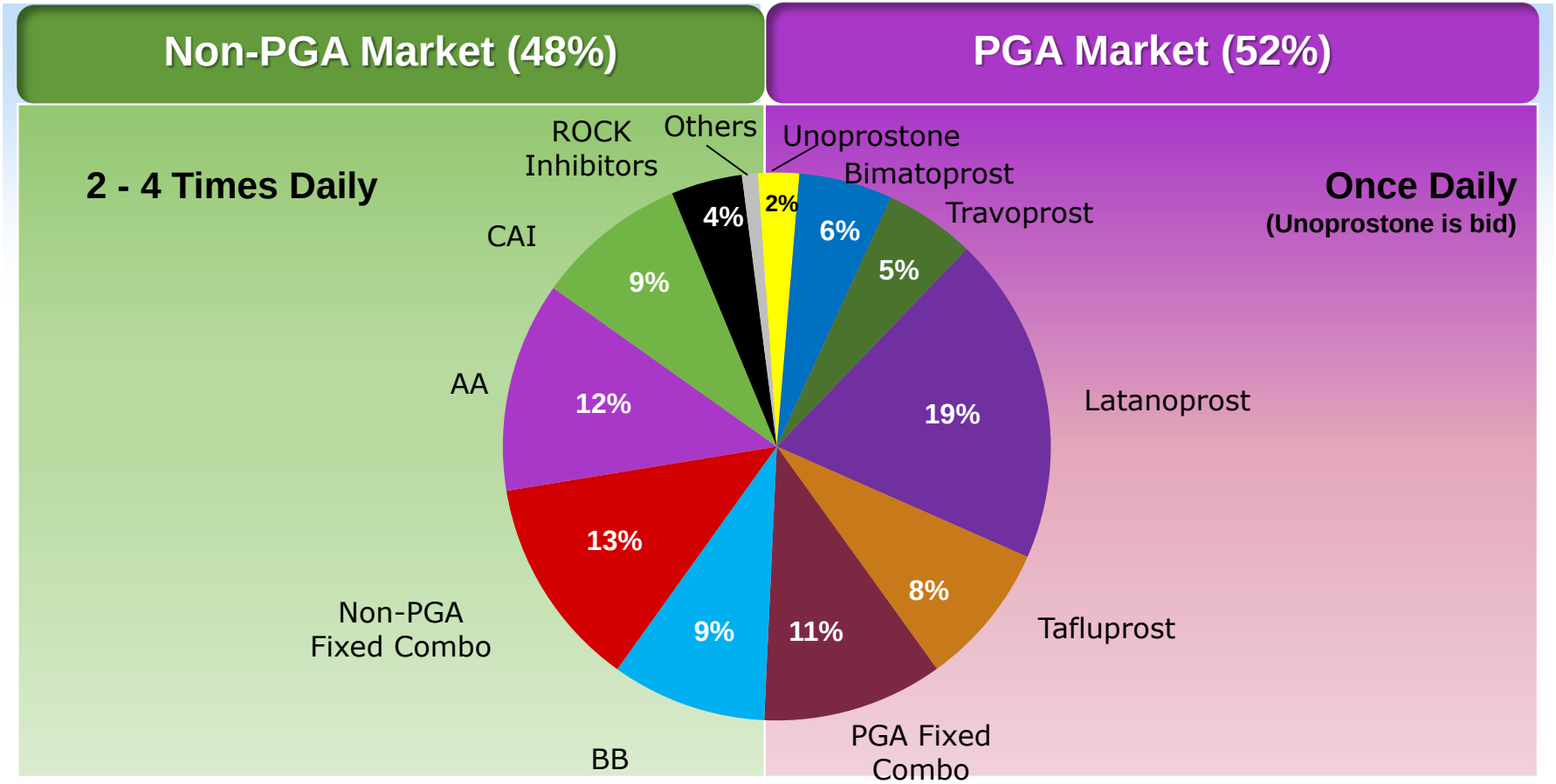
"Big 5" Europe Glaucoma Market – 2017
$1.0B; 91M TRx*, Market Share in TRx



PGA: Prostaglandin Analogue; BB: Beta Blocker; AA: Alpha Agonist; CAI: Carbonic Anhydrase Inhibitor
Sources: IQVIA Analytics Link at ex-manufacturer price level. *TRx calculated from IQVIA unit data (1 month = 1 TRx)

Japan Glaucoma Market:
Aerie Expects to Partner for Commercialization (if approved)

