Forward Looking Statements/ Safe Harbor

This presentation and the accompanying oral commentary contain “forward-looking” statements that involve substantial risks and uncertainties. All statements other than statements of historical facts contained in this presentation and the accompanying oral commentary, including statements regarding our future financial condition, business strategy and plans and objectives of management for future operations, are forward looking statements. In some cases, you can identify forward-looking statements by terminology such as “believe,” “will,” “may,” “estimate,” “continue,” “anticipate,” “intend,” “should,” “plan,” “might,” “approximately,” “expect,” “predict,” “could,” “potentially” or the negative of these terms or other similar expressions. Forward looking statements appear in a number of places throughout this presentation and the accompanying oral commentary and include statements regarding our intentions, beliefs, projections, outlook, analyses or current expectations concerning, among other things, our ongoing and planned preclinical development and clinical trials, the timing of and our ability to make regulatory filings and obtain and maintain regulatory approvals for rosiptor (AQX-1125) and our future product candidates, our intellectual property position, the degree of clinical utility of rosiptor and our future product candidates, particularly in specific patient populations, our ability to develop commercial functions, expectations regarding clinical trial data, our results of operations, cash needs, financial condition, liquidity, prospects, growth and strategies, the industry in which we operate and the trends that may affect the industry or us.

Forward-looking statements involve known and unknown risks, uncertainties, assumptions and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. In evaluating these statements, you should specifically consider various factors, including the risks outlined under the caption “Risk Factors” set forth in our Quarterly Report on Form 10-Q for the year ended March 31, 2018, which we filed with the Securities and Exchange Commission (“SEC”) on May 8, 2018 and other reports and filings we will make with the SEC from time to time. Forward-looking statements represent our management’s beliefs and assumptions only as of the date of this presentation. Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons why actual results could differ materially from those anticipated in the forward-looking statements, even if new information becomes available in the future.
Aquinox Pharmaceuticals, Inc.

- Founded 2006; Founder/CEO David Main
- NASDAQ 2014: AQXP
- Aquinox is discovering and developing novel drug candidates to treat inflammation, inflammatory pain, & blood cancers: Primary focus is anti-inflammatory product candidates targeting SHIP1
- As of 2017:
  - 50+ employees and growing
  - 2 locations: Vancouver, BC and San Bruno, CA
Aquinox Summary

- Well capitalized into 2019
- First-in-Class drug targeting novel enzyme (SHIP1) with broad anti-inflammatory potential
- Lead disease indication:

Rosiptor (AQX-1125) for Interstitial Cystitis / Bladder Pain Syndrome (IC/BPS)

- Encouraging Phase 2 results in IC/BPS; published in Journal of Urology in 2016
- Competitive advantage in IC/BPS; large, underserved market
- Suitable for independent commercialization in the US and Canada with RoW partner(s); license agreement with Astellas in Asia Pacific, excluding China and India

Enrollment Target Achieved in Phase 3 Clinical Trial; Top-Line Data Expected Q3 2018
Rosiptor Overview: A Novel, First-in-Class Anti-Inflammatory Therapy

- First-in-Class SHIP1 activator with broad anti-inflammatory potential
- Favorable ADME profile in humans
  - Once-daily oral administration
  - High oral bioavailability; minimal metabolism
    - Predominantly eliminated through renal clearance as rosiptor
  - $T_{1/2} = 21$ hours, $T_{\text{max}} = 1.25$ hours
  - Dose proportional PK, no food effect
- Well tolerated in 8 completed clinical trials
  - More than 395 subjects dosed to date
IC/BPS Disease State Overview
IC/BPS Takes a Physical & Mental Toll on Patients

IC/BPS is a life-altering, debilitating condition - characterized by bladder pain and urinary symptoms (prevalence ~5.5M)\(^1-3\)

Fear and anxiety from the unrelenting and unpredictable nature of the disease - “a life sentence…it’s always lurking”\(^4\)

Diagnosis of exclusion & one of the most challenging urological conditions (no new oral therapy approved in >20 years)

IC/BPS: Mechanism of Disease


CNS=central nervous system; WBC=white blood cell.

*Photo of cultured mast cells, slightly degranulated.

