Important Information

Any discussion of the potential use or expected success of our product candidates is subject to our product candidates being approved by regulatory authorities. In addition, any discussion of clinical trial results for Rhopressa™ relate to the results in its first Phase 3 registration trial, Rocket 1, and for Roclatan™ relate to the results in its Phase 2b clinical trial.

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 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, 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 – Building a Major Ophthalmic Pharmaceutical Company

Current Aerie Products:

Once-Daily IOP-Lowering Eye Drops for Glaucoma

- Triple action Rhopressa™
  - Inhibits ROCK and NET, lowers EVP, targets diseased tissue
  - First P3 missed primary endpoint, achieved secondary
- Quadruple Action Roclatan™
  - Fixed combination of Rhopressa™ and latanoprost
  - P2b achieved all clinical endpoints, P3 to start mid-2015
  - Potentially most efficacious IOP-lowering therapy

Full patent protection through at least 2030; Blockbuster Potential

Pre-Clinical Research Findings

- Rhopressa™ shows potential to modify diseased tissue
  - May block fibrotic response in trabecular meshwork cells
  - May increase perfusion of the trabecular meshwork
- AR-13154 shows potential for the treatment of wet AMD
  - May inhibit ROCK/JAK/PDGFR-β
  - Lesion size reduction in rats exceeds market-leading product

These new preclinical discoveries represent potential breakthroughs
IOP-Lowering Mechanisms

**Rhopressa™**
- ROCK inhibition relaxes TM, increases outflow
- NET inhibition reduces fluid production
- ROCK inhibition lowers Episcleral Venous Pressure (EVP)

**Roclatan™** also adds latanoprost:
- PGA receptor activation increases uveoscleral outflow
Aerie Products Cover the IOP-lowering Spectrum

Decreases Fluid Inflow/Production
(Ciliary Processes)

Increases Fluid Outflow:
Secondary Drain
(Uveoscleral Pathway)

Increases Fluid Outflow:
Primary Drain- Trabecular Meshwork (TM);
Lowers EVP - (Episceral Venous Pressure)

Rhopressa™

Roclatan™

AA, BB, CAI

PGAs
~80% of U.S. Glaucoma Patients Have IOPs that are \( \leq 26 \text{ mmHg} \) at Time of Diagnosis

The Baltimore Eye Survey

Baseline IOP*:

- \( >26 - <35 \text{ mmHg} \): 20%
- \( >21 - \leq 26 \text{ mmHg} \): 20%
- \( \leq 21 \text{ mmHg} \): 60% (Normal Tension Glaucoma)

~75% of Patients with IOP \( \leq 24\text{mmHg} \)

Latanoprost and Timolol Show Reduced Efficacy at Lower Baseline IOPs

- Latanoprost and timolol lose efficacy as baseline IOPs decline
- Timolol at least 1 mmHg less effective than latanoprost across all published baselines
- Timolol is the standard comparator for glaucoma Phase 3 trials

Pooled data from three latanoprost registration studies. Hedman and Alm; European Journal Ophthalmology; 2000
## Rhopressa™ Registration Trial Design

### “Rocket 1” 90-Day Efficacy Registration Trial
- Rhopressa™ 0.02% QD: 182 patients
- Timolol BID: 188 patients

### “Rocket 2” One Year Safety (3 Mo. Interim Efficacy) Registration Trial
- Rhopressa™ 0.02% QD: ~230 patients
- Rhopressa™ 0.02% BID*: ~230 patients
- Timolol BID: ~230 patients

### “Rocket 3” One Year Safety Registration Trial Canada
- Rhopressa™ 0.02% QD: ~90 patients
- Rhopressa™ 0.02% BID: ~90 patients
- Timolol BID: ~60 patients

* PGAs have been shown to be less effective when dosed BID
Patients with open angle glaucoma (OAG) or ocular hypertension (OHT) with IOP >20 mmHg and < 27 mmHg
N=411 randomized at 36 sites
(370 subjects per protocol)

Patients randomized 1:1

Rhopressa™
0.02% QD (PM)

