Morphine Replacement, Non-Opiate/Non-Opioid
Non Addictive Pain Treatment
Pain Treatment Portfolio: 4-8 Hours, 3-Days, 7-Days, 14-Days, 90-Days
November 2016
Stock Symbol: PXRB
www.pixarbio.com
Forward Looking Statement

This presentation includes "forward-looking statements" within the meaning of the safe harbor provisions of the United States Private Securities Litigation Reform Act of 1995. These statements are based upon the current beliefs and expectations of PixarBio’s management and are subject to significant risks and uncertainties. If underlying assumptions prove inaccurate or risks or uncertainties materialize, actual results may differ materially from those set forth in the forward-looking statements.

Risks and uncertainties include but are not limited to, general industry conditions and competition; general economic factors, including interest rate and currency exchange rate fluctuations; the impact of Biotech and medical device industry regulation and health care legislation in the United States and internationally; global trends on cost containment; technological advances, new products and patents attained by competitors; challenges inherent in new product development, including obtaining regulatory approval; PixarBio’s ability to accurately predict future market conditions; manufacturing difficulties or delays; financial instability of international economies and sovereign risk; dependence on the effectiveness of PixarBio’s patents and other protections for innovative products; and the exposure to litigation, including patent litigation, and/or regulatory actions.

PixarBio Corp undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be obtained through PixarBio’s Corp HQ at 200 Boston Ave, Suite 1875 in Medford, MA 02155. PixarBio Corp is a private corporation.

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Obama Pushes For More Treatment for Opioid Addiction

“If we go to doctors right now and say ‘Don’t overprescribe’ without providing some mechanisms for people in these communities to deal with the pain that they have or the issues that they have, then we’re not going to solve the problem, because the pain is real, the mental illness is real,” – President Obama

CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016

“Long-term opioid use often begins with treatment of acute pain. When opioids are used for acute pain, clinicians should prescribe the lowest effective dose of immediate-release opioids and should prescribe no greater quantity than needed .... Three days or less will often be sufficient; more than seven days will rarely be needed. Experts noted that more than a few days of exposure to opioids significantly increases hazards, that each day of unnecessary opioid use increases likelihood of physical dependence without adding benefit...”

Senate passes bill to combat heroin, painkiller abuse

New Hampshire Sens. Kelly Ayotte (R-N.H.) (L) and Jeanne Shaheen (D-N.H.) (R) are major backers of opioid abuse legislation passed by the Senate on Monday.
PixarBio
Non-Opiate, Non-Addictive Pain Relief

Defeating Rebound Pain – EXPAREL & Std of Care Nerve Blocks Exacerbate Problem

92,000,000+ Annual Surgeries in USA;
42,000,000+ have more than 3 days Post-op Pain

Rebound Pain= Sudden onset of pain after Bupivacaine/Exparel suddenly stops working

Exparel Surgical Patients
• 74% report moderate to extreme pain after discharge
• 99% discharged with opioid prescription
• 44% taking prescription within one week of surgery > chance of long-term use


EXPAREL | Rebound Pain | Rebound Pain Worsens
15 Hrs. Median Time to Rescue Opioids
72% Require Opioid Rescue by 25 Hrs. Post Op

Nerve Block* | Rebound Pain | Rebound Pain Worsens
*Single Shot NB
0-8 Hours: Less Pain
8-16 Hours: No Difference
25+ Hours = No Difference
16-24 Hours: Worse Pain

NeuroRelease™ lasts for up to 14-Days!

14 Days
### Clinic Based Addiction Problem:
Eliminating Addiction from the clinic - Defeat Rebound Pain!

---

**NeuroRelease™ represents the only non-opiate product to take on rebound pain**

2016 Current Non-Opioid/Non-Opiates Options or Under Review by the FDA

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Product Name</th>
<th>Active Pharmaceutical Ingredient</th>
<th>Product Development Status</th>
<th>Efficacious Duration</th>
<th>FDA Approval Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic</td>
<td>Marcaine</td>
<td>Bupivacaine</td>
<td>Approved/Market</td>
<td>Up to 8-24 hours</td>
<td>On The Market</td>
</tr>
<tr>
<td>Generic</td>
<td>Bupivacaine/Ropivacaine</td>
<td>Bupivacaine/Ropivacaine</td>
<td>Approved/Market</td>
<td>Up to 8-18 hours</td>
<td>On The Market</td>
</tr>
<tr>
<td>Pacira</td>
<td>Exparel NB</td>
<td>Bupivacaine</td>
<td>Approved/Market</td>
<td>Up to 1-3 days</td>
<td>2018</td>
</tr>
<tr>
<td>Heron</td>
<td>HTX-011</td>
<td>Bupivacaine/Meloxicam</td>
<td>Phase II</td>
<td>Up to 4 days</td>
<td>2018</td>
</tr>
<tr>
<td>Durect</td>
<td>Posimir</td>
<td>Bupivacaine</td>
<td>Phase I</td>
<td>Up to 2-3 days</td>
<td>2018</td>
</tr>
<tr>
<td>PixarBio</td>
<td>NeuroRelease</td>
<td>Carbamazepine</td>
<td>Pre-Clinical 505B2</td>
<td>14 Days</td>
<td>2018</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7 Days</td>
<td>2019</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3-Days</td>
<td>2020</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90 Days</td>
<td>2020</td>
</tr>
</tbody>
</table>

