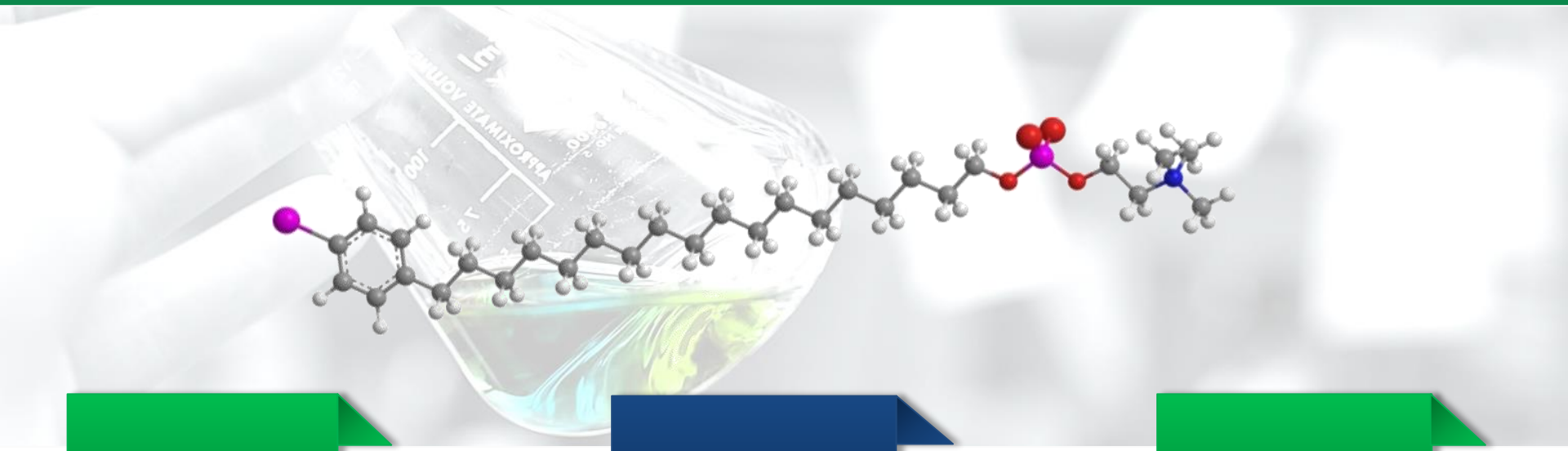
NASDAQ: CLRB

Safe Harbor Statement

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 experience 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, the ability to attract and retain partners for our technologies, the identification of lead compounds, the successful pre-clinical development thereof, the completion of clinical trials, the FDA review process and other government regulation, our pharmaceutical collaborators' ability 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, 2016. These forward looking statements are made only as of the date hereof, and we disclaim any obligation to update any such forward looking statements.

Company Overview: Strategy, Technology, & Transformation



Corporate

Rapid company stabilization & pivot

Therapeutic product focus

Orphan designated/rare disease with high unmet need

Financial efficiency

Cash into 2Q 2018

Technology

Phospholipid drug conjugate platform - PDC

Next generation targeted drug conjugated delivery

Increases payload therapeutic window

Intellectual property protection through 2034

Growth

Advance CLR 131 franchise

Unlock value of PDC platform

- In-house development
- Collaborations:
  Pierre Fabre, Avicenna

Expand and diversify pipeline

Accelerate development

Company Overview: Leadership

Management	
Jim Caruso President, CEO and Director	HIP Innovation Technology- EVP & COO; Allos Therapeutics- EVP & CCO; BCI, Novartis, BASF, Bristol-Myers Squibb
John Friend, MD Chief Medical Officer	Helsinn Therapeutics- SVP & Head of R&D; Akros Pharma, Actavis, Alpharma, Hospira, Abbott
Chad Kolean Vice President, CFO	Pioneer Surgical Technology- CFO; TomoTherapy- Corporate Controller
Jarrod Longcor SVP Corporate Development & Operations	Avillion LLP- CBO Rib-X Pharmaceuticals, Inc.- VP Corp Dev and Operations

NOVARTIS

Bristol-Myers Squibb

Abbott

HELSINN
Building quality cancer care together

BASF
We create chemistry

AVILLION

Actavis

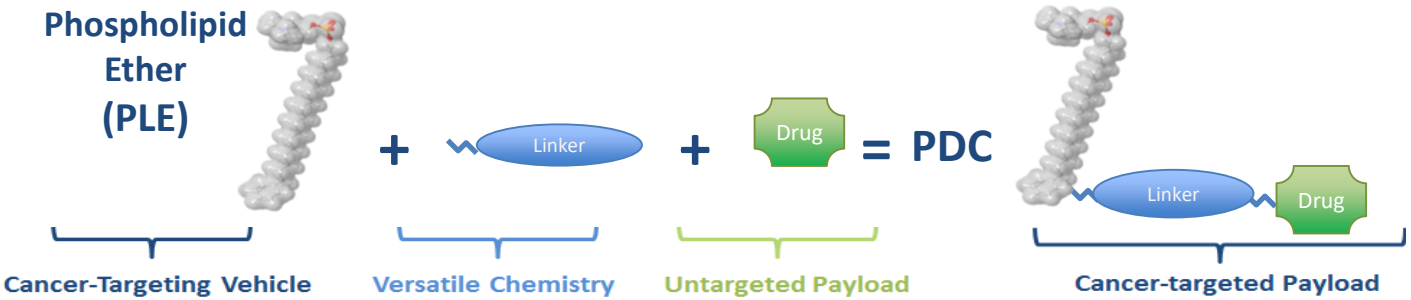
TomoTherapy
ACCURAY

ALLOS®
THERAPEUTICS

Executive Team with 75 Years of Healthcare Leadership

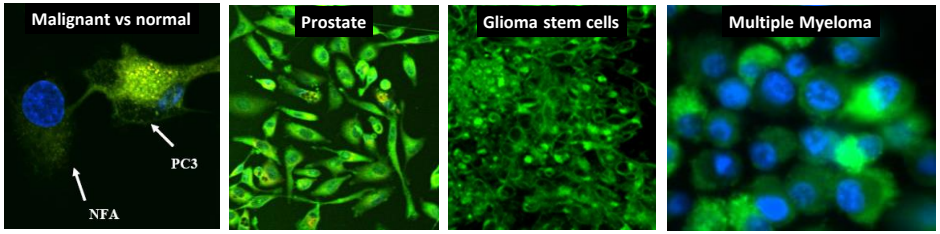
PDC: Delivery Platform & Cancer-Targeting Validation

Phospholipid Drug Conjugate (PDC)



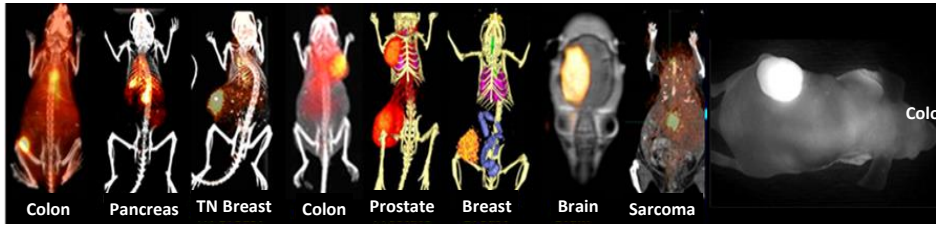
In Vitro Mechanistic POC

- Lipid Raft Uptake
- Cytoplasm & Cell Organelle Delivery
- Prolonged Retention



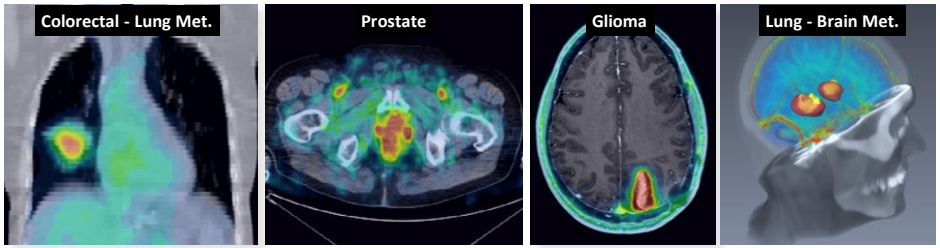
In Vivo POC

- 80+ Cancer & CSC Models
- Therapeutics & Imaging



In Human Data

- ~100 Patients
- 10+ Cancer Types



CELLECTAR BIOSCIENCES

Data source: In house and /or adapted from Science Transl. Med. Vol. 6, 2014, Issue 240, pp. 240ra75