Japan Glaucoma Market – 2017
$0.8B; 54M TRx*, Market Share in TRx



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Sources: IQVIA Analytics Link at ex-manufacturer price level. *TRx calculated from IQVIA unit data (1 month = 1 TRx)

Advancing the Pipeline

- **Rhopressa®**
  - 24-hour IOP reduction
  - Potential in normal tension glaucoma
  - Aqueous humor dynamics (trabecular outflow, episcleral venous pressure)
  - Pseudoexfoliative glaucoma
  - Corneal healing

- **Retina Program Opportunities:**

  AR-13503 (ROCK/PKC inhibitor) potentially for AMD and DME

  AR-1105 (dexamethasone steroid) potentially for DME

- **Drug Delivery**
  - Focused on implants for retinal diseases (DSM / PRINT®)

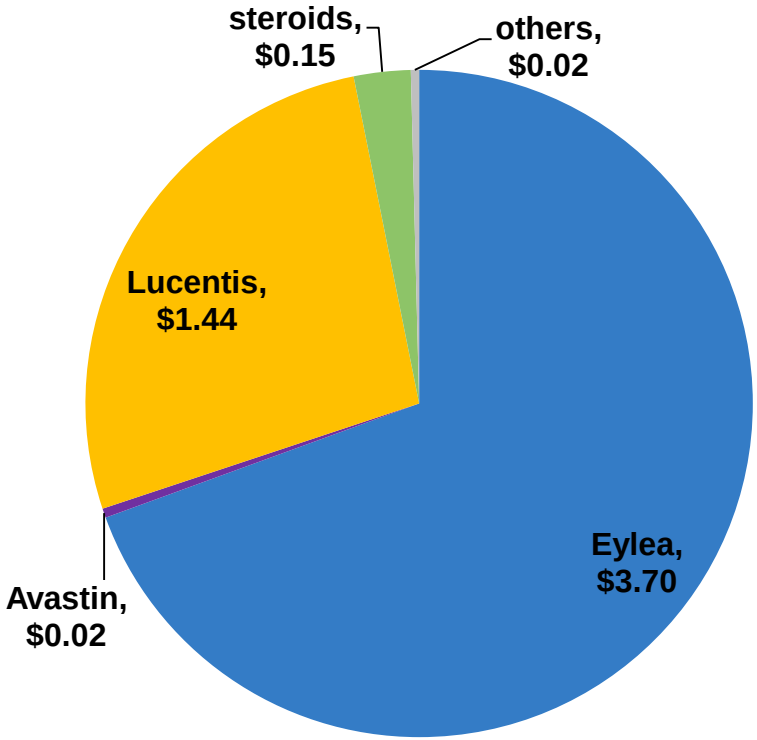
AR-13503 and AR-1105 are preclinical stage molecules and have not been approved by the FDA
Additional potential Rhopressa® indications are being considered for further study and are not labeled indications.

Retinal Eye Diseases – Aerie's Next Chapter

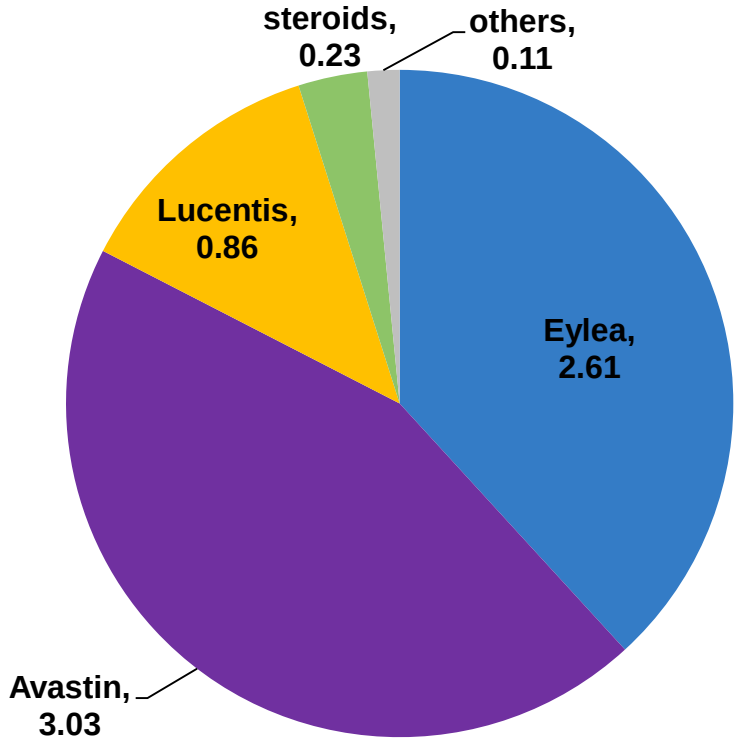
- The retinal disease market is twice that of glaucoma with $4.9 billion in the U.S. and $9 billion worldwide per IQVIA
- Current treatments lose efficacy over time, some have very serious side effects and there are limited surgical options
- The majority of current treatments require repeated injections into the patient's eye
- Aerie has two preclinical molecules for the treatment of retinal disease:
  - AR-13503 (ROCK/PKC Inhibitor) for AMD/DME
  - AR-1105 (dexamethasone steroid) for DME
- Aerie also has access to bio-erodible implant technology through DSM collaboration, and also has ophthalmic rights to PRINT® technology, a fully scalable manufacturing platform for implants