**Other non-opiate options for management of post-op pain**
- “Cocktails” and multimodal approaches
- NSAIDs (e.g. Ibuprofen)

Confidential Anti-epileptics (e.g. Lyrica)
Exparel “Local Anesthetic Systemic Toxicity Jun 2016"
NeuroRelease™ blocks nociceptive and neuropathic pain signals arising from temperature and pressure stimuli without affecting motor function
NeuroRelease™ blocks nociceptive and neuropathic pain signals arising from temperature and pressure stimuli without affecting motor function.
We control particle size, drug payload and release rate

CBZ-loaded Microparticles

% CBZ released

Time (days)

Volume Density (%)

Hydrodynamic Diameter (µm)

3 micron
10 micron
20 micron

% CBZ released

Time (days)

Sciatica
Post-op
Pain
Sciatica
Pain

Confidential
Chronic constriction injury of the sciatic nerve is gold standard and most widely cited model.

Statistical significance determined by unpaired, parametric t-test reported and further confirmed by one-way ANOVA (All p-values less than <0.0001)

Confidential
In-House Vivarium Maximizes R&D and Product Iterations Led by Neuroscience Director with almost 30 years of Pre-clinical neurological Vivarium work.
NeuroRelease™ vs. Exparel (Liposomal bupivacaine – FDA approved 72-hours post-op soft tissue pain)

<table>
<thead>
<tr>
<th>Material Characteristic</th>
<th>NeuroRelease</th>
<th>Exparel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nerve block impacts motor</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Nerve block impacts sensory</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Rate of release – controlled and tunable</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Ability to release for &gt;1 week</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Diffusion-based release kinetics</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Degradation-based release kinetics</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Biodegradable (no residual)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Clearance by biodegradation</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Clearance by reticuloendothelial system (RES)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stability</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><strong>Cold Chain shipping and storage</strong></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Stored as a powder at room temperature</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>No changes to standard of care</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Rapid onset of efficacy</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
## FDA Study Face-Off: NeuroRelease vs. Bupivacaine

<table>
<thead>
<tr>
<th>Material Characteristic</th>
<th>NeuroRelease</th>
<th>Bupivacaine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium channel blockade</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Membrane potential stabilization</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><strong>Potency</strong></td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Inherent neurotoxicity</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Inherent myotoxicity</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Nerve block impacts motor- effect Walking and moving</strong></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Nerve block impacts discriminative touch</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Nerve block impacts sensory</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Nerve block impacts proprioception</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Nerve block selectively inhibits nociception</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Duration and magnitude of block is controllable and tunable</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><strong>Nerve block duration</strong></td>
<td>14 days</td>
<td>8-18 Hours</td>
</tr>
</tbody>
</table>
Forecasted Acute Pain Product Pipeline: 95%+ confident will work in the clinic

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preclinical/IND</td>
<td>Clinical</td>
<td>NDA</td>
<td>Approved/Marketed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preclinical/IND</td>
<td>Clinical</td>
<td>NDA</td>
<td>Approved/Marketed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preclinical/IND</td>
<td>Clinical</td>
<td>NDA</td>
<td>Approved/Marketed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preclinical/IND</td>
<td>Clinical</td>
<td>NDA</td>
<td>Approved/Marketed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preclinical/IND</td>
<td>Clinical</td>
<td>NDA</td>
<td>Approved/Marketed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Large Nerve Knee - Femoral Nerve Block (NR-14 day)**
- **Large Nerve Knee - Femoral Nerve Block (NR-7 day)**
- **Small Nerve Shoulder – Brachial Plexus Block (NR-14 day)**
- **Small Nerve Shoulder – Brachial Plexus Block (NR-7 day)**
- **“Sprinkle-On” Nerve Block Soft tissue – Infiltration (NR-3 day)**
### Forecasted Chronic Pain Product Pipeline: 95%+ confident will work in the clinic

<table>
<thead>
<tr>
<th>Condition</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trigeminal Neuralgia*</td>
<td>Preclinical/IND</td>
<td>Clinical</td>
<td>NDA</td>
<td>Approved/Marketed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciatic Neuralgia</td>
<td>Preclinical/IND</td>
<td>Clinical</td>
<td>NDA</td>
<td>Approved/Marketed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facet Joint Back Pain</td>
<td>Preclinical/IND</td>
<td>Clinical</td>
<td>NDA</td>
<td>Approved/Marketed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer Associated Pain</td>
<td>Preclinical/IND</td>
<td>Clinical</td>
<td>NDA</td>
<td>Approved/Marketed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetic Neuropathy</td>
<td>Preclinical/IND</td>
<td>Clinical</td>
<td>NDA</td>
<td>Approved/Marketed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* PixarBio filed for Orphan Designation of NeuroRelease™ 90-day to treat Trigeminal Neuralgia in 2015
PixarBio cGMP Clean Room Manufacturing Process Flow