Company Overview: PDC Product Development Pipeline

PDC Program	Payload	Indication	Discovery	Pre-IND	Phase 1	Phase 2	Collaboration
CLR 131	Iodine-131	Multiple Myeloma	Phase 1				
		Multiple Myeloma[1]	Phase 2				
		CLL[2]/SLL[3] MZL[4] LPL[5] MCL[6]	Phase 2				
		Head & Neck[7]	Pre-IND				WISCONSIN UNIVERSITY OF WISCONSIN-MADISON
CTX CLR 1800	Proprietary	Solid Tumors	Pre-IND				Pierre Fabre
CTX CLR 1700 & CLR 1900	Proprietary	Performance-based	Discovery				
CTX CLR 2000 Series	Proprietary	Solid Tumors	Pre-IND				AVICENNA ONCOLOGY

CELLECTAR BIOSCIENCES

1. Partially funded by $2M NCI Fast Track Grant 2. Chronic Lymphocytic Leukemia 3. Small Lymphocytic Lymphoma 4. Marginal Zone Lymphoma 5. Lymphoplasmacytic Lymphoma 6. Mantle Cell Lymphoma 7. Predominately funded by NCI SPORE

CLR 131: PDC Radiotherapeutic Overview

- Targeted, Precision Radiotherapeutic
  - Cytotoxic radioisotope - iodine 131
  - Novel mechanism of action
- Near-term Hematologic Malignancy Focus
  - Indications with established radiosensitivity
  - Orphan designations, niche opportunities with unmet medical need
    - High rate of relapse/resistant disease settings
- Multiple Myeloma
  - Incurable disease, treatment objective to increase Overall Survival
  - Surrogate efficacy markers, M-Protein, FLC[1], and PFS[2]
- Significant Patient Benefit and Market Opportunity

1. Free light chain 2. Progression-Free Survival

CLR 131: Hematologic Malignancy Target Product Profile

Decision Category	Top Decision Attributes	CLR 131 Profile
Efficacy	Indication (Area of unmet need)	Treatment of relapsed/refractory patients
	Overall Clinical Success	Improvement of PFS[1], mOS[2] benefit
	Use in Combination	Combination therapy in earlier lines of treatment
Safety	Reduced Peripheral Neuropathy	No peripheral neuropathy
	Improved AE[3] Profile	Predictable and manageable
Mechanism of Action	Novel Approach/Novel Molecule	First-in-class targeted radiotherapeutic for MM
Administration	Frequency	Greater dosing convenience – single or multiple
	Route of Administration	I.V. – 30 minute infusion

CELLECTAR BIOSCIENCES

1. Progression-Free Survival 2. Median Overall Survival 3. Adverse Events

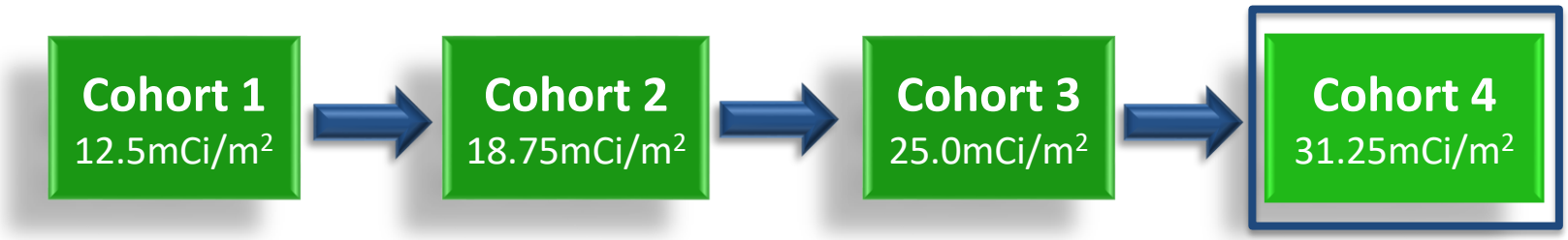
CLR 131: Clinical Development Program Strategy

- Phase 1 Maximum Tolerated Dose Study in R/R[1] Multiple Myeloma
  - Demonstrates early signs of safety, tolerability & efficacy
    - Good safety profile, adverse events predictable and manageable
    - Overall Response Rate across all doses: 27%
    - Overall Clinical Benefit Rate: 93%
    - Overall Survival Benefit experienced at all doses
- Initiated Phase 2 R/R Hematologic Malignancies Study
  - Advancing multiple myeloma and select B-cell cancers
  - Proceeding with 25mCi/m^2; exploring benefits of second dose
- Evaluate Alternative Dosing Regimens & Combination Therapies
- Explore Use in Targeted Solid Tumors
- Obtain Non-dilutive Funding to Accelerate & Expand Program

1. Relapsed/Refractory

CLR 131: Phase 1 R/R Multiple Myeloma Study Overview

- Multi-center, Open Label, Dose Escalation Trial Initiated Q2 2015
- Primary Objective:
  - Characterize safety & tolerability
- Secondary Objectives:
  - Establish Phase 2 dose
  - Assess therapeutic activity
- Dose Escalation < 2 of 6 DLT's
- 85 Day Post-dose Study Follow-up



Currently in Cohort 4 at 31.25 mCi/m² Single Dose

CLR 131: Phase 1 Patient Demographics

Demographic Metric	Cohort 1 (12.5 mCi/m²)	Cohort 2 (18.75 mCi/m²)	Cohort 3 (25 mCi/m²)
Average Age	68	70	71
Gender (female:male)	1:3	2:2	2:2
Prior Treatment Lines	5.8	4	5
Tumor Burden[1]	2.71	2.86	4.19
Prior Proteasome Inhibitor and IMiD Trx	4/4	4/4	4/4
Prior Rev, Velcade, Dex Trx, Including Triple Combinations	4/4	4/4	4/4
Prior Pomalyst & Kyprolis Trx, Including Triple Combinations	3/4	1/4	2/4
Stem Cell Transplant	1/4	3/4	4/4

Cohort 3 Designed to Challenge Single Dose CLR 131; Tumor Burden, Stem Cell Transplant & Increasing Patient Age

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1. Baseline B2 Microglobulin

CLR 131: Phase 1 Adverse Event Profile

- Excellent Safety Profile: Safety Data Set (n=32)[1]
  - No neuropathies/neurotoxicity
  - No GI[2] toxicities
  - No DVT[3]
  - No fatigue reported in Multiple Myeloma (MM)
- Ongoing Phase 1 Study: Through Cohort 3
  - Essentially unchanged AE profile with increasing dose
  - Common AE's hematologic; no clinically relevant cytopenic events

Adverse Events	Avg. Number/Patient	Avg. Grade/Patient	Median Grade
Cohort 1 (12.5)	4.75	2.05 ± 0.91	2.0
Cohort 2 (18.75)	4.25	2.71 ± 1.00	2.0
Cohort 3 (25)	7.00	2.57 ± 1.23	3.0

"As seen in the results to date, CLR 131 has demonstrated an outstanding safety profile in heavily pretreated, relapsed or refractory multiple myeloma patients with limited treatment options," stated Natalie Callander, MD, Associate Professor of Medicine, Director, University of Wisconsin Carbone Cancer Center Myeloma Clinical Program, and the study's lead investigator. "I am excited that Cellectar will open the next treatment cohort to offer patients access to this novel treatment's encouraging efficacy signals." – 9/29/2016