**Photo of cultured mast cells, slightly degranulated.

CNS=central nervous system; WBC=white blood cell.
LEADERSHIP 201: Phase 2 Trial with Rosiptor in IC/BPS
Phase 2 LEADERSHIP Trial: A Comprehensive IC/BPS Trial

- Population and entry demographics: 69 female patients across US and Canadian sites with moderate to severe IC/BPS symptoms:
  - Mean bladder pain > 5/10
  - Mean BPIC-SS and O’Leary Sant ICSI/PI symptom scores ≥ 19 and ≥ 8 respectively
  - On background medication (excluding opiates)

- Primary endpoint:
  - Reduction of average daily bladder pain at 6 weeks with once daily AQX-1125 vs. placebo

- Pre-specified secondary endpoints:
  - Maximum daily bladder pain based on an 11-point NRS recorded by eDiary
  - Average and maximum daily bladder pain score measured by 11-point NRS recorded at clinic
  - Multiple urological and QoL symptom assessments (O’Leary-Sant ICSI/PI, BPIC-SS)
  - Voiding frequency over a 24-hour period

- Safety, pharmacokinetics

Rosiptor Reduced Maximum Daily Bladder Pain Over 6 Weeks

Based on 11-point NRS recorded with an e-diary
## Rosiptor: Significant Improvement in Secondary Endpoints at Week 6

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Placebo (N=32)</th>
<th>Rosiptor 200 mg (N=37)</th>
<th>Difference in LS Mean Rosiptor-placebo</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLADDER PAIN (11-POINT NRS, CLINIC)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average daily pain</td>
<td>-1.1</td>
<td>-2.6</td>
<td>-1.6</td>
<td>0.008</td>
</tr>
<tr>
<td>Maximum daily pain</td>
<td>-1.1</td>
<td>-2.8</td>
<td>-1.6</td>
<td>0.028</td>
</tr>
<tr>
<td><strong>SYMPTOM QUESTIONNAIRES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O’Leary-Sant IC Symptom Index (ICSI)</td>
<td>-1.4</td>
<td>-3.8</td>
<td>-2.7</td>
<td>0.005</td>
</tr>
<tr>
<td>O’Leary-Sant IC Problem Index (ICPI)</td>
<td>-1.6</td>
<td>-3.6</td>
<td>-2.5</td>
<td>0.014</td>
</tr>
<tr>
<td>Combined O’Leary-Sant ICSI/ICPI</td>
<td>-3.0</td>
<td>-7.3</td>
<td>-5.1</td>
<td>0.007</td>
</tr>
<tr>
<td>BPIC-SS</td>
<td>-4.0</td>
<td>-8.8</td>
<td>-5.4</td>
<td>0.011</td>
</tr>
<tr>
<td><strong>VOIDING FREQUENCY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of voids/24h (e-diary)</td>
<td>-0.8</td>
<td>-3.6</td>
<td>-2.8</td>
<td>0.040</td>
</tr>
</tbody>
</table>

Rosiptor Demonstrated Similar AE Profile to Placebo in Phase 2

<table>
<thead>
<tr>
<th></th>
<th>LEADERSHIP 201</th>
<th>COMBINED SAFETY DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IC/BPS (6-week dosing)</td>
<td>Three Phase 2 Trials (LEADERSHIP 201, KINSHIP, FLAGSHIP)</td>
</tr>
<tr>
<td></td>
<td>Placebo N=32 n (%)</td>
<td>Rosiptor N=37 n (%)</td>
</tr>
<tr>
<td>TEAE</td>
<td>25 (78)</td>
<td>19 (51)</td>
</tr>
<tr>
<td>GI Disorders</td>
<td>11 (34)</td>
<td>11 (30)</td>
</tr>
<tr>
<td>Eye Disorders</td>
<td>3 (9)</td>
<td>2 (5)</td>
</tr>
<tr>
<td>SAEs</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Deaths</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>TEAEs Leading to Discontinuation</td>
<td>1 (3)</td>
<td>2 (5)</td>
</tr>
</tbody>
</table>

- Non-clinical studies showed lens changes in animals, which led us to conduct ocular monitoring in clinical studies
- Monitoring includes slit lamp biomicroscopy, visual acuity, intraocular pressure
- There was no substantial difference in observations at the ophthalmic examination between rosiptor and placebo or between start and end of the 6-week treatment period of the Phase 2 study

