Forward-Looking Statements

This presentation contains forward-looking statements. Such statements are valid only as of today and we disclaim any obligation to update this information. These statements are only estimates and predictions and are subject to known and unknown risks and uncertainties that may cause actual future experiences and results to differ materially from the statements made. These statements are based on our current beliefs and expectations as to such future outcomes. Drug discovery and development involve a high degree of risk. Factors that might cause such a material difference include, among others, uncertainties related to the ability to raise additional capital required to complete the development programs described herein, uncertainties related to the disruptions at our sole supplier of CLR 131, the ability to attract and retain partners for our technologies, the identification of lead compounds, the successful preclinical development thereof, the completion of clinical trials, the FDA review process and other government regulation, the ability of our pharmaceutical collaborators to successfully develop and commercialize drug candidates, competition from other pharmaceutical companies, product pricing and third-party reimbursement. This presentation includes industry and market data that we obtained from industry publications and journals, third-party studies and surveys, internal company studies and surveys, and other publicly available information. Industry publications and surveys generally state that the information contained therein has been obtained from sources believed to be reliable. Although we believe the industry and market data to be reliable as of the date of this presentation, this information could prove to be inaccurate. Industry and market data could be wrong because of the method by which sources obtained their data and because information cannot always be verified with complete certainty due to the limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other limitations and uncertainties. In addition, we do not know all of the assumptions that were used in preparing the forecasts from the sources relied upon or cited herein. A complete description of risks and uncertainties related to our business is contained in our periodic reports filed with the Securities and Exchange Commission including our Form 10-K for the year ended December 31, 2018.
## Company Highlights

- Developing orphan and rare oncology pipeline
- Validated cancer targeting platform
- Demonstrated activity in 3 hematologic malignancies
- 4 Phase 2 clinical data readouts planned for 2019
- Efficient capital allocation and low fixed-cost structure

*Multiple, Value-Creative, Near Term Milestone Potential*
## Projected Pipeline Key Development Milestones

<table>
<thead>
<tr>
<th>PDC Program</th>
<th>2019</th>
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<th>2020</th>
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<th>2021</th>
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<td><strong>CLR 131 Phase 2</strong></td>
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<td>Additional Developments</td>
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</tbody>
</table>

1. Multiple Myeloma  
2. Top Line Data  
3. Assumes decision to initiate  
4. Lymphoplasmacytic Lymphoma  
5. Marginal Zone Lymphoma  
6. Median Overall Survival Cohorts 1-4
1. Overview

2. Phase 2 R/R Hematologic Malignancies

3. Phase 1 R/R Multiple Myeloma

4. Phase 1 R/R Pediatric Malignancies
Validated Market, Therapeutic Isotope & Targeted Delivery

• 2020 Radiotherapeutic Market Forecast
  – ~$9.3\,^1\text{ billion revenue}
  – CAGR of 10.2% through 2025
• Recent Transactions
  – Advanced Accelerator Applications - $3.9B
  – Endocyte - $2.1B
  – Fusion - $100M Financing
• Validated therapeutic isotope I-131
  – Azedra™ (iobenguane I-131)
  – Bexxar™ (CD-20 antibody I-131)
  – MIBG-131 (MIBG I-131)
• CLR 131 validated cancer targeting
  – Small molecule phospholipid ether
  – Multiple payloads tested

CLR 131: Combination of a Validated Delivery Platform and Payload

**CLR 131 Hematologic Malignancies Clinical Studies**

### R/R Hematologic Malignancies Phase 2 Study
- **Multiple Myeloma Interim Data**
  - Average 7th line systemic treatment
  - 30% Overall Response Rate
  - 100% Disease Control Rate
- **Diffuse Large B-cell Lymphoma Interim Data**
  - Average 4th line systemic treatment
  - 33% Overall Response Rate
  - 50% Disease Control rate
- **Waldenstrom’s (LPL) Patient Case Study**
  - >98% reduction in total tumor volume
  - Duration of response at 200+ days