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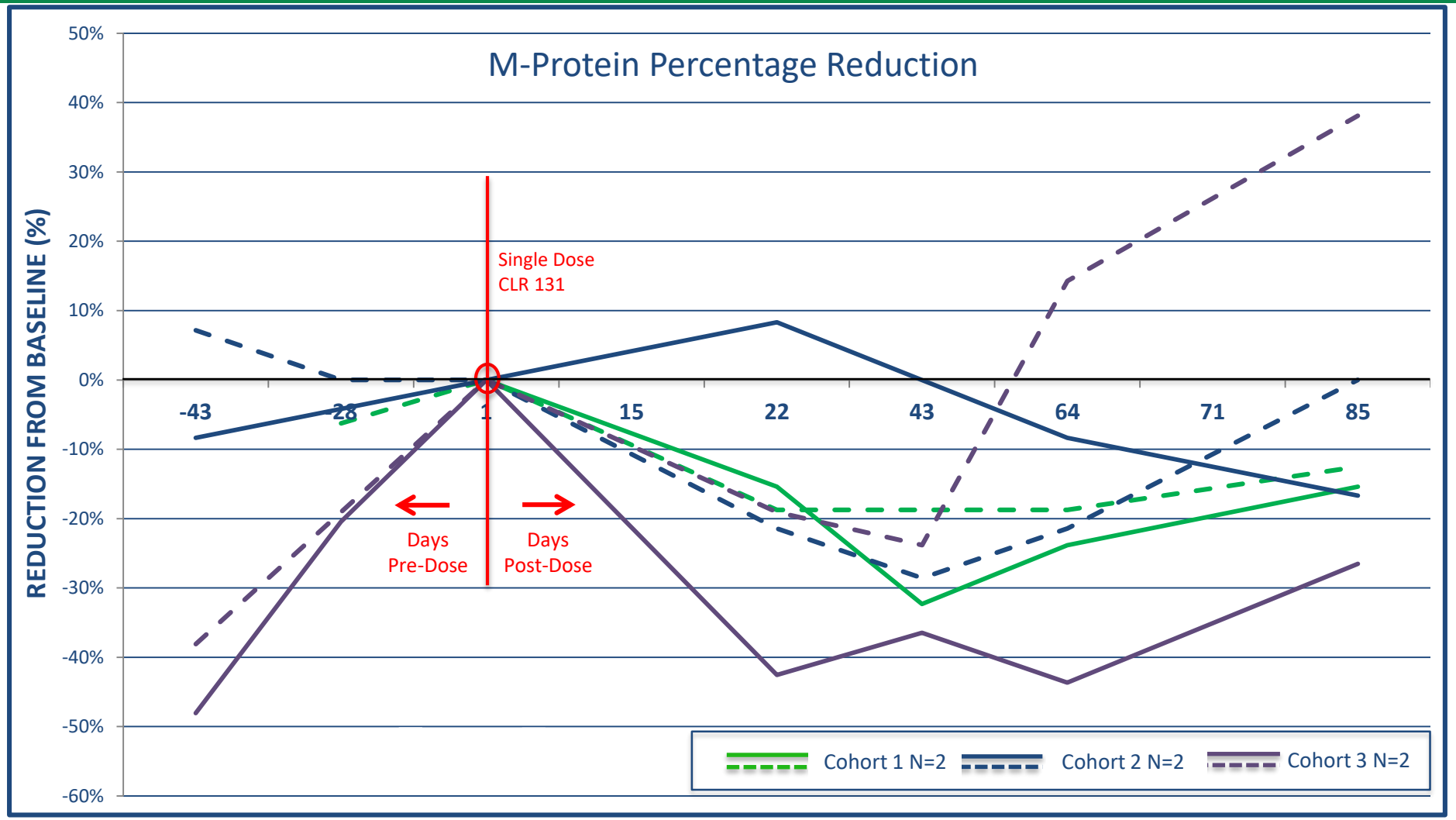
1. CLR 131 patients dosed (Includes Phase 1 through Cohort 3) 2. Gastrointestinal 3.Deep Vein Thrombosis

CLR 131: Phase 1 Surrogate Efficacy Marker



27% of Evaluable Patients Achieved a Minimal Response;
93% of All Patients Achieved a Clinical Benefit Response

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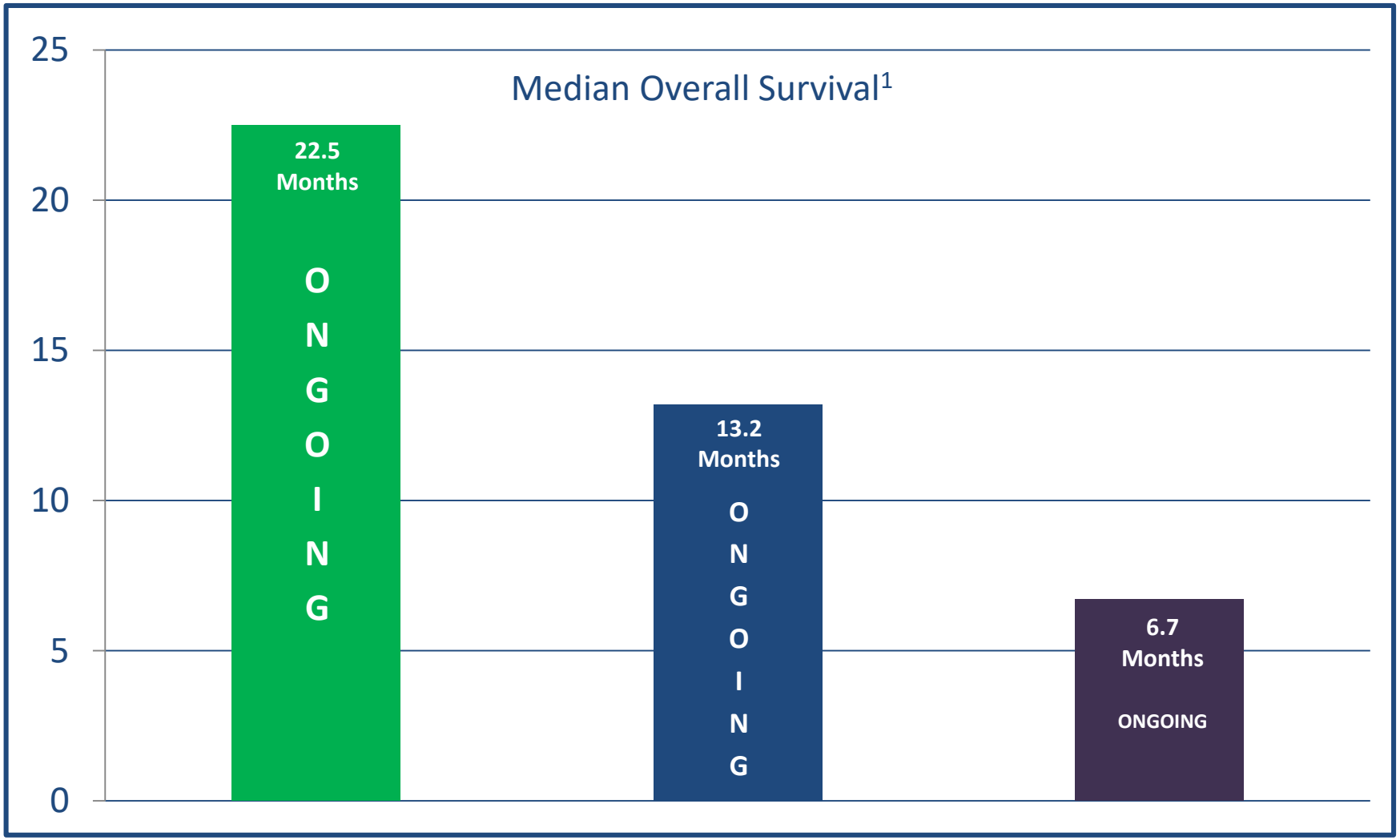
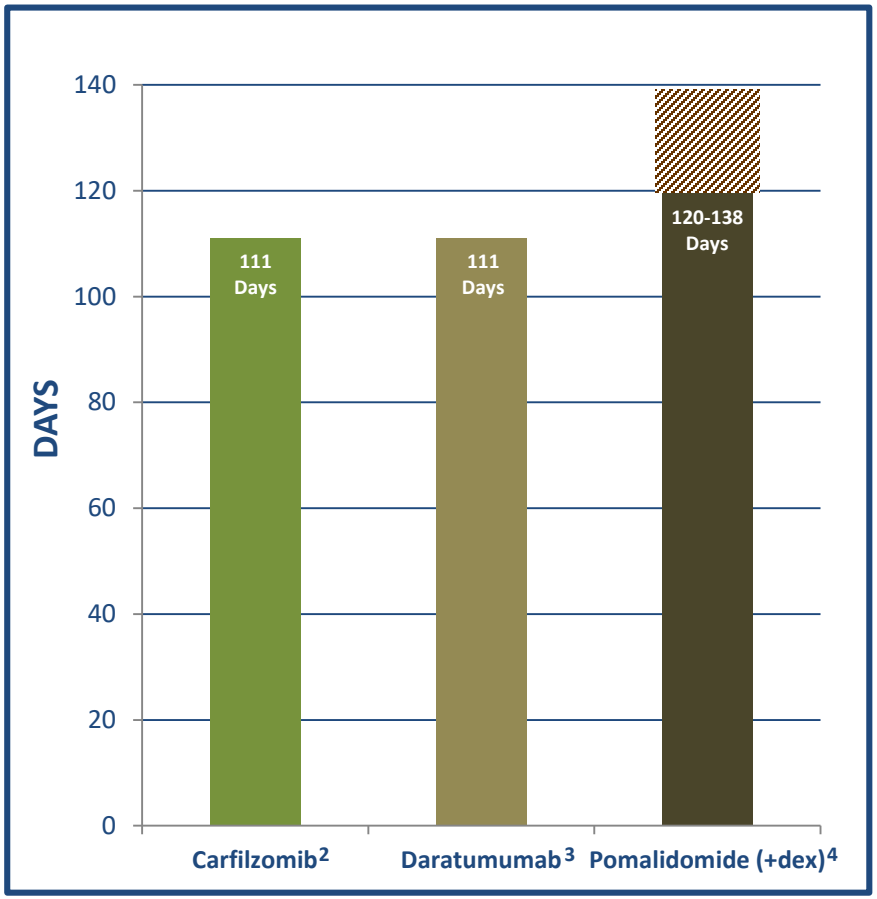
CLR 131: Phase 1 Median Overall Survival



