PRINT® Drug Delivery Technology: Bringing Small Molecule Chemistry to Retinal Disease

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Aerie Overview

Aerie IOP–Reducing Products (IP 2030+)

- **Rhopressa® and Rocklatan® commercialized in the United States**
- Glaucoma Franchise Approved in Europe
- Globalization Plan Under Way

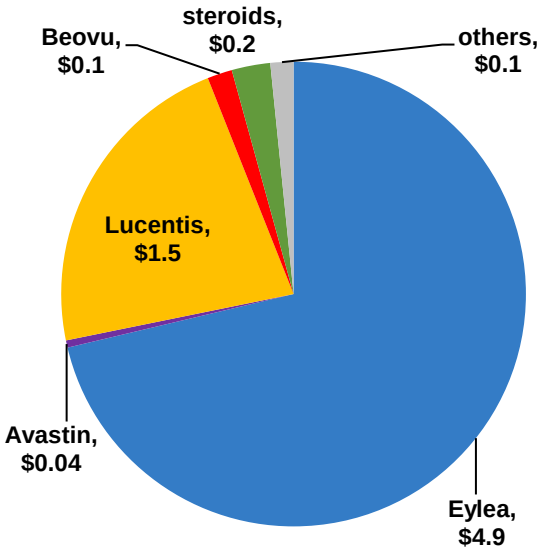
Key Pipeline Activities

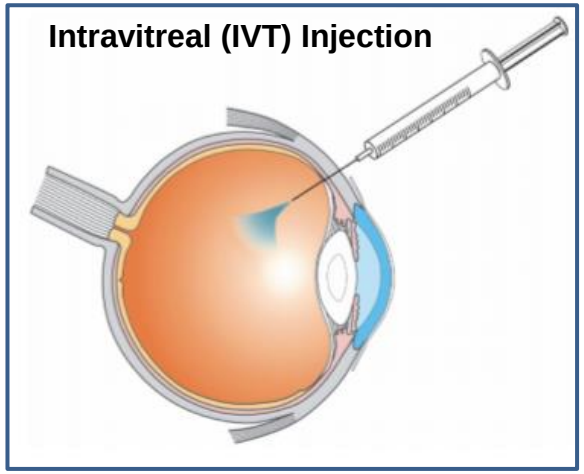
- **AR-15512 TRPM8 agonist for Dry Eye (advancing to Phase 3)**
- **Retina Sustained-Release Implant Platform:**
  - AR-1105 (Dexamethasone; DME Phase 3 preparations underway)
  - AR-13503 (ROCKi; First-in-human wAMD/DME study in progress)
  - AR-14034 (Pan-VEGF inhibitor; Preclinical)
- **AR-6121 ROCKi-linked steroid anti-inflammatory (preclinical)**

Rhopressa® and Rocklatan® have not been approved by any regulatory authority other than the FDA and EMA. AR-15512, AR-1105, AR-13503, AR-14034 and AR-6121 are development stage product candidates and are not approved by any regulatory agency. Dex: Dexamethasone

U.S. Retinal Disease Market: Need for Reduced Injection Frequency, New MOAs

2020 U.S. Sales: $6.9B



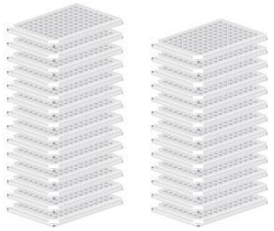


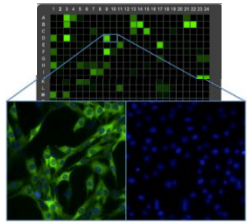
- **Frequent intravitreal injections required to maintain vision gains**
  - Represents a significant burden for patients and physicians
- **Only 2 drug classes approved for treatment of wAMD, DME (anti-VEGF, steroids)**
  - Not sufficient to fully address complex pathology that drives disease progression
- **Opportunity for improved efficacy over current standards of care**

Sources: Mixture of public information, IQVIA, Market-Scope and estimates – Feb 2020