2017 U.S. Retinal Disease Market

2017 Sales: $5.3B



Unit Sales: 6.8M



Sources: Mix of public information, IQVIA and estimates

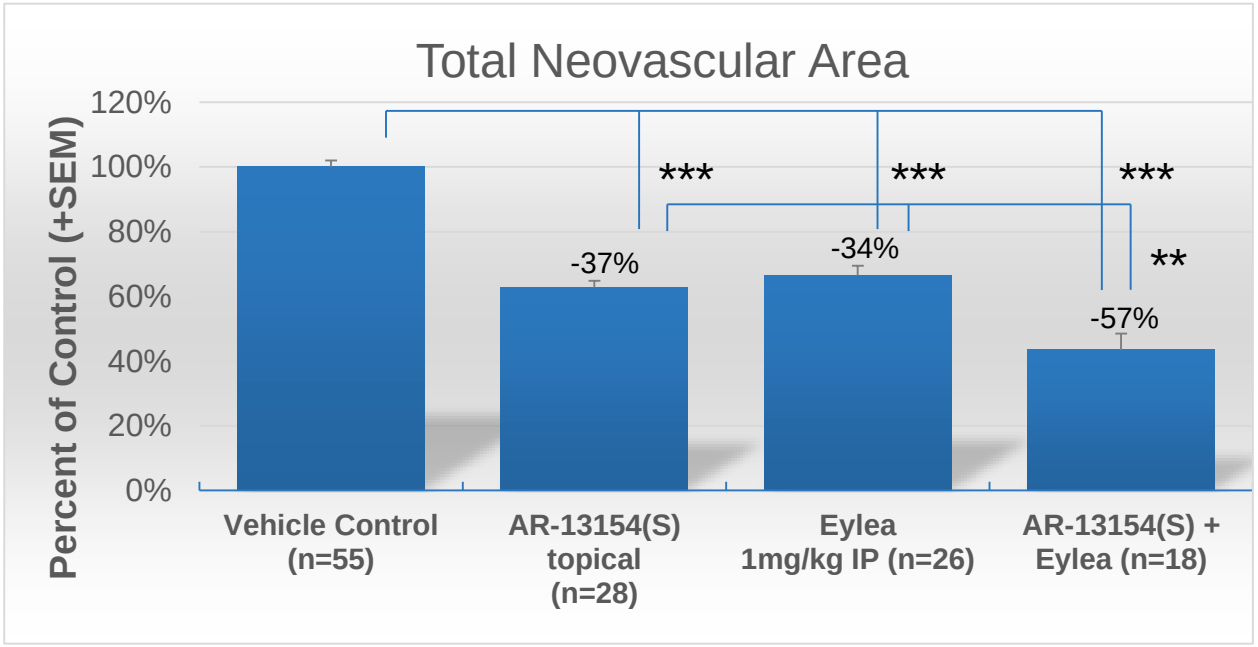
AR-13503: A First-in-Class ROCK/PKC Inhibitor for the Treatment of Wet AMD and DME

- Active metabolite of netarsudil
- Potential to improve outcomes by targeting multiple disease processes
- Monotherapy shows strong efficacy in preclinical models
- Effective as adjunct to anti-VEGF therapy in preclinical models*
- Expect durable treatment effect with injection frequency of once every 4 – 6 months

*Data on file

Aerie Preclinical Molecule Provides Additive Efficacy to Eylea® in a Proliferative Diabetic Retinopathy Model