1. As of 7/28/17

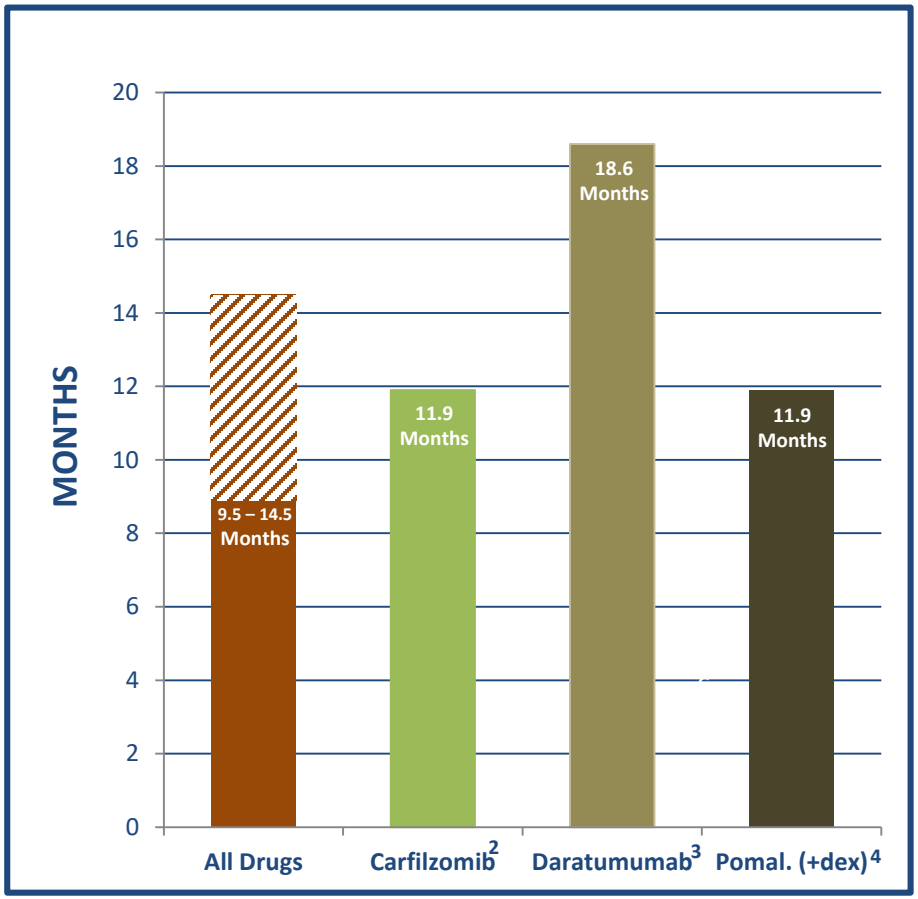
MM[1]: Survival Benefit For Recently Approved Drugs

Median Progression-Free Survival (PFS)



PFS Range 111 – 138 Days

Median Overall Survival (mOS)



mOS Range 9.5 – 18.6 Months

1. Multiple Myeloma
2. Jurczyszyn et al (2014). New drugs in multiple myeloma – role of carfilzomib and pomalidomide. Contemporary Oncology.
3. Usmani, et al (2016). Clinical efficacy of daratumumab monotherapy in patients with heavily pretreated relapsed or refractory multiple myeloma. Blood Journal.
4. Dimopolous et al (2016). Safety and efficacy of pomalidomide plus low-dose dexamethasone in STRATUS (MM-010): a phase 3b study in refractory multiple myeloma. Blood Review.

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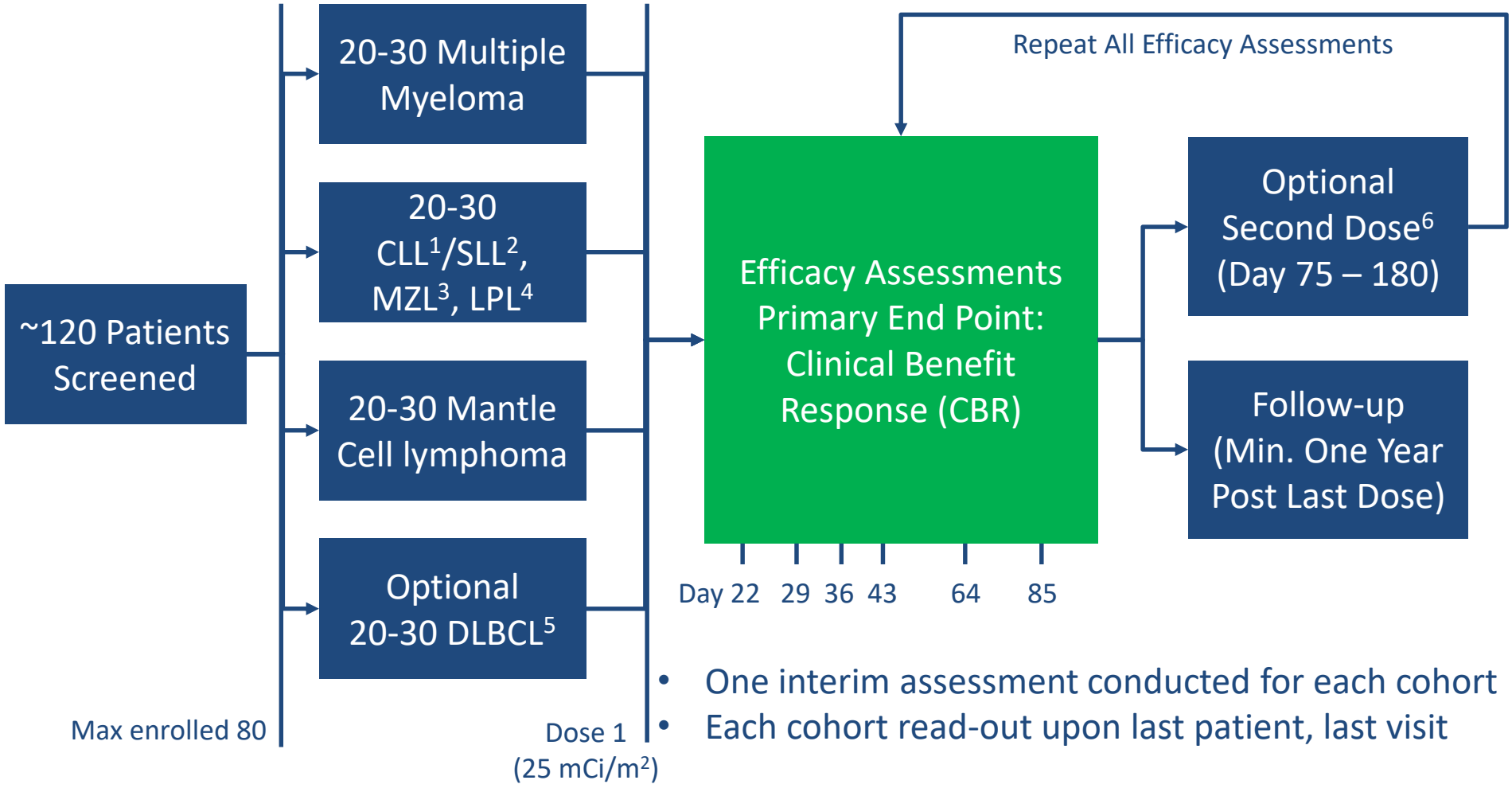
Indicates Range of 120 – 138 Days Indicates Range of 9.5 – 14.5 months