1. Raw materials release (QC)
2. Dispersant and Continuous Phase Preparation
3. Emulsification
4. Solvent extraction and evaporation
   - Purification by tangential flow filtration
   - Fill-Finish
5. Lyophilization
6. Packaging
7. Terminal E-beam sterilization
8. Final product release (QC)

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2017 Clinical Study Design – Combined Phase I & II Small Nerve Fiber Study Post-Operative Shoulder Pain

160 Patients

Brachial Plexus Block with NeuroRelease for Post-Operative Pain: Shoulder Surgery

| Phase I + II: Safety, Pharmacodynamics, Dose Ranging, Efficacy (double blinded) |
|------------------|-----------------|------------------|
| Arms             | # of Patients   | Outcomes         |
| Control (Saline) | 20              | 1) Opiate reduction |
| Marcaine         | 20              | 2) ANA Pain Scores through Day 14 post-op |
| NR (Dose 1)      | 20              | 3) Sensory       |
| NR (Dose 2)      | 20              | 4) Motor function |
| NR (Dose 3)      | 20              | 5) Side effects observed for 30 days post-op |
| NR (Dose 1) + Marcaine | 20          |                   |
| NR (Dose 2) + Marcaine | 20          |                   |
| NR (Dose 3) + Marcaine | 20          |                   |
# 2017 Clinical Study Design – Phase III  Small Nerve Fiber Post-Operative Shoulder Pain

**100 Patients**

*Brachial Plexus Block with NeuroRelease for Post-Operative Pain: Shoulder Surgery*

<table>
<thead>
<tr>
<th>Arms</th>
<th>Endpoint</th>
<th># of Patients</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (Saline)</td>
<td>Safety / Efficacy</td>
<td>20</td>
<td><strong>Efficacy:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1) Opiate reduction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2) ANA Pain Scores through Day 14 post-op</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3) Sensory</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4) Motor function</td>
</tr>
<tr>
<td>Marcaine</td>
<td>Safety / Efficacy</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>NR</td>
<td>Safety / Efficacy</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>NR + Marcaine</td>
<td>Safety / Efficacy</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>NR</td>
<td>Pharmacokinetics</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

**Pharmacokinetics:**
1) Blood plasma concentration
2) Half-life

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# 2017 Clinical Study Design – Combined Phase I & II Large Nerve Fiber Study

**Post-Operative Knee Pain**

**Femoral and Distal Sciatic Nerve Block with NeuroRelease for Post-Operative Pain: Total Knee Arthroplasty**

<table>
<thead>
<tr>
<th>Phase I + II: Safety, Pharmacodynamics, Dose Ranging, Efficacy (double blinded)</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arms (Injection 1)</strong></td>
<td><strong>Arms (Injection 2)</strong></td>
</tr>
<tr>
<td>Control (Saline)</td>
<td>Control (Saline)</td>
</tr>
<tr>
<td>Marcaine</td>
<td>Saline</td>
</tr>
<tr>
<td>NR (Dose 1)</td>
<td>NR (Dose 1)</td>
</tr>
<tr>
<td>NR (Dose 2)</td>
<td>NR (Dose 2)</td>
</tr>
<tr>
<td>NR (Dose 3)</td>
<td>NR (Dose 3)</td>
</tr>
<tr>
<td>NR (Dose 1) + Marcaine</td>
<td>NR (Dose 1)</td>
</tr>
<tr>
<td>NR (Dose 2) + Marcaine</td>
<td>NR (Dose 2)</td>
</tr>
<tr>
<td>NR (Dose 3) + Marcaine</td>
<td>NR (Dose 3)</td>
</tr>
</tbody>
</table>

*Note: Injection 1 refers to the injection administered to the femoral nerve
Injection 2 refers to the injection administered to the distal sciatic nerve*
# 2017 Clinical Study Design – Phase III  Large Nerve Fiber Post-Operative Knee Pain

100 Patients

**Femoral and Distal Sciatic Nerve Block with NeuroRelease for Post-Operative Pain: Total Knee Arthroplasty**

<table>
<thead>
<tr>
<th>Phase III: Safety, Pharmacokinetics, Efficacy (double blinded)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arms (Injection 1)</strong></td>
<td><strong>Arms (Injection 2)</strong></td>
</tr>
<tr>
<td>Control (Saline)</td>
<td>Control (Saline)</td>
</tr>
<tr>
<td>Marcaine</td>
<td>Saline</td>
</tr>
<tr>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>NR + Marcaine</td>
<td>NR</td>
</tr>
<tr>
<td>NR</td>
<td>NR</td>
</tr>
</tbody>
</table>

**Efficacy:**
1) Opiate reduction
2) ANA Pain Scores through Day 14 post-op
3) Sensory
4) Motor function

**Pharmacokinetics:**
1) Blood plasma concentration
2) Half-life

*Note: Injection 1 refers to the injection administered to the femoral nerve
Injection 2 refers to the injection administered to the distal sciatic nerve*
“Picket Fence” Patents