Timolol 0.5%
BID

Primary endpoint: Mean IOP at Weeks 2 and 6 and Day 90
Rocket 1 Trial Conduct

- Number of Early Terminations – 44 (Total Rhopressa™ plus Timolol)
  31 in Rhopressa™, 13 in Timolol

- Major Reasons for Early Termination (Total Rhopressa™ plus Timolol)

  Adverse events* (55%)
  Protocol violation (18%)
  Withdrawal of consent (11%)
  Lack of efficacy (7%)
  Investigator decision (4%)

* Adverse Events for Rhopressa™ included: Allergic conjunctivitis (2); Eyelid pruritus (2); Lacrimation increased (2); Angle closure glaucoma (1); Conj. hyperemia (1); Conj. edema (1); Conj. Vasc. Disorder (1); Eye irritation (1); Eye pain (1); Eye pruritus (1); Eyelid edema (1); Iris adhesions (1); Iris bombe (1); Vision blurred (1); Decreased visual acuity (1); Diarrhea (1); Dysphagia (1); Feel abnormal (1); Instill. site pain (1); Conjunctivitis (1); Hypersensitivity (1); Upper limb fracture (1); Corneal staining present (1); Prostate cancer (1); Dermatitis (1)
Rocket 1 Study Endpoints

Efficacy:

• The primary efficacy endpoint is the mean IOP at the following time points: 08:00, 10:00, and 16:00 at the Week 2, Week 6, and Day 90 visits

• Secondary efficacy endpoints include:
  • IOP analysis stratified by baseline IOP above and below 24 mmHg
  • Mean change from baseline IOP
  • Mean percent change from diurnally adjusted baseline IOP
  • Mean diurnal and change from baseline diurnal IOP

Safety:

• Ocular and systemic safety measures
### Summary Of Rhopressa™ Rocket 1 Efficacy Results Based On Different Baseline IOPs

<table>
<thead>
<tr>
<th>Baseline IOP (mmHg)</th>
<th>Non-inferiority</th>
<th>Numerical Superiority</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;27*</td>
<td>Did not meet</td>
<td>Met 2 time points</td>
</tr>
<tr>
<td>&lt;26</td>
<td>Met</td>
<td>Met 4 time points</td>
</tr>
<tr>
<td>&lt;25</td>
<td>Met</td>
<td>Met 7 time points</td>
</tr>
<tr>
<td>&lt;24**</td>
<td>Met</td>
<td>All (9 time points)</td>
</tr>
<tr>
<td>&lt;23</td>
<td>Met</td>
<td>All (9 time points)</td>
</tr>
<tr>
<td>&lt;22</td>
<td>Insufficient power</td>
<td>All (9 time points)</td>
</tr>
</tbody>
</table>

* Primary endpoint  
** Pre-specified secondary endpoint
Baseline IOP < 27 mmHg At All Time Points
Some Observations on Rocket 1 Non-Inferiority Miss

Achieved non-inferiority at <26mmHg, did not at <27mmHg

- Inferiority driven by a subset of Rhopressa™ patients
- At higher baseline IOPs, potential for more severely diseased trabecular meshwork, limiting Rho Kinase inhibition benefit
- Highly variable IOP
  - Many showed IOP swings of >3 mmHg between visits while on treatment
  - Notable variability in baseline IOP between Rhopressa™ studies (Phase 2 vs. Rocket 1)
- Some evidence of noncompliance, and site concentration of poorer performers
Baseline IOP < 24 mmHg (Pre-specified analysis)
Rhopressa™ Efficacy In Subjects On PGA Prior To Study: Baseline IOP < 24 mmHg

• Prior PGA use produced enhanced IOP-lowering with Rhopressa™ at weeks 2 and 6
• IOP lowering at month 3 equivalent to IOP lowering in non-PGA subjects
• Prior PGA use had no effect on timolol efficacy
Rhopressa™ Efficacy In Subjects Not On PGA Prior To Study: Baseline IOP < 24 mmHg