LEADERSHIP 301: Phase 3 Trial with Rosiptor in IC/BPS
LEADERSHIP 301: Assessing Bladder Pain and Urinary Symptoms

- 12-week treatment phase followed by 52-week extension phase

- Primary endpoint:
  - Change from baseline to Week 12 in the maximum daily bladder pain score based on an 11-point NRS recorded by e-diary

- Key secondary endpoints:
  - Change from baseline to Week 12 for the following:
    - Voiding frequency over a 24-hour period
    - Bladder Pain/Interstitial Cystitis Symptom Score (BPIC-SS)
  - Subject’s Global Response Assessment (GRA) at Week 12

- AEs over 12-week treatment phase followed by 52-week extension phase

Top-Line Data Expected Q3 2018
LEADERSHIP 301: Initiated in September 2016

Screening (up to 2 or 6 Weeks)

- Day -42
- Day -28/14 (±3)

Subjects requiring a cystoscopy:
- Visit 1

Subjects not requiring a cystoscopy:
- Visit 1a

Treatment Phase (12 Weeks)

Randomization (1:1:1)

- Rosiptor 200 mg
- Rosiptor 100 mg
- Placebo

Visit 1
Day 1
Baseline Visit 2
Day 42 (±3)
Visit 3
Day 84 (±3)
Visit 4
Day 126 (±7)
Visit 5
Day 182 (±7)
Visit 6
Day 238 (±7)
Visit 7
Day 294 (±7)
Visit 8
Day 364 (±7)
Visit 9
Day 448 (±7)
Visit 10
Day 476 (±7)
Visit 11 (Follow-up)

Top-Line Results

Extension Period (52 Weeks)

Randomization (1:1)

- Rosiptor 200 mg
- Rosiptor 100 mg
- Rosiptor 200 mg
- Rosiptor 100 mg

Visit 2
Day 42 (±3)
Visit 3
Day 84 (±3)
Visit 4
Day 126 (±7)
Visit 5
Day 182 (±7)
Visit 6
Day 238 (±7)
Visit 7
Day 294 (±7)
Visit 8
Day 364 (±7)
Visit 9
Day 448 (±7)
Visit 10
Day 476 (±7)
Visit 11 (Follow-up)

Follow-up Period

Safety Follow-Up Visit (4 weeks post-dose)

Follow-Up Telephone Call (3 months post-dose)

Ophthalmic Safety Follow-Up Visit (6 months post-dose)

Ophthalmic Assessment

Follow-up Period

Day 539
Day 630
Visit 12
Ophthalmic Assessment

Follow-up Period

Extension period affords all patients treatment with rosiptor

Visit 1
Day 1
Baseline Visit 2
Day 42 (±3)
Visit 3
Day 84 (±3)
Visit 4
Day 126 (±7)
Visit 5
Day 182 (±7)
Visit 6
Day 238 (±7)
Visit 7
Day 294 (±7)
Visit 8
Day 364 (±7)
Visit 9
Day 448 (±7)
Visit 10
Day 476 (±7)
Visit 11 (Follow-up)
Day 539
Day 630
Visit 12
Ophthalmic Assessment

Aquinox
LEADERSHIP 301: Enrollment Update

- As of February 6, 2018, 410 Patients Enrolled
  - 322 (79%) Females (Target Enrollment was 300)
  - 88 (21%) Males
  - 297 (72%) Through Treatment Period
  - >98% Have Transitioned from Treatment Period into Extension Period

- As of Feb 15 enrollment closed (433 total, 341F/92M)

- 129 Trial Sites
  - 12 Countries
  - 57% of Sites in North America

- ~50% Screen Failures (consistent with LEADERSHIP 201)

- <9% Dropouts in Treatment Period (consistent with LEADERSHIP 201)

Topline Data Expected Q3 2018
LEADERSHIP 301 Topline Data

- Topline results (first tranche of data)
  - Disposition – females
  - Baseline characteristics in females
    - Percentage of subjects with Hunner lesions
    - Percentage of subjects by region
  - Confirm success of trial
    - Defined as meeting primary objective of reducing maximum daily pain (using NRS) from baseline at Week 12 in females (ITT)
  - Confirm safety in females (topline safety: AEs, SAEs)
  - Assess key secondary endpoints in females (ITT)
    - Voiding frequency, change from baseline at Week 12
    - BPIC-SS, change from baseline at Week 12
    - GRA at Week 12
Commercial Opportunity
IC/BPS Market Offers an Excellent Growth Opportunity