- Provisional Patent Application Filed in 2014 with patent expiration beginning in 2034
- Additional provisional patent applications filed in 2016 to expand pain portfolio

<table>
<thead>
<tr>
<th>Type of Claim</th>
<th>Description of Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition</td>
<td>Fabrication methods</td>
</tr>
<tr>
<td>Composition</td>
<td>Biodegradable polymer or copolymer selection</td>
</tr>
<tr>
<td>Composition</td>
<td>Anticonvulsant selection</td>
</tr>
<tr>
<td>Composition</td>
<td>Control over particle size distribution</td>
</tr>
<tr>
<td>Composition</td>
<td>Control over anticonvulsant loading</td>
</tr>
<tr>
<td>Kinetics</td>
<td>Ability to release less than 60% of the anticonvulsant for times spanning 3 hours to 12 months</td>
</tr>
<tr>
<td>Duration of efficacy</td>
<td>Ability to maintain delivery of a therapeutically effective dose of the anticonvulsant for durations spanning 3 hours to 12 months</td>
</tr>
<tr>
<td>Methods of use</td>
<td>Utility in the treatment of a multitude of pain indications where peripheral nerve blocks are possible</td>
</tr>
</tbody>
</table>
# Top 15 Hospital Surgeries: Non-Opiate Post-Op Opportunities: $2.18 Billion Annually

<table>
<thead>
<tr>
<th>TOP 15 NON-OPIOID, NON-ADDICTIVE POST-OP OPPORTUNITIES - PROCEDURES/SURGERIES</th>
<th>% Responders want a Non-Opioid</th>
<th>3-day</th>
<th>14-day</th>
<th>Total Procedures</th>
<th>Total Dollarized</th>
<th>14-Day Dollarized</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>Anesthesia-nerve blocks/injections (Knee)</td>
<td>95%</td>
<td>30%</td>
<td>35%</td>
<td>4,502,370</td>
<td>$1,425,000,105</td>
<td>$473,812,535</td>
</tr>
<tr>
<td>Anesthesia-nerve blocks/injections (Shoulder)</td>
<td>95%</td>
<td>33%</td>
<td>33%</td>
<td>2,251,185</td>
<td>$712,500,053</td>
<td>$225,625,017</td>
</tr>
<tr>
<td>Spine Surgery</td>
<td>81%</td>
<td>0%</td>
<td>100%</td>
<td>1,189,624</td>
<td>$376,515,996</td>
<td>$304,977,957</td>
</tr>
<tr>
<td>Fracture Repair</td>
<td>80%</td>
<td>0%</td>
<td>82%</td>
<td>995,000</td>
<td>$314,917,500</td>
<td>$207,475,059</td>
</tr>
<tr>
<td>Anesthesia-nerve blocks/injections (Hip)</td>
<td>85%</td>
<td>40%</td>
<td>33%</td>
<td>2,251,185</td>
<td>$712,500,053</td>
<td>$201,875,015</td>
</tr>
<tr>
<td>Knee Replacement</td>
<td>90%</td>
<td>0%</td>
<td>73%</td>
<td>929,000</td>
<td>$294,028,500</td>
<td>$194,058,810</td>
</tr>
<tr>
<td>C-Section Delivery</td>
<td>90%</td>
<td>20%</td>
<td>40%</td>
<td>1,300,000</td>
<td>$411,450,000</td>
<td>$148,122,000</td>
</tr>
<tr>
<td>Injection-paravertebral facet joint-w/wo ultrasound</td>
<td>60%</td>
<td>27%</td>
<td>40%</td>
<td>1,026,856</td>
<td>$324,999,924</td>
<td>$77,999,982</td>
</tr>
<tr>
<td>Shoulder Arthroscopy</td>
<td>65%</td>
<td>7%</td>
<td>53%</td>
<td>708,000</td>
<td>$224,082,000</td>
<td>$77,681,760</td>
</tr>
<tr>
<td>Hip Replacement, Total</td>
<td>80%</td>
<td>0%</td>
<td>71%</td>
<td>332,000</td>
<td>$105,078,000</td>
<td>$60,044,571</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>90%</td>
<td>11%</td>
<td>44%</td>
<td>400,000</td>
<td>$126,600,000</td>
<td>$50,640,000</td>
</tr>
<tr>
<td>Rotator Cuff Tear Repair</td>
<td>75%</td>
<td>0%</td>
<td>69%</td>
<td>272,148</td>
<td>$86,134,842</td>
<td>$44,413,278</td>
</tr>
<tr>
<td>Amputation</td>
<td>100%</td>
<td>15%</td>
<td>50%</td>
<td>247,000</td>
<td>$78,175,500</td>
<td>$39,087,750</td>
</tr>
<tr>
<td>Hip Nailing for Hip Fracture</td>
<td>55%</td>
<td>0%</td>
<td>69%</td>
<td>307,100</td>
<td>$97,197,150</td>
<td>$37,009,684</td>
</tr>
<tr>
<td>Ligament Reconstruction – ACL, MCL, PCL</td>
<td>70%</td>
<td>0%</td>
<td>67%</td>
<td>250,000</td>
<td>$79,125,000</td>
<td>$36,925,000</td>
</tr>
<tr>
<td>Averages/Total Dollars</td>
<td>81%</td>
<td>12%</td>
<td>57%</td>
<td>16,961,468</td>
<td>$5,368,304,622</td>
<td>$2,179,748,417</td>
</tr>
</tbody>
</table>