- Oxygen-induced retinopathy model of PDR (mouse)
- AR-13154(S) is a precursor molecule to AR-13503
- Confirms potential as monotherapy and as adjunct to anti-VEGF therapies; not yet tested in humans

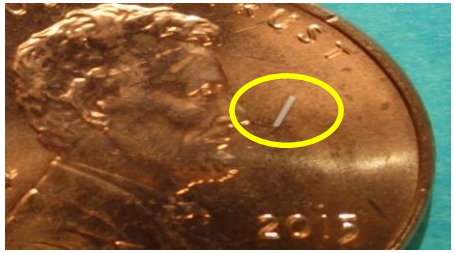


Data on file; Carbajal, KS et al., Enhancing Efficacy by Continuous Delivery of AR-13154(S) in an Animal Model of Proliferative Diabetic Retinopathy, ARVO 2017, Poster B0481.

For more information on Eylea® please see the product webpage https://www.eylea.us/

DSM Collaboration – Implant Delivery Technology

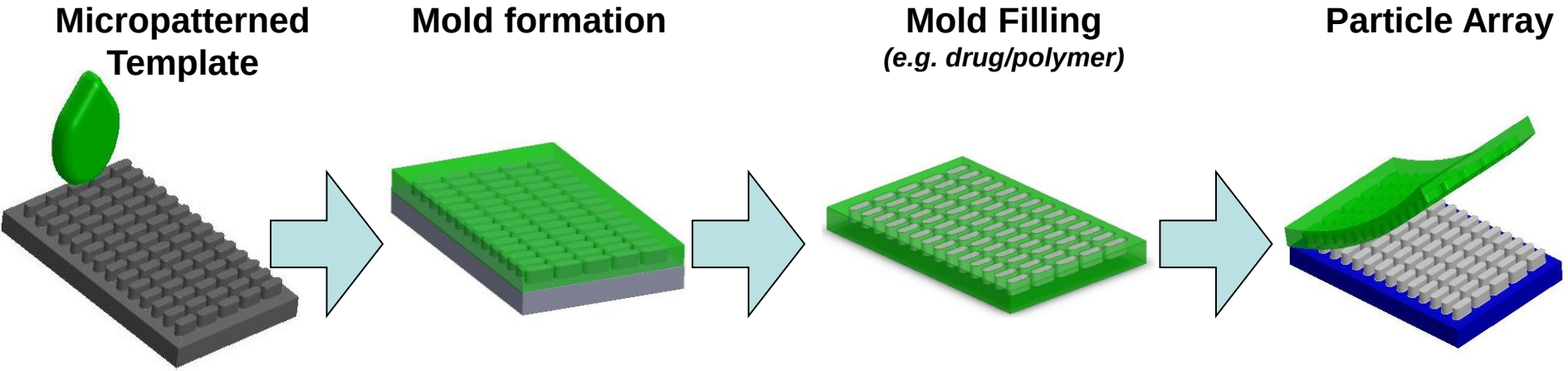
- Intravitreal sustained-release, bio-erodible implant technology
- Potential for treatment of Wet AMD and DME



- Promising results from ongoing feasibility study
  - Evaluating AR-13503 (ROCK/PKC inhibitor) and related Aerie compounds
  - Linear sustained elution rates over several months
  - Achieved target retinal drug concentrations

- Executed collaboration/licensing agreement
  - Continue prototype evaluations and IND-enabling activities