Drug Delivery Platform: Bringing Small Molecule Chemistry to the Back of the Eye

Small Molecule Drug Candidates

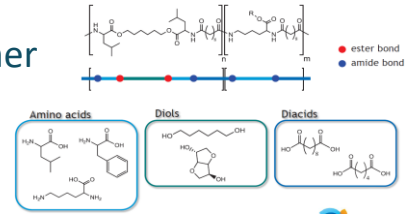


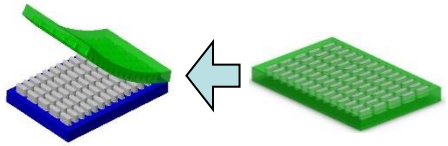


- Aerie Kinase Library (>4000 molecules)
- Non-Aerie drug candidates

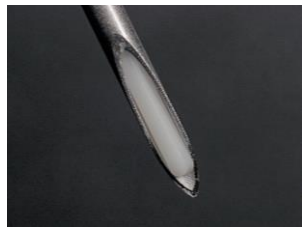
Formulation and PRINT® Manufacturing

- DSM PEA Polymer
- PLGA





- PRINT® Mfg



- Bio-erodible, sustained-release implant for intravitreal injection

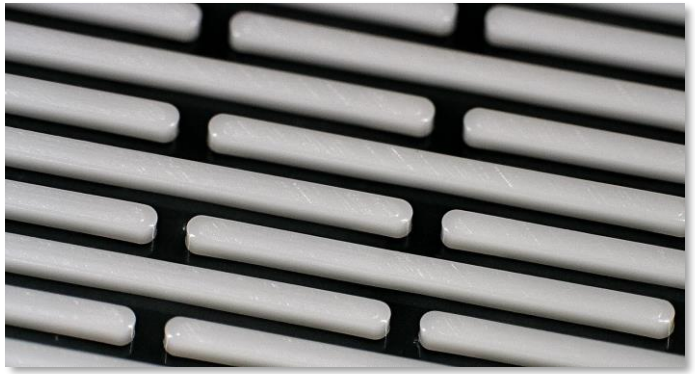
AMD **DME** **RVO** **Dry AMD/GA** **Glaucoma** **Others**

AR-1105 (Dexamethasone) Implant Provides Validation of Aerie's Drug Delivery Platform

- AR-1105 implant manufactured via PRINT® technology
- Designed to provide at least 6 months of efficacy at a lower dose of dexamethasone than currently available therapies
- Target indications: DME and RVO

Implant size (µm)	265 x 265 x 4500
Dose Dexamethasone	170 x 2 = 340 µg

- AR-1105 implant achieved targeted 6-month duration of efficacy in Phase 2 study
  - 6-month, open-label study in 49 subjects with macular edema due to RVO
  - Improvements in BCVA and macular edema demonstrated for at least 6 months
  - Adverse events were consistent with other corticosteroid treatments



- **Preparations for Phase 3 studies in DME are underway**

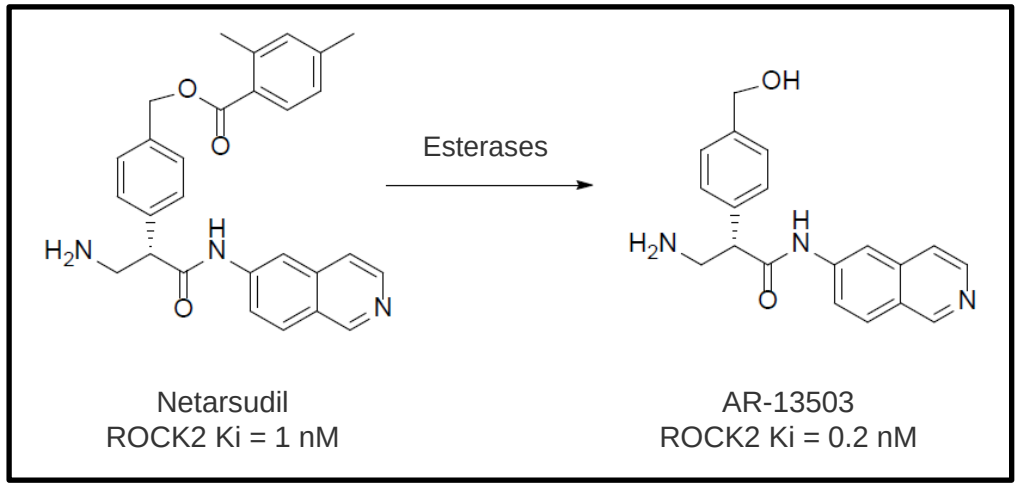
AR-1105 is a development stage product candidate and is not approved by any regulatory agency.