...On average, over 80% of clinicians desire a morphine strength, non-addictive post-surgical pain treatment (Column A), of which nearly 60% prefer a 14-day timeframe for such a pain treatment (Column C)

...On average, only 12% of the same clinicians prefer a 3-day timeframe for such a pain treatment (Column B)

...For 11 of the Top 15 surgeries/procedures, the 3-Day timeframe was preferred at a percentage of 20% or less, 7 surgeries/procedures at 0% preferred (Column C)
PixarBio 10 Year Financial Forecast

Assumptions:
- Prime Focus on Large Nerve Block and Small Nerve Block thru the FDA
- In-house GMP Manufacturing for 2 products in Clinical studies in 2017
- NeuroRelease Portfolio Expansion- 7-Days, 3- Days, and 90-days in pipeline
- Price Point: PixarBio current reimbursement rate of Exparel which is $316.50/vial
- Forecasted units sold is conservative, based on the only market comparable, Exparel which was slowly adopted
- PixarBio expects Gross Margin to exceed 80%
- PixarBio expects Net Profit margin to exceed 40%
- First sales revenue are forecasted for early 2019, with a logical market adoption rate
- PixarBio will employ over 500 people by the end of 2019

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</thead>
<tbody>
<tr>
<td><strong>Total Revenues</strong></td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$80</td>
<td>$180</td>
<td>$400</td>
<td>$600</td>
<td>$900</td>
<td>$1,233</td>
<td>$1,688</td>
</tr>
<tr>
<td><strong>COGS</strong></td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$13</td>
<td>$29</td>
<td>$64</td>
<td>$96</td>
<td>$144</td>
<td>$197</td>
<td>$270</td>
</tr>
<tr>
<td><strong>EBITA</strong></td>
<td>($18)</td>
<td>($37)</td>
<td>($51)</td>
<td>($8)</td>
<td>$61</td>
<td>$236</td>
<td>$387</td>
<td>$625</td>
<td>$889</td>
<td>$1,253</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>($18)</td>
<td>($37)</td>
<td>($51)</td>
<td>($8)</td>
<td>$40</td>
<td>$154</td>
<td>$252</td>
<td>$406</td>
<td>$578</td>
<td>$814</td>
</tr>
</tbody>
</table>
Financial Overview

- Current monthly cash burn of $675k
- Q4 2016E cash burn of $2.115mm
- $13.5mm in total capital raised

Use of Proceeds

- Conduct Clinical Studies
- Acquire facilities, machinery, and additional personnel to scale-up and build out processes and cGMP production capabilities

Ownership as of June 30, 2016

<table>
<thead>
<tr>
<th>Name</th>
<th>Ownership %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frank Reynolds</td>
<td>66.58%</td>
</tr>
<tr>
<td>Bob Langer</td>
<td>16.72%</td>
</tr>
<tr>
<td>Other Investors</td>
<td>16.70%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Personnel

<table>
<thead>
<tr>
<th>Function</th>
<th># of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executives</td>
<td>6</td>
</tr>
<tr>
<td>Controller</td>
<td>1</td>
</tr>
<tr>
<td>Commercial</td>
<td>2</td>
</tr>
<tr>
<td>Research &amp; Development</td>
<td>31</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>
Frank Reynolds, CEO, CSO, CFO
- Co-invented The NeuroScaffold, led invention from concept to the clinic
- Founded InVivo Therapeutics Corp (NVIV) COB, CEO & CFO until his retirement in Aug 2013. Took NVIV public in 2010. $520mm Mkt. Cap. in 2013
- 2013 & 2016 Best Company to work for Boston BBJ
- 2013 CFO of Year BBJ, nominee
- Co-inventor on 50+ patent applications
- 2011 David F Apple Award for SCI research
- MIT-Sloan; Wharton School. Penn Engr., HBS, St Joe’s, Temple U, CHC, Rider U, Univ. Hong Kong S&T

Jason Criscione, PhD
Chief Technology Officer & Co-Founder
- Co-Inventor of NeuroRelease System
- Yale PhD in Biomedical Engineering.
- Expert in biomaterials design and fabrication
- Expert in polymeric particles, gels, immunotherapy
- Hypercube Scholar Award for Excellence in Chemistry
- Experienced Preclinical Translation