**Number of Patients**

**Commercial Opportunities Exist to Increase Diagnosis & Treatment**

- **Est. Diagnosed Population**: ~1M
- **Est. Treated Population**: ≤1M
- **Est. Treatable Population**: ~4.4M
- **Est. Prevalence by IC/BPS Symptoms w/Rule-Outs**: ~5.5M

*Treatment includes prescription medications, procedures, physical therapy and over the counter (OTC) products
Few Clinically Effective and/or FDA Approved Treatment Options

First-Line Treatments
- General relaxation/stress management
- Pain management
- Patient education
- Self-care/behavioral modification

Second-Line Treatments
- Appropriate manual physical therapy techniques
- Oral: amitriptyline, cimetidine, hydroxyzine, or Elmiron®
- Intravesical: DMSO, heparin, or lidocaine
- Pain management

Only 4 Oral Options Recommended

Third, Fourth, Fifth, & Sixth-Line Treatments
- Additional treatment options to consider depending on symptom severity, clinician judgement, and patient preferences

Significant Opportunity to Improve Treatment Paradigm

- Elmiron® (PPS), the only oral product indicated for IC/BPS, has many limiting attributes:
  - Limited efficacy in clinical trials and practice
  - TID dosing
  - Unpleasant side effect profile
  - Delayed symptom improvement if patient responds (~3 months)
  - Low adherence/persistence rates\(^1\)

- Elmiron is the most frequently prescribed IC/BPS treatment with ~340K total prescriptions in the U.S. & ~$300M in U.S. revenues*
Elmiron® Persistence is Low; Nearly 70% of Elmiron Patients Have Discontinued Treatment by 90 Days

Half of all Elmiron patients fill within 15 days suggesting patients are relatively adherent. However, among new patients, Elmiron refill rates drop off with half of all new users not filling beyond the 1st Rx indicating persistence challenges.

<table>
<thead>
<tr>
<th>Gap Between Fills</th>
<th>% of Elmiron Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>~25%</td>
</tr>
<tr>
<td>15 Days (Median)</td>
<td>~25%</td>
</tr>
<tr>
<td>&gt;15 Days</td>
<td>~50%</td>
</tr>
</tbody>
</table>

Average Rx/Patient/Year: 4
- New Patient (44% of Patients): 2
- Long-standing (56% of Patients): 5

180 Day Refill Rates for Elmiron New-to-Brand Patients

- 1st Fill
- 60 Days
- 90 Days
- 120 Days
- 150 Days
- 180 Days

52% of New Patients Drop-Off When Time 2nd Fill

Time between determined as end date - beginning date - days of supply divided by number of Rxs

Source: Aquinox Analysis
## Prescription Usage Patterns Before/During/After Elmiron®: Opioids are Most Common Treatment

### Before Elmiron

<table>
<thead>
<tr>
<th>Category</th>
<th>Patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analgesics - Opioid</td>
<td>50%</td>
</tr>
<tr>
<td>Antidepressant*</td>
<td>41%</td>
</tr>
<tr>
<td>Analgesics - Anti-Inflammatory</td>
<td>33%</td>
</tr>
<tr>
<td>Antianxiety</td>
<td>29%</td>
</tr>
<tr>
<td>Urinary Antibiotics</td>
<td>28%</td>
</tr>
<tr>
<td>Anticonvulsants</td>
<td>23%</td>
</tr>
<tr>
<td>Urinary Antispasmodics</td>
<td>14%</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>14%</td>
</tr>
</tbody>
</table>

### During Elmiron

<table>
<thead>
<tr>
<th>Category</th>
<th>Patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analgesics - Opioid</td>
<td>33%</td>
</tr>
<tr>
<td>Antidepressant</td>
<td>37%</td>
</tr>
<tr>
<td>Analgesics - Anti-Inflammatory</td>
<td>17%</td>
</tr>
<tr>
<td>Antianxiety</td>
<td>26%</td>
</tr>
<tr>
<td>Urinary Antibiotics</td>
<td>20%</td>
</tr>
<tr>
<td>Anticonvulsants</td>
<td>19%</td>
</tr>
<tr>
<td>Urinary Antispasmodics</td>
<td>13%</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>6%</td>
</tr>
</tbody>
</table>