AR-1105 Opportunity

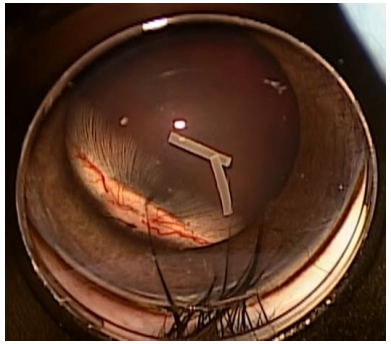
- The DME market is growing in the United States and abroad – currently over $100M in the U.S. and nearly $300M in Europe
- Potential benefits of the 6-month sustained efficacy of AR-1105, if approved:
  - Highly competitive dosing frequency for both the U.S. and European steroid markets
  - Opportunity for market expansion as a more favorable treatment alternative for anti-VEGF non-responders
  - May also benefit physician productivity and overall health economics
- Aerie's exclusive PRINT® platform may allow for low-cost production and significant pricing flexibility

Positive AR-1105 Ph2 topline sustained efficacy data supports advancement as a potentially significant pipeline asset for Aerie, of particular value in Europe

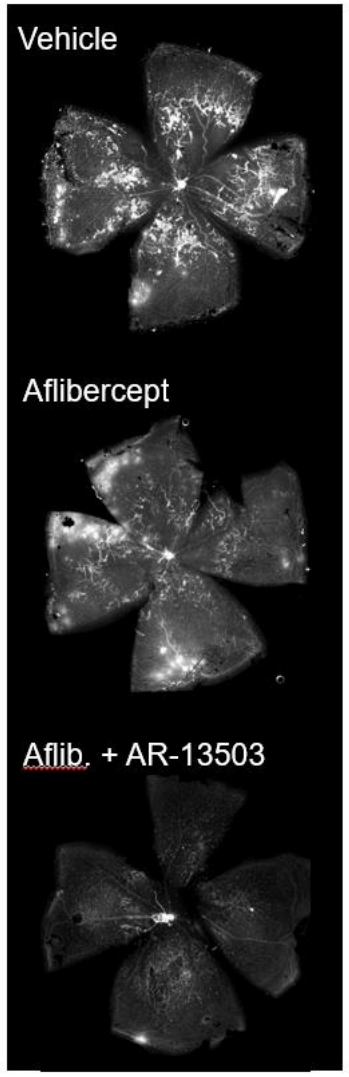
AR-13503 Implant: A First-in-Class ROCK/PKC Inhibitor For Retinal Disease