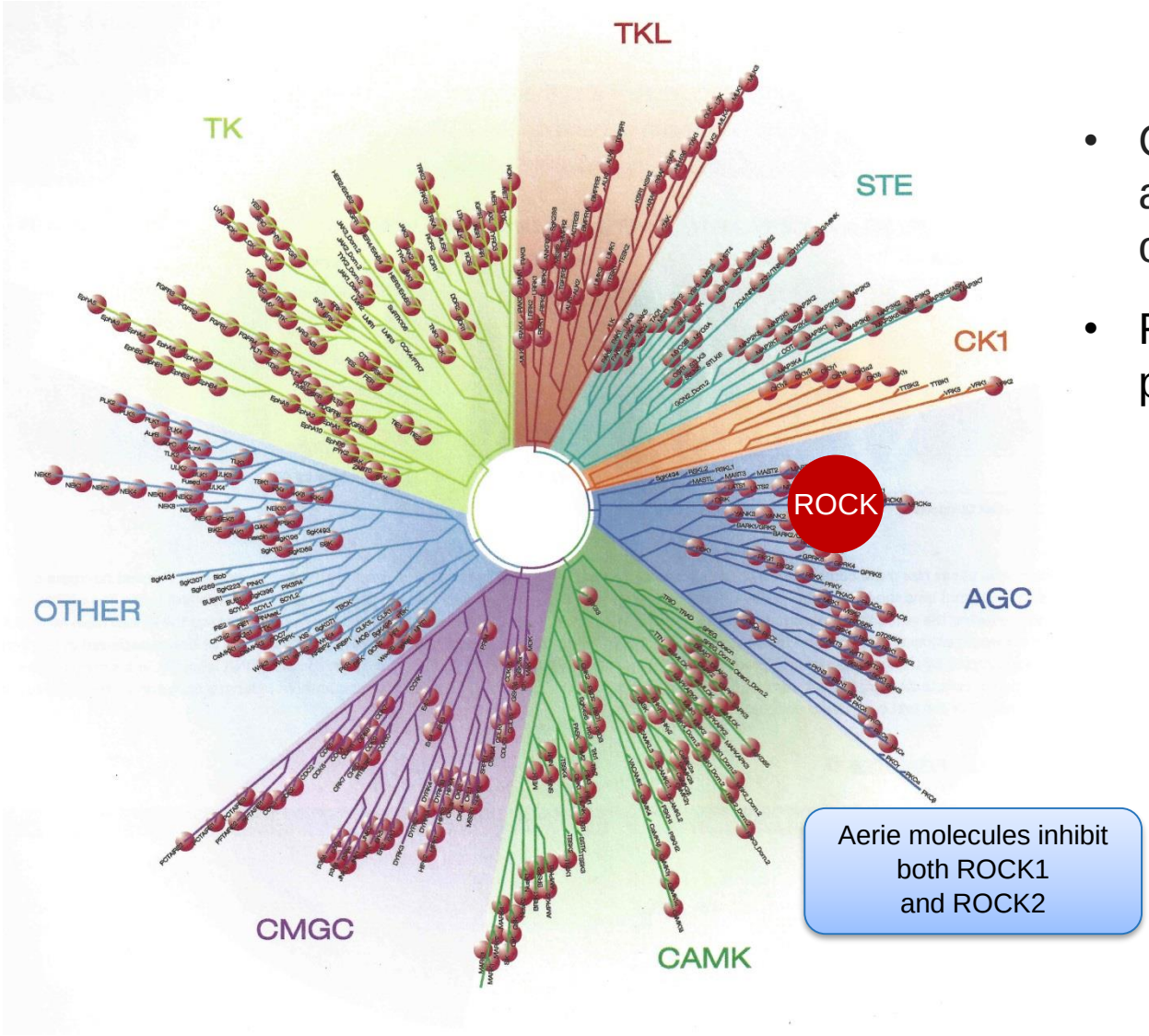
PRINT® Technology for Ophthalmology



- PRINT= Particle Replication In Non-wetting Templates
- Aerie recently acquired the rights to use this technology for ophthalmic applications
- Proprietary technology capable of creating precisely engineered sustained-release products using fully scalable manufacturing processes
- Expected to accelerate development of Aerie's retinal disease program, including pre-clinical AR-13503 and AR-1105

Excellent Control Over Particle Size, Shape and Formulation

Evaluating Aerie's 3,500+ Owned Molecules



- Commencing screening for additional indications beyond ophthalmology
- ROCK inhibition should have potential in:
  - Pulmonary health, including pulmonary fibrosis and bronchial asthma
  - Dermatology indications
  - Cancer
  - Others

Relationship tree of human kinases. TK, TKL, STE, CK1, AGC, CAMK, CMGC, Other: Kinase superfamilies

Summary

- **Key Priorities**
  - Rhopressa®: Successful launch execution effective April 30, 2018
  - Roclatan™: U.S. NDA accepted, PDUFA set for March 14, 2019
- **Globalization Strategy**
  - Europe/Japan clinical path and commercialization strategy
  - Ireland Manufacturing Facility
- **Research Initiatives**
  - Rhopressa® 24-hour IOP reduction, normal tension glaucoma, aqueous humor dynamics, pseudoexfoliative glaucoma, corneal healing
  - Pre-clinical retina programs and delivery technologies
  - Evaluating Aerie's ROCK inhibitors beyond ophthalmology
- **Well-Financed**
  - $334M in cash, cash equivalents and investments at March 31, 2018