### R/R Multiple Myeloma Phase 1 Study
- All 6 cohorts safe and tolerable
- Average 6th line systemic treatment
- **Cohort 6 Activity**
  - 50% Overall Response Rate
  - 50% Minimal Response
  - 100% Disease Control Rate
- No patients experiencing:
  - Peripheral neuropathy
  - Deep vein thrombosis
  - Cardiotoxicities
  - Embolisms
  - Gastrointestinal toxicities
- No change in liver enzymes or renal function
- Cytopenias most common adverse events, all viewed as predictable and manageable

---

**A Single 25 mCi/m² Dose Achieved 30%+ Response Rates in Heavily Pretreated Patients Across 3 Hematologic Cancers**

**Fractionated 37.5mCi/m² Dose Achieved 50% Response Rate in Heavily Pretreated Patients with Multiple Myeloma**

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1. All evaluable patients achieved ≥ Stable Disease
Overview

Phase 2 R/R Hematologic Malignancies

Phase 1 R/R Multiple Myeloma

Phase 1 R/R Pediatric Malignancies
Ongoing R/R Hematologic Malignancies Phase 2 Study

**Fast Track Designation Granted for R/R Multiple Myeloma**

- **Patients Screened**
  - N=10 MM
  - N=10 DLBCL
  - N=10 CLL/SLL, MZL, LPL
  - N=10 MCL

- **Interim efficacy assessments; expand cohorts based on performance**
  - 20-30 MM
  - 10-30 DLBCL
  - 10-30 CLL/SLL, MZL, LPL
  - 10-30 MCL

- **Follow-up (≥ 1 yr After Last Dose)**

- **Final Efficacy Assessments**

- **Day 1**
  - Cycle 1 (18.75mCi/m² x 2)
  - Day 1 & Day 8

- **Days 75-180**
  - Cycle 2 (18.75mCi/m² x 2)
  - Day 1 & Day 8

**25mCi/m² Bolus Dose with Demonstrated Activity in at Least 3 Hematologic Cancer Types Tested to Date**

- **Primary endpoint is efficacy as determined by response rate**
- **Patients received a single 25mCi/m² dose; potential for a 2nd cycle**
- **Patients now receive a fractionated 37.5mCi/m² dose; potential for a 2nd cycle**
Includes Single and Combination Treatments

Response Rates

<table>
<thead>
<tr>
<th>Line of Therapy Post-Relapse</th>
<th>Overall Response Rate (%)^3</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>50</td>
</tr>
<tr>
<td>Second</td>
<td>40</td>
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<tr>
<td>Third</td>
<td>30</td>
</tr>
<tr>
<td>Fourth</td>
<td>20</td>
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<tr>
<td>Fifth</td>
<td>10</td>
</tr>
</tbody>
</table>

Response Rates for On-Market Fourth and Fifth Line TRX are 15% & 8%

CLR 131 Phase 2 Single Dose TRX^2

Response Rates

- First 10 patients enrolled
- ~30 minute 25mCi/m^2 dose
- 7th Line TRX on average
- 30% Overall Response Rate
  - 1 VGPR^4
  - 2 PRs^5
  - 73% to 92% response reductions^6
- 100% Disease Control Rate

Response Rate for CLR 131 Seventh Line Average TRX Achieves 30%

1. SEER Cancer Statistics Fact Sheet; Myeloma; Accessed April 22, 2019.
2. Data reported is not from a head to head clinical study
3. Data Resource Group 2018
4. Very Good Partial Response ≥ 90% reduction in efficacy marker
5. Partial Response ≥ 50% - 89% reduction in efficacy marker
6. Efficacy markers

U.S. Prevalence ~131K; ~40% of Eligible 3rd Line+ Patients Elect No TRX
Phase 2 R/R Multiple Myeloma Patient Case Study

- Male, 78 years old with 90% bone marrow involvement
- 2 prior lines of systemic treatment; patient’s best prior response is a PR
- Single 25mCi/m² dose of CLR 131
- Patient achieves PR, continues to respond 120+ days post treatment

**Patient Case Study**

- **Partial Response Line**
- **Very Good Partial Response Line**
- **Single 25mCi/m² Dose CLR 131**
- **Assessment Ongoing**