AR-13503 Implants in Rabbit Eye



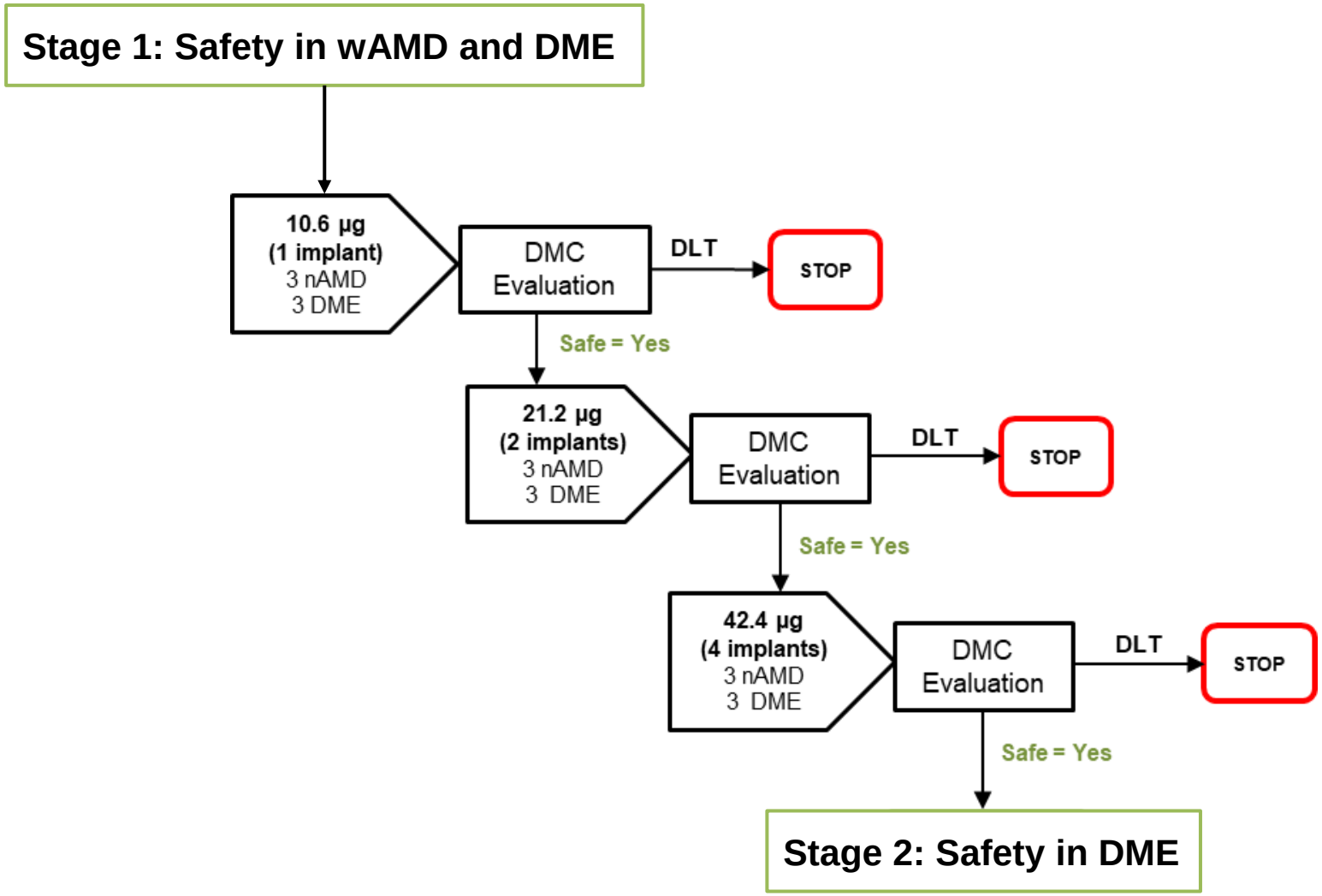
Mouse OIR Model



- AR-13503 is active metabolite of netarsudil
- New MOA has potential to improve outcomes by targeting vascular defects, inflammation, fibrosis and neurodegeneration
- Effective as monotherapy and as adjunct to anti-VEGF therapy in preclinical models
- Expect implant to provide durable treatment effect with injection frequency of once every 4 – 6 months

Ding, J. et al. Invest. Ophthalmol. Vis. Sci. 2019;60(9):5387. Data on File. AR-13503 is an investigational drug not yet approved by any regulatory authority.

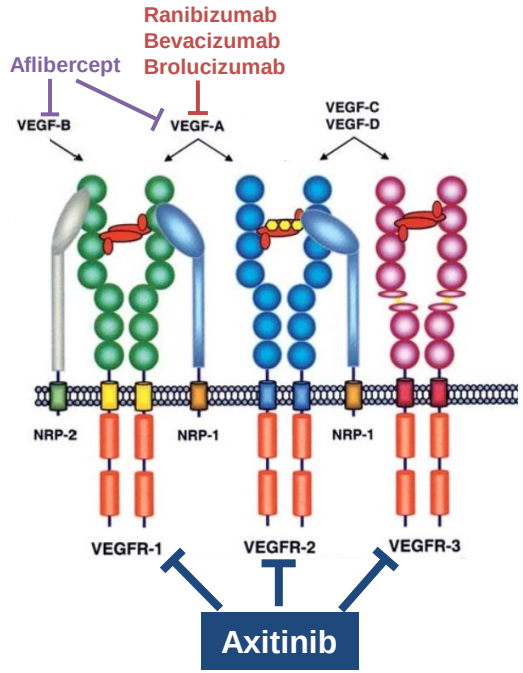
AR-13503 Implant: 6-month Phase 1 Clinical Study Initiated, Successfully Advanced to Stage 2



https://clinicaltrials.gov/ct2/show/NCT03835884?term=AR-13503&draw=2&rank=1. AR-13503 is an investigational drug not yet approved by any regulatory authority.