CLR 131: Phase 2 Study in Relapsed/Refractory B-cell Malignancies



- One interim assessment conducted for each cohort
- Each cohort read-out upon last patient, last visit

Phase 2 Study Supported with $2,000,000 NCI SBIR Grant

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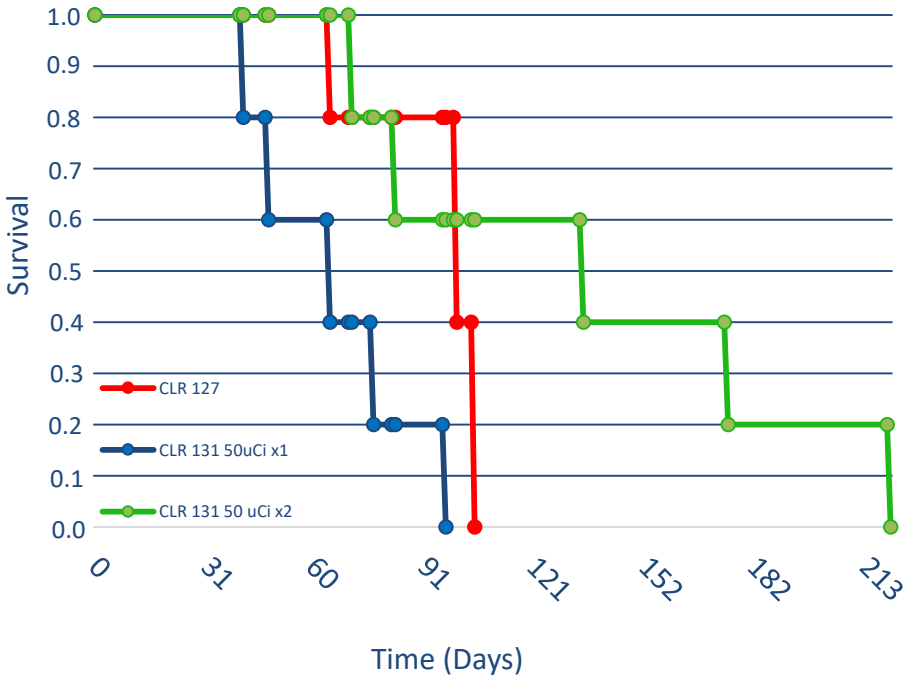
1. Chronic Lymphocytic Leukemia 2. Small Lymphocytic Lymphoma 3. Marginal Zone Lymphoma 4. Lymphoplasmacytic Lymphoma 5. Diffuse Large B-Cell Lymphoma 6. 25 mCi/m^2

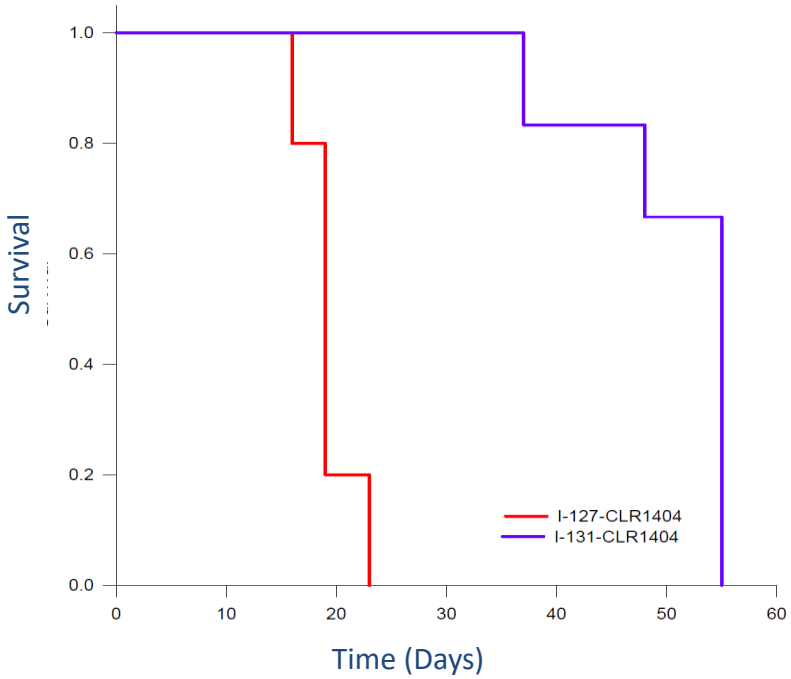
CLR 131: Benefits of Multiple Doses in Tumor Models

Capan 1 Model (Pancreatic Cancer) Survival Curve



- Two Doses of CLR 131 (50 uCi)
  - Statistically significant survival benefit vs control
  - Increased survival greater than double

MES-SADX5 Model (Uterine Cancer) Survival Curve



- Two doses of CLR 131 (100 uCi)
  - Statistically significant survival benefit vs control
  - Increased survival greater than double

Multiple Doses of CLR 131 Provides a Statistically Significant Survival Benefit

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CLR 131: Hematologic Malignancy Market Overview

- Unmet Need Remains in the Relapsed or Refractory (R/R) Setting
  - Multiple Myeloma: ~13,000[1]
  - CLL/SLL: ~4,500[1]
  - Mantle Cell Lymphoma: ~1,600[1]
  - Marginal Zone: ~2,300[1]
- MM Drug Market
  - Annual U.S.: 2nd Most Common Hematologic Cancer[1]
  - $8.9B (2014) - $37.5B (2024) – CAGR 16.6%[2]
  - Average R/R treatment drug cost $75K - $250K[3]
  - Average ≥ 3rd line treatment drug cost $450K - $500K[3]
- CLR 131 Premium Pricing Opportunity – Single or Multiple Doses
- Third Party Payor Preferred Position
  - Reduced cost to healthcare system

1. SEER data and ACS stats- http://bit.ly/1SU5Zlm 2.Grandview Res. Report (2016)- http://ow.ly/8FOi30e3o9A 3. Midwest CEPAC (Comparative Effectiveness Public Advisory Council)

CLR 131: R/R B-Cell Malignancy Market Opportunity

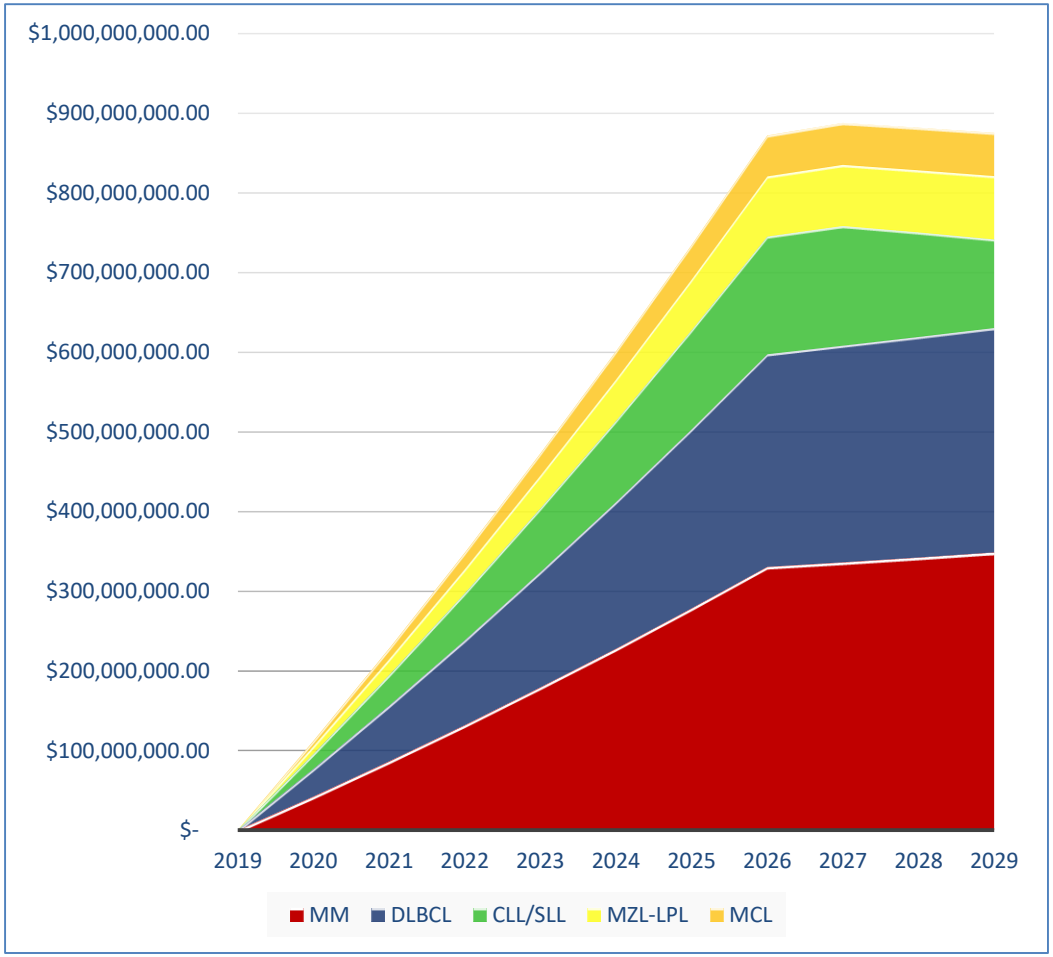
Relapsed/Refractory

- Multiple Myeloma
- Diffuse Large B Cell Lymphoma
- Chronic Lymphocytic Leukemia/ Small Lymphocytic Lymphoma
- Marginal Zone Lymphoma and Lymphoplasmacytic Lymphoma
- Mantle Cell Lymphoma