**Strong and Durable Response; Expected to Receive Second Cycle**
R/R DLBCL Market and CLR 131 Phase 2 Interim Data

U.S. DLBCL Prevalence ~194K

New Drugs Needed in R/R DLBCL

Includes Single and Combination Treatments

Response Rates

<table>
<thead>
<tr>
<th>Line of Treatment Post-relapse</th>
<th>First</th>
<th>Second</th>
<th>Third</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLBCL</td>
<td>~30</td>
<td>~40</td>
<td>20%</td>
</tr>
</tbody>
</table>

CLR 131 Phase 2 Single Dose DLBCL TRX

Response Rates

- ~30 minute 25mCi/m² dose
- 4th line TRX on average
- 33% Overall Response Rate
  - 60-99% tumor reduction
  - 180 day avg DOR
- 50% Disease Control Rate

Response Rates for On-Market

Third Line TRX is 20%

Response Rate for CLR 131

Fourth Line Average TRX Achieves 33%

1. SEER Cancer Statistics Fact Sheet: Non-Hodgkin Lymphoma (DLBCL represents between 25% - 30% of NHL); Accessed April 22, 2019
2. Data reported is not from a head to head clinical study
3. Lugano Classification
4. Duration of Response
Phase 2 R/R DLBCL Patient Case Study

DLBCL is an Aggressive Form of Lymphoma

**Patient Case Study**

Scan Day 1

Scan Day 90

- Male, 52 years old with subpectoral lymph node mass
  - MYC positive (>40%); BCL-2 negative
- 3 prior lines of treatment (R-CHOP, RICE and chemo-soup)
- Relapse within 10 months of 1\textsuperscript{st} line, 1 month post 2\textsuperscript{nd} line, and determined to be refractory to therapy in 3\textsuperscript{rd} line
- Patient continues to be responsive; 220+ days post treatment
Phase 2 LPL (Waldenstrom’s) Patient Case Study

- Baseline pleural effusion & multiple large tumor nodules; third line treatment
- Following 1\textsuperscript{st} infusion
  - Dramatic improvements in multiple disease related pathologies with limited cytopenias
- CT day 187 showed 98% reduction in overall tumor burden and complete resolution of 4/5 tumors

![Graph showing lesion size reduction over time](image.png)
Proposed R/R Multiple Myeloma Pivotal Study

Proposed Pivotal Study Design
(Later Line MM Trial)

- Relapsed/refractory >4th line Multiple Myeloma
- ~20 patients to be enrolled prior to interim assessment
- Pivotal, single-arm
  - Primary endpoint: Overall Response Rate (ORR)
  - Secondary endpoints: Overall Survival (OS), Progression Free Survival (PFS)

Program Timing
- Phase 2 to complete 2H19
- Pivotal study initiation 2H20 to 1H21
- NDA submission 2023

Clinical Costs
- Pivotal study = $20 - $25 million
- Eligible for pivotal study SBIR Grant up to $4M

1. Overview
2. Phase 2 R/R Hematologic Malignancies
3. Phase 1 R/R Multiple Myeloma
4. Phase 1 R/R Pediatric Malignancies
### CLR 131 Safety Profile

**Drug Related Adverse Events Phase 1**

<table>
<thead>
<tr>
<th>System Organ Class Preferred Term</th>
<th>All Treated Subjects N=26 n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia</td>
<td>9 (35)</td>
</tr>
<tr>
<td>Lymphocyte count decreased</td>
<td>18 (69)</td>
</tr>
<tr>
<td>Neutropenia</td>
<td>13 (50)</td>
</tr>
<tr>
<td>Thrombocytopenia</td>
<td>16 (62)</td>
</tr>
<tr>
<td>White blood cell count decreased</td>
<td>15 (58)</td>
</tr>
</tbody>
</table>