- No loss of efficacy seen from week 2 to month 3 for Rhopressa™ or timolol
Rhopressa™ IOP-lowering Effect Enhanced In Subjects On PGA Therapy Prior To Study Entry

- Prospective (pre-specified) analysis by pre-study medication status showed that prior PGA use enhanced Rhopressa™ IOP-lowering at week 2 (p=0.003)

- The PGA effect is lost over time, which we believe creates a false impression that Rhopressa™ loses efficacy over time

- The apparent PGA synergy with Rhopressa™ is greatest at week 2 and lessens over time in the absence of PGA dosing

- No evidence of enhanced efficacy in timolol subjects on PGA therapy prior to study entry

- Retrospective analysis of Phase 2 trial results shows prior PGA use enhanced Rhopressa™ IOP-lowering by 1 mmHg (p=0.007) and 1.2 mmHg (p=0.002) at weeks 2 and 4, respectively, relative to subjects not previously on PGA
Rhopressa™/PGA Synergy May Reflect Complementary Actions on TM Extracellular Matrix

- ROCK inhibition relaxes trabecular meshwork (TM) cells by reducing actin stress fibers and reducing production of ECM\(^1\)

- PGAs lower IOP by increasing ECM turnover in uveoscleral pathway—but subtle changes in TM pathway also observed with long-term dosing\(^2\)
  - PGAs have no obvious effect on TM outflow on their own

- Subtle PGA-induced changes in ECM may sensitize TM cells to the unique IOP-lowering effects of Rhopressa™

- Daily exposure to both Rhopressa™ and a PGA may result in ongoing synergy – and may also explain positive Roclatan™ P2b results

References:
Rhopressa™ Synergy with PGAs May Represent a Market Opportunity

FY 2014 U.S. Glaucoma Market = $2.2B; 33M TRx
Market Share in TRx

Non-PGA Market

PGA Market

2-3 Times Daily

Fixed Combo

Once Daily

PGA: Prostaglandin Analogue; BB: Beta Blocker; AA: Alpha Agonist; CAI: Carbonic Anhydrase Inhibitor

Source: IMS MIDAS, IMS NPA
Rhopressa™ Next Steps: Rocket 2

- Trial is under way, patients still being treated
- Data base not locked yet
- Endpoints currently set same as Rocket 1
- Originally scheduled P3 efficacy read-out Q3 2015
- Pursuing with FDA changing secondary endpoint (< 24mmHg) to primary
  - Rocket 1 performance in this range was very successful
  - Represents a large portion of the market (~75%)
  - FDA has allowed changes in the past
- Considering < 25mmHg, which also performed well in Rocket 1
- If endpoint is changed and patients need to be added for adequate powering of Rocket 2, efficacy read-out expected by YE 2015/Q1 2016
Rhopressa™ Next Steps: Rocket 4

• Planning to commence Rocket 4 in Q3 2015, an additional Rhopressa™ trial in the U.S.

• Baseline IOPs:
  - Primary <24 mmHg or <25 mmHg
  - Pre-specified secondary <27 mmHg
  - Considering stratification
  - May enroll patients up to 30 mmHg

• Efficacy evaluated at 3 months (primary) and 6 months (secondary)

• Final design to be reviewed with FDA

• Read-out expected in approximately one year
Roclatan™ Phase 2b Clinical Trial Design

Phase 2b Protocol

- Primary efficacy endpoint: Mean diurnal IOP on Day 29
- Two concentrations of Roclatan™ vs. Rhopressa™ 0.02% and latanoprost
- Trial design follows FDA requirement for fixed-dose combination
  - Statistically significant difference at measured time points
  - Higher combo efficacy vs. components of at least 1–3 mmHg, as previously accepted by FDA for product approval

All Dosed QD PM
~300 Patients
28 Days
Roclatan™ Phase 2b Clinical Trial Performance

- Achieved primary efficacy measure
  - Superiority over each of the components on day 29

- Achieved statistical superiority over the individual components at all time points
  - More efficacious than latanoprost by 1.6 – 3.2 mmHg
  - More efficacious than Rhopressa™ by 1.7 – 3.4 mmHg