MM Line Extension

- Dose & Regimen
- Combination Therapy
- ASCT Conditioning

$850+ Million Annual Top Line Revenue Potential[1]



Significant Projected Return in Selected R/R B-Cell Indications

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1. Assumes: 15% peak market penetration, 6 years to peak sales, 2020 approval, average of 1.5 doses per patient

CLR 131: NCI Funding for Solid Tumor Research

EconoTimes | Business

Cellectar Biosciences Announces Lead Compound CLR 131 To Be Studied In Head and Neck Cancer in $12M University of Wisconsin SPORE Grant

Monday, September 12, 2016 12:30 PM UTC

MADISON, Wis., Sept. 12, 2016 – Cellectar Biosciences, Inc. (Nasdaq: CLRB) ("the company"). An oncology-focused biotechnology company, today announces that its lead therapeutic compound, CLR 131, currently in a Phase 1 clinical trial for multiple myeloma and preparing for a Phase 2 study in multiple myeloma and other hematologic malignancies, will be evaluated by the University of Wisconsin in combination with external beam radiation as a potential combination treatment for head and neck cancers (squamous cell carcinoma). The research will be conducted as part of a Specialized Program of Research Excellence (SPORE) grant, awarded to the University of Wisconsin by the National Cancer Institute.

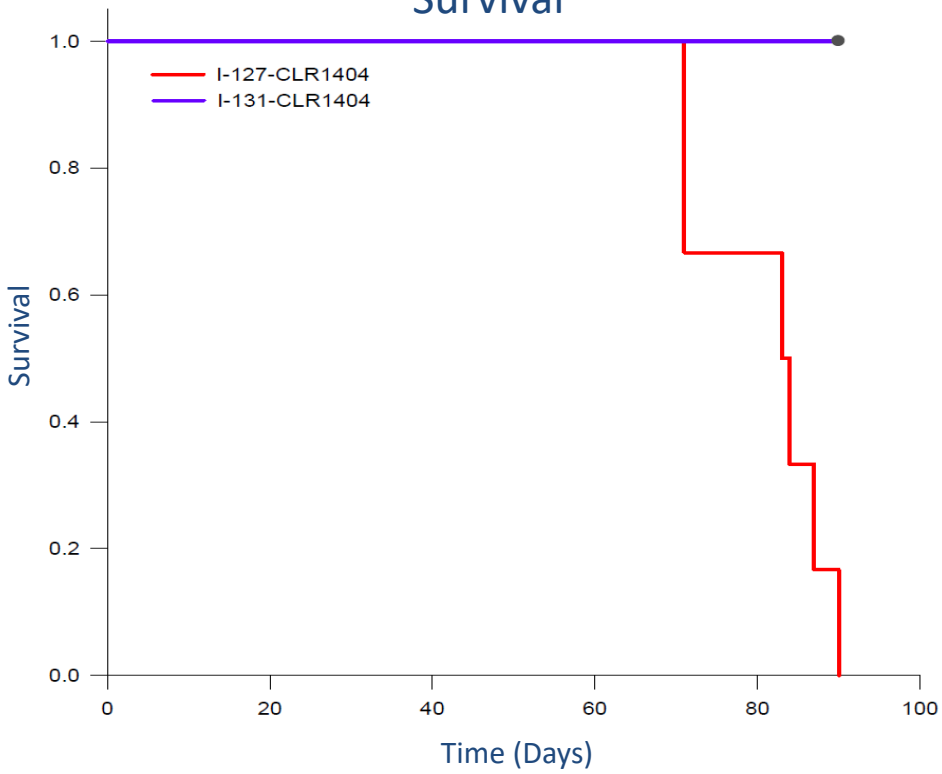
"The rigorous peer review that SPORE grants undergo provides further validation of the therapeutic benefits that CLR 131 could provide in both hematological and solid tumor malignancies. While we remain focused on advancing CLR 131 as a therapy for hematologic malignancies, we look forward to seeing the outcomes of the University's research," said Jim Caruso, president and CEO of Cellectar Biosciences. "We are grateful for our long-standing relationship with the University of Wisconsin and congratulate them, and in particular, Dr. Paul Harari, chair of human oncology, who oversaw the SPORE grant application."

Intellectual Property Protection Through June 2030 for CLR 131 in Combination with External Beam for Treatment of Head and Neck Cancer

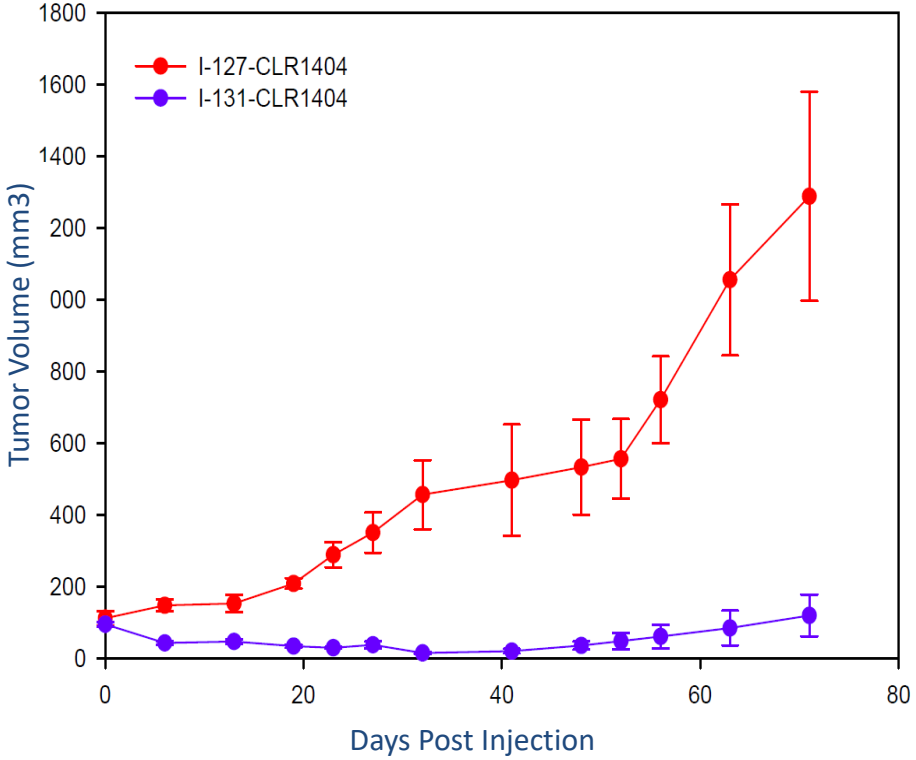
CLR 131: Efficacy in Multiple Solid Tumor Models

Caki-2 Model (Renal Cell Carcinoma)

Survival



Tumor Volume



In Renal Cell Carcinoma, CLR 131 Provides a Statistically Significant Increase in Survival & Reduction in Tumor Volume