Steven Chartier, VP Regulatory Affairs
- 25+ regulatory submissions & approvals of novel drugs & devices in Oncology, Wound Care, Autoimmune, Anti-Infective & Cardiovascular diseases.
- Expert in building worldwide compliant Quality Systems
- Managed Regulatory, Quality, Manufacturing & Clinical departments at Biogen IDEC, Infraredx, Nucryst Pharma
- Program Management & Lab Research at Beth Israel Deaconess Medical Cntr & Dana Farber Cancer Institute.
- BA in Psychology, Saint Anselm College; RAC certification

David Kaplan, Chief Commercial Officer
- 20 years experience designing and running nationally recognized hospital-based sales teams focused in the areas of surgery, oncology and critical care.
- Extensive background bringing first-in-class therapies from Phase III to product launch, working at such innovative companies as Corixa, PDL BioPharma, Pacira.
- Former VP of Sales at Pacira Pharmaceuticals
- BS in Marketing from Arizona State University

Ken Stromsland, CIO/Investor Relations
- 20+ years experience as business leader in Financial Services – EVP at Citi, Managing Dir at TD Ameritrade
- Engineer at Johnson & Johnson
- MSE - Wharton School, U Penn Engineering

Michael Lovett, PhD; Director, R&D
- 6+ yrs experience developing drug delivery formulation
- Prior research on applying biomaterials technology and formulation techniques to develop sustained release formulations of chronically administered therapeutics.
- PhD in biomedical engineering from Tufts University
- Bachelor’s in chemical engineering from Univ. of Mass. Amherst
- Co-authored 15 papers in peer-reviewed journals and has several patent applications related to sustained drug delivery and his doctoral research on silk-based vascular grafts and tissue constructs.

Mary Phelan, CPA, Controller
- 20 years accounting & reporting experience in compliance w/ SEC, GAAP, SOX regulations in pharma & medical technology industries
- Extensive experience in financial reporting, debt and equity financings, M&A
- Most recently Controller, Principal Accounting Officer & acting Principal Financial Officer, Mela Sciences (NASDAQ)
- Controller & Principal Accounting Officer at Alteon Inc.
- KPMG LLP manufacturing, retail & distribution audit practice

Katrin Holzhaus, CAO & Co-Founder
- 16 years working with CEO Frank Reynolds initially at Expand the Knowledge, then with InVivo Therapeutics Holdings Corp (NVIV), brings complimentary leadership skillssets to PXRB’s operations team & proven record of success.
- Leads PXRB Facilities and HR activities
- MBA and MS in MIS from Temple University, Master of Arts from Leipzig University, Germany.
Robert S. Langer, ScD
• David H. Koch Institute Professor at MIT
• 1,200+ articles, 800+ issued and pending patents worldwide.
• Served as a member of the FDA’s Science Board 1995-2002 and as its Chairman from 1999-2002.
• 220+ major awards incl. the U.S. National Medal of Science, the U.S. National Medal of Technology and Innovation, Charles Stark Draper Prize (considered engineering’s Nobel Prize), Priestley Medal (the highest award of the American Chemical Society)

Neel Mehta, MD
• Medical Director of Pain Medicine at the Weill-Cornell Pain Medicine Center, and New York Presbyterian Hospital
• Board-certified in Anesthesia & Interventional Pain Medicine
• focuses on musculoskeletal pain of the back, neck, joints, neuropathic disorders, cancer pain.
• Fellowship in Interventional Pain Medicine in the Tri-Institutional Pain Medicine Fellowship at New York Presbyterian-Weill Cornell Medical Center, Hospital for Special Surgery and Memorial-Sloan Kettering Cancer Center
• Medical Degree in 2005 from Tufts University School of Medicine in Boston, MA

Amitabh Gulati, MD
• Director, Ambulatory Pain Management at Memorial Sloan Kettering Cancer Center
• Board certified in anesthesiology and pain medicine
• MD, Baylor College of Medicine
• Fellowship at NewYork-Presbyterian Hospital/Weill Cornell Medical Center; Memorial Sloan Kettering Cancer Center

Brian Block, MD, PhD
• Partner at Pain Medicine Specialists, PA
• President at Baltimore Spine Center. He is a specialist in treatment of chronic pain.
• PhD and MD from Case Western Reserve University School of Medicine in Cleveland, OH.
• Fellowship in Pain Management at Johns Hopkins. Joined faculty at Johns Hopkins working in the Blaustein Pain Center
• Engineering Degree from University of Michigan in Ann Arbor.