- Main adverse event was hyperemia (eye redness):
  - Reported in 40 percent of patients
  - Mild for the large majority of patients

- No systemic drug-related adverse events
0.02% Roclatan™ Achieved Statistical Superiority Over Individual Components at All Time Points (p<0.001)

Mean IOP at Each Time Point
Primary Efficacy Measure

Roclatan™ Phase 2b, Intent to Treat

- 0.02% Rhopressa™ (n=78)
- 0.005% Latanoprost (n=73)
- 0.02% Roclatan™ (n=72)
Roclatan™ Phase 2b, ITT

Mean IOP (mmHg)

<table>
<thead>
<tr>
<th></th>
<th>0.02% Roclatan™ (n = 72)</th>
<th>0.005% latanoprost (n = 73)</th>
<th>0.02% Rhopressa™ (n = 78)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Difference*</td>
<td>Mean</td>
</tr>
<tr>
<td>Day 8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 AM</td>
<td>17.0</td>
<td>-2.6</td>
<td>19.6</td>
</tr>
<tr>
<td>10 AM</td>
<td>15.6</td>
<td>-2.7</td>
<td>18.3</td>
</tr>
<tr>
<td>4 PM</td>
<td>15.6</td>
<td>-3.1</td>
<td>18.6</td>
</tr>
<tr>
<td>Day 15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 AM</td>
<td>16.5</td>
<td>-3.2</td>
<td>19.6</td>
</tr>
<tr>
<td>10 AM</td>
<td>15.8</td>
<td>-2.4</td>
<td>18.3</td>
</tr>
<tr>
<td>4 PM</td>
<td>15.7</td>
<td>-2.6</td>
<td>18.3</td>
</tr>
<tr>
<td>Day 29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 AM</td>
<td>16.9</td>
<td>-2.4</td>
<td>19.2</td>
</tr>
<tr>
<td>10 AM</td>
<td>15.9</td>
<td>-1.8</td>
<td>17.7</td>
</tr>
<tr>
<td>4 PM</td>
<td>16.8</td>
<td>-1.6</td>
<td>18.4</td>
</tr>
</tbody>
</table>

• Roclatan™:
  • Produced lowest IOP drop in any trial
  • Was superior to latanoprost by 1.6–3.2 mmHg (p<0.001)
  • Was superior to Rhopressa™ by 1.7–3.4 mmHg (p<0.001)

• Impressive Rhopressa™ performance

* Difference between 0.02% Roclatan™ and latanoprost or Rhopressa™
Roclatan™ Next Steps

• Commencing “Mercury 1” in Q3 2015 in the U.S.
  - Designed for superiority to individual components, similar to P2b
  - Baseline IOP range tentatively > 20mmHg to <36mmHg, with stratified enrollment
  - Multiple secondary endpoints
  - Efficacy trial with one year safety

• “Mercury 2” expected to commence in 2016 in the U.S.
  - Expect same comparators as Mercury 1
  - Three month efficacy study

• “Mercury 3” expected to commence in 2016 in Europe
  - Comparing to a leading combo product marketed in EU
  - Efficacy study, duration TBD
Aerie Financial Resources

• As of March 31, 2015 had $179.3M of cash and investments on balance sheet

• Expected to fund Aerie operations for approximately the next 3 years

• Proceeding with clinical path outlined for Rhopressa™ and Roclatan™, and continue to evaluate potential for pre-clinical Aerie molecules and outside opportunities
Summary

• **Key Clinical Priorities**
  - Rhopressa™: Rocket 2 endpoint discussion with FDA
    Rocket 4 commencement Q3 2015
  - Roclatan™: Mercury 1 commencement Q3 2015

• **Research Initiatives**
  - Rhopressa™ disease modification and neuro-protection
  - AR-13154 potential in wet AMD, etc.
  - Evaluating Aerie’s 3,000+ owned molecules

• **Potential Business Development Opportunities**
  - Evaluating additions to ophthalmic product pipeline
  - Exploring drug delivery opportunities – front and back of eye
Building a Major Ophthalmic Pharmaceutical Company