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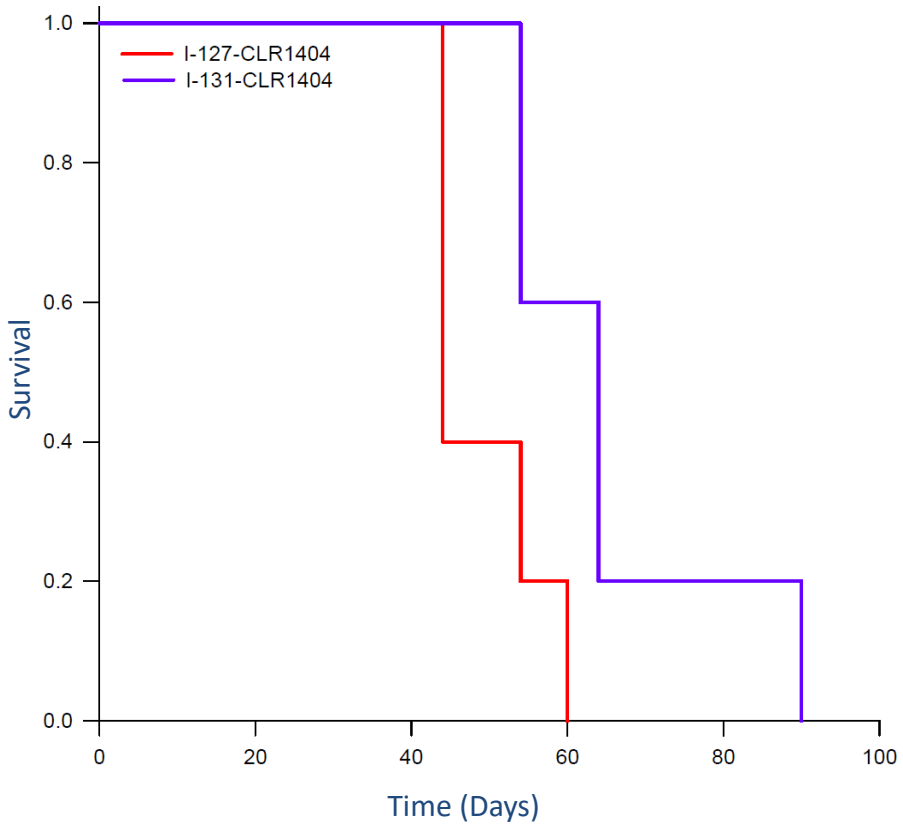
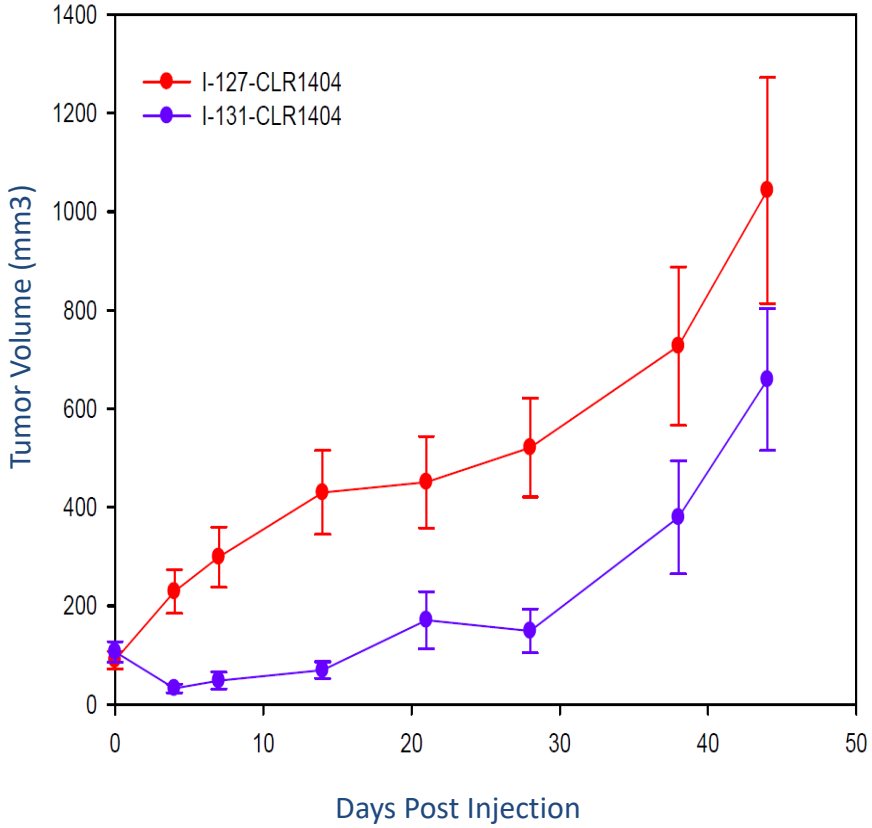
CLR 131: Efficacy in Multiple Solid Tumor Models

Mia-paca-2 Model (Pancreatic Cancer)

Survival



Tumor Volume



In Pancreatic Cancer, CLR 131 Provides a Statistically Significant Increase in Survival & Reduction in Tumor Volume

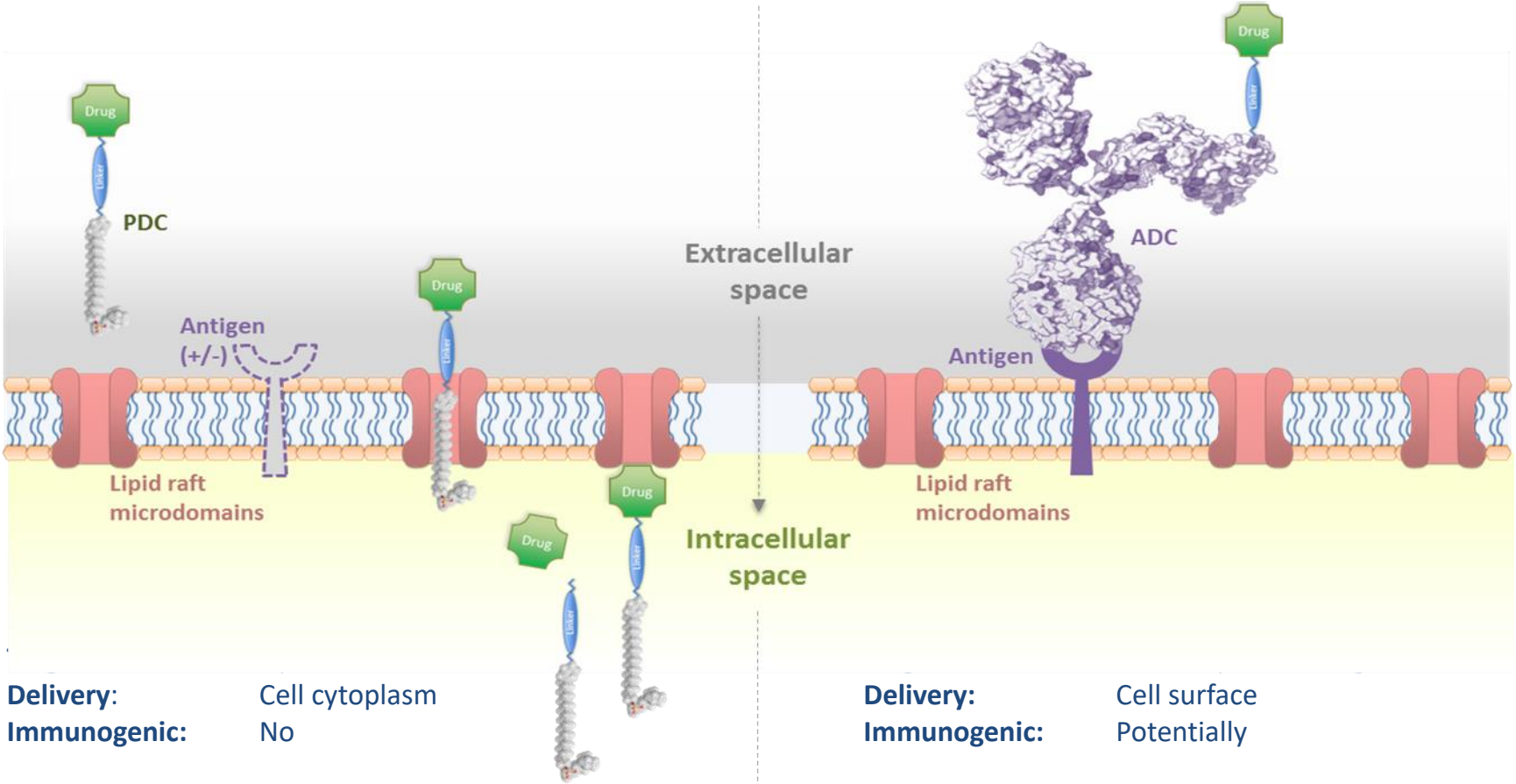
PDC: Conjugate Program Overview

- Objective
  - Develop PDCs with improved efficacy & tolerability
- Clinical Rationale
  - Various classes of anti-cancer drugs, highly potent with off-market effects
  - PDC cancer-targeting improves therapeutic index
  - Cancer stem cell delivery – increased durability of efficacy
- Business Rationale
  - Reinvigorate failed, preclinical, and clinical cytotoxics
  - Reduced regulatory hurdles
  - New products, new patent life & life cycle management
- Expansion of Intellectual Property Portfolio
  - Patent published May 2016 - “Existing or future cytotoxic agents”
  - Issued patent protecting series of paclitaxel PDCs