Steven Cohen, MD
• Director of Pain Research at Walter Reed National Military Medical Center, and the Reserve Liaison to the U.S. Army Pain Management Consultant to the Surgeon General.
• Professor of Anesthesiology & Critical Care Medicine at the Johns Hopkins School of Medicine; Professor at the Uniformed Services University of Health Sciences in Bethesda, MD.
• Director of Medical Education and Quality Improvement for the Pain Management Division at Johns Hopkins

Amer Khalil, MD
• Chief Spine Surgery UC Irvine
• Neurosurgery Spine Fellow at New England Baptist Hospital, Boston, MA
• Resident in Neurosurgery, Cleveland Clinic Foundation, Cleveland, OH
• Research Fellowship in Spinal Cord Injury, NVIV
• MD from University of Jordan Medical School
Bryan Springer, MD
• Knee Society & Hip Society
• 2014 Emerging Leader AAHKS
• Generation Next: Top 40 Leaders in Joint Replacement
• Authored over 75 orthopedic publications
• Fellowship Director, OrthoCarolina Hip & Knee Center
• Fellowship: Adult Reconstruction of the Hip and Knee at Harvard School of Medicine
• Residency: Mayo Clinic, Department of Orthopedic Surgery, Rochester, MN

Douglas Padgett, MD
• Knee Society & Hip Society
• Chief of Adult Reconstruction and Joint Replacement Division & Chief Emeritus of the Hip Service, Hospital for Special Surgery
• Authored over 100 orthopedic publications
• Focus on clinical outcomes, biomaterials research, robotic surgery & deep vein thrombosis prevention
• Fellowship: Rush Presbyterian Medical Center, Adult Reconstructive Surgery of the Hip and Knee, Chicago, Illinois
• Residency: Hospital for Special Surgery, Orthopedic Surgery, New York

Michael Meneghini, MD
• Knee Society & Hip Society
• Generation Next: Top 40 Leaders in Joint Replacement
• Associate Professor and Director of Adult Extremity Fellowship: Department of Orthopedic Surgery, Indiana University School of Medicine
• Specializes in adult hip and knee reconstruction
• Authored over 70 orthopedic research papers
• Fellowship: Hip and Knee at Mayo Clinic, Rochester, MN
• Residency: Orthopedic Surgery at Rush University Medical Center, Chicago, IL

Scott Sporer, MD
• Hip Society
• Assoc. Professor at Rush University Medical Center
• Board of Directors for The American Joint Replacement Registry and the American Association of Hip and Knee Surgeons
• Authored over 80 orthopedic publications
• Residency: Dartmouth Hitchcock Medical Center in Lebanon, NH & Connecticut Children’s Medical Center in Hartford
• Fellowship: Adult Orthopedic Reconstruction at Rush University Medical Center, Chicago, IL
Clinical Advisory Board: Ortho

James Caillouette, MD
- Chief of Staff, Hoag Orthopedic Institute in Newport Beach, CA
- Chairman of the Newport Orthopedic Institute, a 20-physician group practice.
- Involved in the research, design, development and commercialization of numerous orthopedic devices
- Holds 11- US patents as co-inventor for biomedical products and methods
- Fellowship: Orthopedic Joint Reconstruction, University of California, Irvine
- Residency: Orthopedic Surgery, University of California, Irvine

Kris Alden, MD, PhD
- Board-Certified Orthopedic Surgeon specializing in Hip, Knee, & Shoulder Reconstruction
- Focuses on lower extremity reconstruction, incl. primary joint replacement, complex joint revision, limb salvage, knee osteotomy
- Fellowship: Lower Extremity Joint Reconstruction, Mayo Clinic, Rochester, MN
- Residency: Orthopedic Surgery, Johns Hopkins University
- MD/PhD, University of Illinois College of Medicine, Chicago

Anthony Sanzone, MD
- Trauma Orthopedic Surgeon, Chula Vista & San Diego, CA
- Fellow of the Am. Academy of Orthopedic Surgery
- Co-founder of San Diego Orthopedic Trauma Fellowship
- Authored over 20 orthopedic publications
- Fellowship: Orthopedic Traumatology, Harborview Medical Center/Univ. of Washington Seattle, WA
- Residency: Orthopedic Surgery, Boston University Medical Center Boston, MA
- Residency: General Surgery, Chicago Medical School

Mark Pagnano, MD
- Professor & Chair of Orthopedic Division at Mayo Clinic in Rochester, MN
- Focus on knee & hip replacements
- Member of Board of Directors of The Knee Society and of the American Academy of Orthopaedic Surgeons
- Published in Journal of Bone & Joint Surgery
- MD from George Washington University School of Medicine in Washington, D.C.
- Residency in orthopedic surgery at Mayo Clinic.
- Fellowship in knee reconstruction at Insall-Scott-Kelly Institute for Orthopaedics and Sports Medicine, NYC
**Clinical Advisory Board: RA**

**Gregory Hickman, MD**
- Anesthesiologist & Medical Director of the Andrews Institute Ambulatory Surgery Center, affiliated with the Andrews Institute for Orthopedics & Sports Medicine, Gulf Breeze, FL
- Clinical interests in ultrasound guided regional anesthesia for post-operative analgesia and post-operative pain management
- Board-certified in Anesthesiology & Pain Medicine
- Co-founder of ultrasound-guided regional anesthesia education website, www.blockjocks.com

**Brandon Winchester, MD**
- Regional anesthesia fellowship director at the Andrews Institute for Orthopedics & Sports Medicine.
- Served as Assistant Professor of Anesthesiology at Duke University Medical Center & University of North Carolina
- Intern at Boston University Medical Center
- Residency in anesthesiology at Mass General Hospital & Duke University Medical Center
- Co-founder of ultrasound-guided regional anesthesia education website, www.blockjocks.com