**Drug Related Adverse Events Phase 1 & 2**

<table>
<thead>
<tr>
<th>System Organ Class Preferred Term</th>
<th>All Treated Subjects N=50 n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia</td>
<td>18 (36)</td>
</tr>
<tr>
<td>Lymphocyte count decreased</td>
<td>24 (48)</td>
</tr>
<tr>
<td>Neutropenia</td>
<td>25 (50)</td>
</tr>
<tr>
<td>Thrombocytopenia</td>
<td>30 (60)</td>
</tr>
<tr>
<td>White blood cell count decreased</td>
<td>26 (52)</td>
</tr>
</tbody>
</table>

Abbreviations: n=Number of Subjects with AEs; N=Number of Subjects Exposed

- Adverse event profile is very consistent
  - Modest reduction in the occurrence of some AEs in the Phase 2
  - Cytopenias are predictable and manageable
  - There have been no unexpected drug related adverse events
- Fractionated dosing reduces adverse events; allowing more drug to be delivered
- No changes in liver function, no peripheral neuropathy or other debilitating AEs

**CLR 131 Demonstrates a Safe and Well Tolerated Adverse Event Profile**

1. Grade 3 and 4 related adverse events as of 3/01/19
New Treatments are Needed

On Market Product Data

Average Median Overall Survival (mOS) in 3rd Line

- All Drugs: 9.5 - 14.5 months
- Carfilzomib: 11.9 months
- Daratumumab: 18.6 months
- Pomal. (+dex): 11.9 months

CLR 131 Phase 1 Single Dose Cohort

Average Median Overall Survival (mOS) in 6th Line

- Cohort 6 18.75mCi/m² Fractionated Dose
  - Deemed safe & tolerable
  - 50% Overall Response Rate
  - 50% Minimal Response Rate
  - Patient still on study; 48% M-protein reduction
  - 100% Disease Control Rate
  - Clear dose response observed

Single 30 Minute Infusion of CLR 131 Achieves mOS of 22 Months

- CLR 131

Third Line Average mOS is ~12 Months & ~9 Months for Dual/Penta Refractory

1. Data reported is not from a head to head clinical study
2. Traditional monotherapy chemotherapy, protease inhibitor, and immunomodulating agents
6. Defined as refractory to at least one proteasome inhibitor and one immunomodulatory.
7. Defined as refractory to Revlimid, Pomalyst, Velcade, Kyprolis, and Darzlex.
**CLR 131 Phase 1 Dose Response**

### Dosing
- **Bolus** = One 30 minute infusion administered on Day 1
- **Fractionated** = One 30 minute infusion administered on Day 1 and a second on Day 7/8

### Fractionated dosing
- Results in greater reduction in surrogate markers of efficacy and increased durability of response

### 37.5mCi/m² fractionated dose shows dose dependent response as compared to 31.25mCi/m²

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* n=3 at this time point as assessment ongoing
1. Overview

2. Phase 2 R/R Hematologic Malignancies

3. Phase 1 R/R Multiple Myeloma

4. Phase 1 R/R Pediatric Malignancies
**Pediatric Clinical Development Strategy**

**FDA Agreement on Phase 1 Accelerated Study Design**

**PHASE 1**

- **Malignant Brain Tumors**
  - **Level 1** 15 mCi/m²
    - \( n = 1 \)
  - **Level 2** 30 mCi/m²
    - \( n = 3 \)
  - **Level 3** 45 mCi/m²
    - \( n = 3 \)
  - **Add’l levels** +15 mCi/m²
    - \( n = 3 \)

- **Solid Tumors/Lymphomas**
  - **Level 1** 15 mCi/m²
    - \( n = 1 \)
  - **Level 2** 30 mCi/m²
    - \( n = 3 \)
  - **Level 3** 45 mCi/m²
    - \( n = 3 \)
  - **Add’l levels** +15 mCi/m²
    - \( n = 3 \)

**Proposed Phase 2/3 Pivotal Study Design**

- Granted ODD & RPDD for NB, RMS, Osteo & Ewing’s Sarcoma
- Eligible for Fast Track, Breakthrough and SPA submissions
- Initial enrollment of 10-15 patients to confirm dose; upon appropriate efficacy expand into Phase 3
- Phase 3 pivotal study single arm ~65 patients
  - Primary endpoint: Overall Response Rate
  - Secondary endpoints: EFS\(^3\), CBR\(^4\), PFS