### After Discontinuing Elmiron

<table>
<thead>
<tr>
<th>Category</th>
<th>Patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analgesics - Opioid</td>
<td>43%</td>
</tr>
<tr>
<td>Antidepressant</td>
<td>40%</td>
</tr>
<tr>
<td>Analgesics - Anti-Inflammatory</td>
<td>31%</td>
</tr>
<tr>
<td>Antianxiety</td>
<td>29%</td>
</tr>
<tr>
<td>Urinary Antibiotics</td>
<td>19%</td>
</tr>
<tr>
<td>Anticonvulsants</td>
<td>23%</td>
</tr>
<tr>
<td>Urinary Antispasmodics</td>
<td>11%</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>11%</td>
</tr>
</tbody>
</table>

**Significant Reduction in Opioids with Alternative Treatment Option; However, Limited Efficacy Leads to Low Persistence, Causing Patients to Return to Opioids**

*Source: Aquinox Analysis; *Antidepressant category includes hydroxyzine; Anticonvulsants include drugs such as gabapentin*
Urologists Will Be Key in Driving Diagnosis & Treatment Decisions

- Most commonly (60%) visited by patients seeking medical care for IC/BPS\(^1\)

- Most frequently diagnose IC/BPS (patient reported)\(^2\)

- Write ~60% of all prescriptions for IC/BPS\(^1\)
  - Generate the highest volume of Elmiron\(^\circledR\) prescriptions
  - Patients visiting a Urologist for IC/BPS leave with at least one prescription

Aquinox is building relationships within the Urology community

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1. IMS data 2016; 2. Aquinox Analysis
Aquinox is Committed to Raising Awareness for IC/BPS

Building Relationships with Key Advocacy Groups

Healthcare Provider

American Urogynecologic Society (AUGS)

Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction (SUFU)

American Urology Association (AUA)

Patient

ICNetwork (you are not alone)

Conquering IC. Changing Lives. (ICA)

Interstitial Cystitis Association

Urology Care Foundation (UCF)
Chronic Prostatitis/Chronic Pelvic Pain Syndrome (CP/CPPS)
Chronic Prostatitis/Chronic Pelvic Pain Syndrome (CP/CPPS) Offers Aquinox a Synergistic Commercial Opportunity in Urology

- Characterized by pelvic pain (unrelated to urinary bladder filling or emptying), lower urinary tract symptoms without evidence of urinary tract infection\textsuperscript{1-3}

- Unmet medical need
  - No FDA-approved products & few in development
  - Antibiotics used regardless of (-) culture findings, followed by alpha-blockers\textsuperscript{1}
  - No single agent has proven efficacious to date across a broad population

- Inflammation is believed to be a critical driver in IC/BPS and CP/CPPS\textsuperscript{4,5}

- CP/CPPS has a lower prevalence rate than IC/BPS, but similar number of patients diagnosed and treated (~1M)\textsuperscript{6-9}

Prospective Near-Term Milestones

Near-term Data, Expanded Market Opportunities and Pipeline Advancement

- Publication of LEADERSHIP 201 Data ✓
- Initiation of IC/BPS – LEADERSHIP 301 ✓
  - Complete ADME Trial ✓
  - Initiate Carcinogenicity Studies ✓
- FDA Advisory Committee Meeting on IC/BPS ✓
- Initiation of Ethnobridging Trial (Q1 2018) ✓
- Initiation of Drug/Drug Interaction Trial (Q1 2018) ✓
- LEADERSHIP 301 Last Patient Randomized (Q1 2018) ✓
- Establish Partnership with Astellas in APAC (Q2 2018) ✓
- CP/CPPS Phase 2 Trial 1st Patient Randomized (Early 2018)
  - LEADERSHIP 301 Top-Line Data (Q3 2018)
Financial & Stock Information

- ~$92.7M cash, cash equivalents and short-term and long-term investments as of March 31, 2018
  - ~$51.1M operating expenses in 2017
  - Existing cash to fund first LEADERSHIP 301 trial and supporting activities
  - 23.5M shares outstanding (~25.5M fully diluted)
- NASDAQ: AQXP