**Moeed Azam, MD**
- Chief of Anesthesiology for Physicians’ Surgical Care Center with specialized skill in regional anesthesia procedures for ambulatory surgical patients of the Jewett Orthopedic Clinic
- Shareholder physician at US Anesthesia Partners, the nation’s leading provider of anesthesiology & pain management services with 2,000+ clinicians serving healthcare facilities in FL, TX, CO
- Served on Clinical Governance Board and Board of Directors of JLR Medical Group, a 200 clinician practice covering the Florida Hospital System
- Served as Director and Chief of Liver Transplant Anesthesiology at Florida Hospital
- Anesthesiology residency training at The Johns Hopkins Hospital; medical internship at University of Miami’s Jackson Memorial Hospital

**James Mueller, MD**
- Anesthesiologist affiliated with Medical City Dallas Hospital, Dallas, TX
- Board certified, specializing in Anesthesiology
- In practice for more than 25 years
- MD from Medical University of South Carolina College of Medicine
- Fellowship at Medical College of Virginia Hospital
John Camp, MD
- Chairman of the Department of Anesthesiology at Carolinas Medical Center, one of the top five largest hospital systems in the nation.
- Significant experience in regional anesthesia, managing one of the largest regional anesthesia programs in the nation.
- 30+ publications and presentations focused on pain management
- MD from Jefferson Medical College Philadelphia, PA
- Anesthesiology residency at Wilford Hall Medical Center in San Antonio, TX

Ajay Suman, MD
- Medical Director of Pain Management at St. Barnabas Hospital in the Bronx, NY.
- Intense fellowship training at Texas Tech University’s Pain Management Department
- Board-certified by the American Board of Anesthesiology in Anesthesiology and Pain Medicine.
- In previous roles at Tripler Army Medical Center, he helped create the interdisciplinary pain department, working with active duty soldiers being air evacuated directly from Afghanistan and Iraq.
- Extensive experience treating patients ranging from chronic lower back pain to severe neuropathic pain syndromes from the trauma of war with Spinal Cord Stimulation.
- Worked on Capitol Hill on Healthcare Policy through Boston Scientific’s Healthcare Policy Fellowship
- Served as the Hawaii State President of ASIPP
Frank Reynolds, CEO & Chairman of the Board
• Founded InVivo Therapeutics Corp (NVIV) Chairman of Board, CEO and CFO until his retirement in Aug 2013. Took NVIV public in 2010. $520mm Mkt. Cap. in 2013
• 2013 & 2016 Best Company to work for BBJ
• Co-inventor on 50+ patent applications
• 2011 David F Apple Award for SCI research
• MIT-Sloan; Wharton School. Penn Engr., HBS, St Joe’s, Temple U, CHC, Rider U

Katrin Holzhaus, CAO & Board Member
• 20+ years of experience as entrepreneur & leader in operations, development, global marketing.
• Worked w cofounder Frank Reynolds for 15+ years initially at Expand the Knowledge, then with InVivo Therapeutics Holdings Corp (NVIV); brings complimentary leadership skillsets to PixarBio’s operations team and a proven record of success.
• MBA and MS in MIS -Temple University, MA - Leipzig University, Germany.

Laura B. Morse, Independent Board Member
• Founder, Entrepreneurship Ventures, a start-up consulting & coaching practice
• Former Human Capital Partner at Atlas Venture, largest transatlantic early stage technology VC firm
• Specializes in human capital strategies including recruitment, development, reward systems
• S.W.I.F.T. sc Brussels, global financial telecom consortium, led worldwide recruiting & expatriate svcs
• Frequent speaker around Europe, Solvay (Belgium), Harvard Business School, and MIT/Sloan.

David Cass, Independent Board Member
Chief Information Security Officer Cloud & SaaS Operational Services at IBM
• Global responsibility for all aspects of security practices, processes, and policies across IBM Cloud SaaS
• Former Elsevier SVP & Chief Information Security Officer leading global legal, risk and security team providing data protection, privacy, security, & risk management guidance
• As Sr Director of Information Security Risk and Governance for Freddie Mac, rebuilt the risk and governance function
• As VP of Risk Management for JPMorgan Chase, was responsible for providing assessment of risk management state, contributing to future direction of risk management, continuity & disaster recovery.
• MSE from U of Pennsylvania; MBA from MIT.

Derek Bridges, Independent Board Member
President & CEO of Next Level Alignment
• Extensive experience with regulatory filing, bidding and reimbursement with the Centers for Medicare and Medicaid (CMS) & Patient Protection and Affordable Care Act (PPACA).
• Served as a senior executive for Anthem, Aetna and Delta Dental, developing growth strategies to double revenue/profitability in $100MM - $1B+ organizations.
• MBA from U of Kansas; MSE in Technology Management from U of Pennsylvania’s Wharton School
Thank You and Contact

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Medford, MA 02155
(617) 803-8838
info@pixarbio.com