**Program Timing**

- Phase 1 to complete 3Q20
- Phase 2/3 pivotal initiation 2Q21
- NDA submission 2023

**Clinical Costs**

- Phase 1 = ~$4 million
- Phase 2/3 pivotal study = ~$11 - $12 million

**Approval in Any Indication May Provide Priority Review Voucher and Potential for NCCN Compendium Listing for Other Tumor Types**

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### CLR 131 & MIBG Product Profile Comparison

**MIBG I-131 Currently Second Line Standard of Care for Neuroblastoma**

<table>
<thead>
<tr>
<th>Profile</th>
<th>CLR 131</th>
<th>Naxitamab &amp; Omburtamab</th>
<th>MIBG I-131</th>
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<tbody>
<tr>
<td>Delivery Vehicle/Payload</td>
<td>Phospholipid Ether (PLE)/Iodine-131</td>
<td>Bispecific Antibody &amp; Antibody Drug Conjugate/Iodine-131</td>
<td>Meta-iodobenzylguanidine/Iodine-131</td>
</tr>
<tr>
<td>Therapeutic Regimen</td>
<td>Single 30 minute infusion Total dose ~<strong>45-80mCi</strong></td>
<td>Naxi: 3mg/kg 3x wk 1 35 min IV Ombur: depot directly into CNS Total dose ~<strong>75mCi</strong></td>
<td>3-5 cycles, ~300 mCi per cycle, 90-120 minute infusion Total dose ~<strong>1000-1500mCi</strong></td>
</tr>
<tr>
<td>Hospitalization</td>
<td>TBD&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Naxi: Outpatient Ombur: TBD (depot requires surgery)</td>
<td>4-8 days</td>
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<tr>
<td>Capable to Cross the Blood Brain Barrier</td>
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<td>Ability to Target Metastasis</td>
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<td><img src="#" alt="Green" /> <img src="#" alt="Red" /></td>
<td><img src="#" alt="Red" /></td>
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<td>Stem Cell Transplant Support</td>
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<td><img src="#" alt="Green" /> <img src="#" alt="Red" /></td>
<td><img src="#" alt="Red" /> <img src="#" alt="Green" /></td>
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<tr>
<td>NB Response Rate</td>
<td>TBD</td>
<td>TBD</td>
<td>20-60% (~30%)</td>
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<tr>
<td>Liver Function Changes</td>
<td>0%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>NR</td>
<td>79.6%</td>
</tr>
</tbody>
</table>

1. To Be Determined  2. In adults

**Symbols:**
- **Green** (FAVORABLE/POSSESSES)
- **Yellow** (NOT YET KNOWN)
- **Red** (DEFICIENT/LACKS)
Financial Summary

Capitalization as of May 21, 2019

**Common Stock Outstanding**  
7,378,036

Reserved for issuance:
- Unregistered Shares from Roth Financing (AST Book Entry)  
  2,018,000
- Unregistered Series F & G Warrants from Roth Financing  
  4,000,000
- Convertible Preferred Stock  
  537,500
- Warrants  
  5,318,747
- Stock Options  
  226,784

**Fully Diluted**  
19,479,067

**Cash/Equivalents as of March 31 plus May 20 Financing**  
~$19.5 million

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1. Impacted by the Roth Capital Financing of May 20, 2019 sale of Registered Direct Stock along with Unregistered Stock and Warrants
2. This does not include 286,180 of conjugant employee grants awaiting Shareholder approval at the June 13, 2019 Shareholder Meeting
Company Summary

- CLR 131 exhibits activity in at least 3 hematologic malignancies
- At maximum dose tested to date, 50% Overall Response Rate in R/R Multiple Myeloma
- Pediatric study initiated, potential for accelerated regulatory pathway and pediatric voucher
- 4 Phase 2 clinical data readouts planned for 2019

*Proof of Concept in Lead Clinical Program with Multiple Value-Creative, Near Term Milestone Potential*
Thank You