AR-14034 SR (Axitinib): Small Molecule Anti-VEGF Opportunity

- 2019 IVT anti-VEGF worldwide market $13B; est. $22B by 2025[1]
- Current anti-VEGF pipeline dominated by longer duration products targeting injection every 4 - 6 months
- AR-14034 (axitinib) anti-VEGF implant offers multiple potential advantages vs. current and future products
  - Long duration: targeting once-per-year injection
  - High potency: ~10x greater potency than other small molecule inhibitors of VEGF-R
  - Enhanced efficacy: broad inhibition of all VEGF receptor signaling (VEGF-A, -B, -C, -D)
  - Safety: proprietary polymer blend provides controlled drug release, avoids microparticles that can migrate to front of the eye



Choroid Sprouting Assay

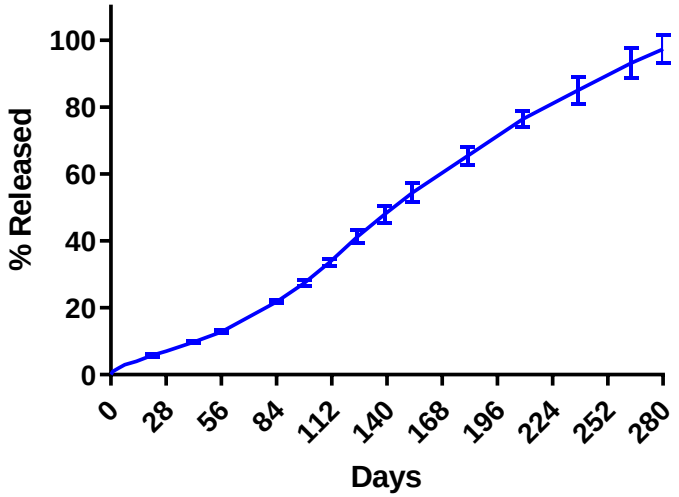
Compound	IC50 (nM)	IC90 (nM)
Axitinib	**65 ±43**	**124 ±62**
Sunitinib	676 ±500	1901 ±1103

AR-14034 is a development stage product candidate and is not approved by any regulatory agency. Data on file..

1. Market Scope Estimates 2020; http://market-scope.com/

AR-14034 SR (Axitinib): Preclinical Results Support Up to 12 Months Duration in Clinic

Cumulative Drug Release In Vitro



In vitro: In vivo Comparison

Time	Percent drug released	
	In vitro	In rabbits
Day 14/16	10%	6-9%
Day 29/31	17%	14%
Month 5	60%	50-60%

- Proprietary polymer blend produces optimal elution rate over time
- Drug release rate in rabbits predicts up to 12-months duration (once a year injection) in clinic
  - Aerie rabbit data accurately predicted AR-1105 6-month duration in clinic

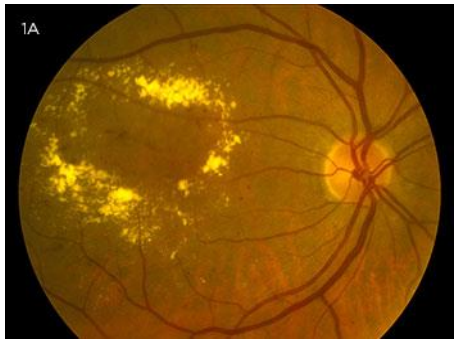
IND-enabling preclinical studies underway;
IND filing planned for 2H 2022

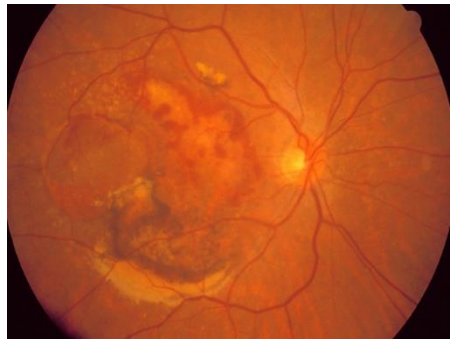
AR-14034 is a development stage product candidate and is not approved by any regulatory agency.

Data on File

Addressing Unmet Needs in Wet AMD & DME

Drug/Target	Reduced Injection Frequency	New Mechanism of Action
AR-1105 Implant (Dexamethasone)	✓	
AR-13503 Implant (ROCK/PKC Inhibitor)	✓	✓
AR-14034 Implant (Axitinib Pan-VEGF Inhibitor)	✓ (VEGF A/B)	✓ (VEGF C/D)





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THANK YOU