PDC: Delivery Platform Cancer-Targeting MOE[1]

Phospholipid Ether-Drug Conjugates

Antibody-Drug Conjugates



Delivery: Cell cytoplasm
Immunogenic: No

Delivery: Cell surface
Immunogenic: Potentially

PDCs Exploit An Unalterable Metabolic Pathway

1. Mechanism of Entry Image source: schematic rendered in house based on current mechanistic understanding

PDC: Delivery Platform Summary

DELIVERY PLATFORM	PDC	ADC
Description	PLE: Small-Molecule	Antibody: Biologic
Cancer Targeting		
Cancer Stem Cell Targeting		
Metastases Targeting		
Ability to Overcome Resistance		
Safety		
Cytoplasm Payload Delivery		
Payload Diversity		
Linker Options		
Manufacturing Cost/Complexity		

PDCs Represent a New Class of Cancer Targeting & Payload Delivery

 Good / Possesses  Moderate / Some / Possibility  Bad / Lacks

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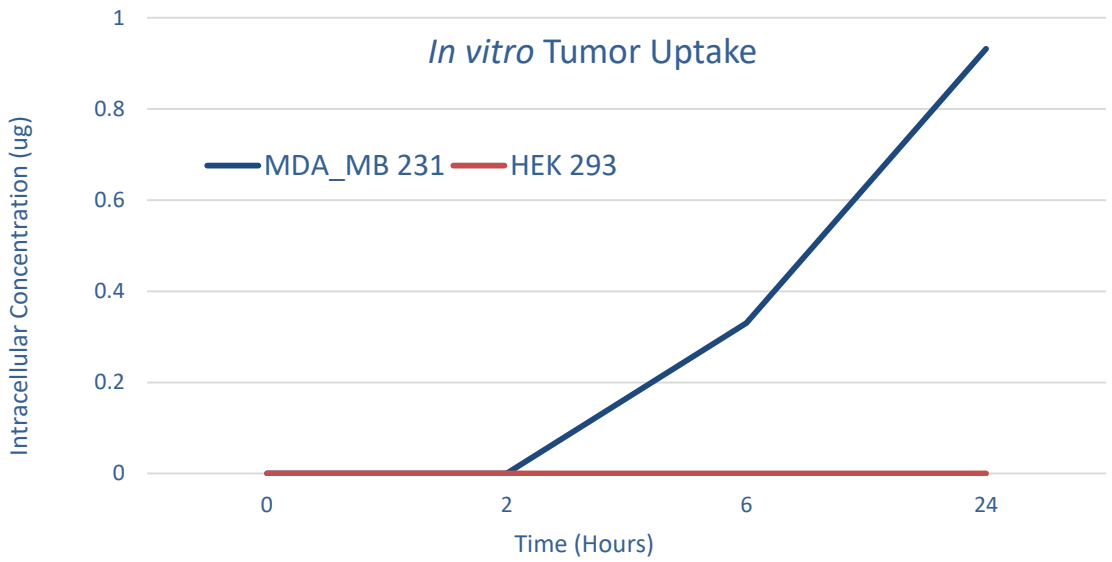
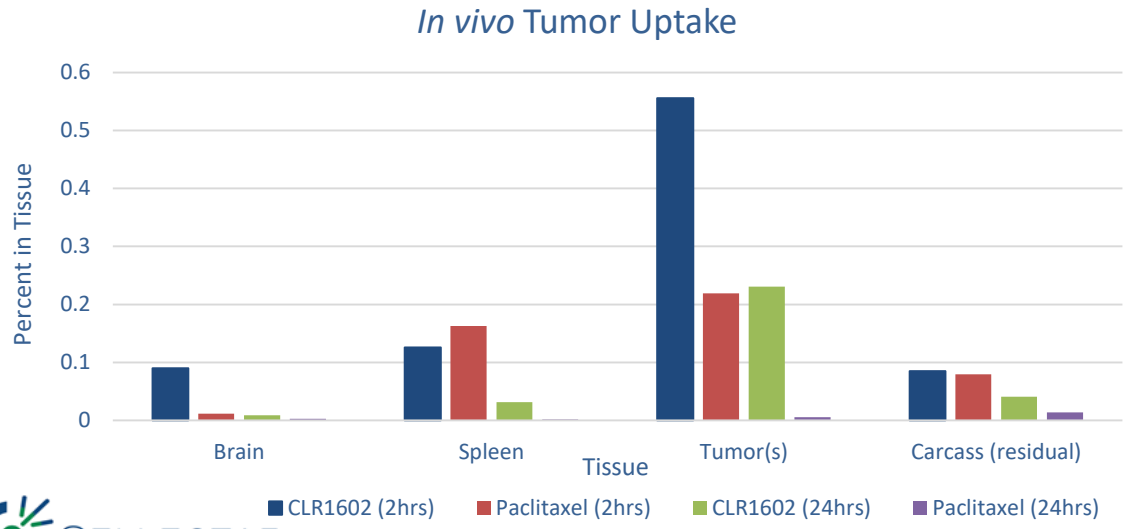
PDC: CLR 1602[1] Provides Proof of Concept for Targeted Delivery



- CLR 1602 *In vitro*
  - Showed selected uptake in tumor cells vs normal cells
  - Cells incubated with ~65ug



- CLR 1602 *In vivo*
  - Showed 23 fold greater exposure in the tumor over paclitaxel alone
  - Had nearly triple the concentration in tumor vs paclitaxel at 2 hours
  - Accumulated in the tumor for >24 hours

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1. Paclitaxel Conjugate

PDC: Pierre Fabre Conjugate Collaboration

- Announced December 2015 – Launched Q1 2016
- Pierre Fabre Provides Selection of Proprietary Cytotoxins
- Objectives
  - Co-design library of PDCs
    - Lead product conjugation completed
  - Conduct *in vitro* assessments
  - Conduct *in vivo* POC studies
    - Targeting/biodistribution data
  - Evaluate therapeutic index vs. untargeted payloads
- Cellectar to Lead Conjugation and POC Studies
- Cellectar Retains Rights to All New Intellectual Property

"We are convinced that Cellectar's proprietary technology will provide our cytotoxic molecules with tissue specificity and enhanced safety which are typically lacking with untargeted agents."

- Laurent Audoly, Head of R&D of Pierre Fabre Pharmaceuticals (Dec., 2015)

PDC: Avicenna Oncology Conjugate Collaboration

- Announced July 2017
- Avicenna Provides Proprietary Cytotoxic Payloads
- Objectives
  - Design small library of PDCs
  - Conduct *in vitro* assessments
  - Conduct *in vivo* studies
  - Evaluate therapeutic index vs. untargeted payloads
  - PDC vs. ADC assessment with same payload
- Cellectar to Lead Conjugation and Preclinical Studies
- Both parties have rights to future development

"Combining Cellectar's PDC platform with our payloads is a very promising approach that could potentially overcome some of the disadvantages presently seen with ADCs"

- Zaki Sellam, CEO of Avicenna Oncology Gmbh (July, 2017)

Company Overview: Financial Summary

Capitalization as of June 30, 2017

Common Stock Outstanding	**13,922,170**
Reserved for Issuance:	
Warrants	8,741,536
Employee Options	558,733
Fully Diluted	**23,222,439**
Cash Balance at June 30, 2017	**$ 8,313,073**

Targeted Investment Increases Productivity and Extends Runway Into Q2 2018

Company Developments: 2017 Milestones

Pipeline Development		Program Data Updates		Collaborations		Patent Portfolio	
CLR 131: Initiate Phase 1 Cohort 4	☑	CLR 131: Phase 1 Cohort 3	☑	WARF MM[1] License Agreement	☑	CLR 125 & CLR 131: US MOU[2]	☑
CLR 131: Initiate Phase 2	☑	CLR 131: Phase 1 Study	☑	Avicenna Signing	☑	CLR 1501/1502: JP[3] COM[4]	☑
Progress Proprietary PDC Program	☑	CLR 131: Phase 1 Cohort 4	☐	Achieve Key Pierre Fabre Objectives	☐	CLR 124:US MOU	☑
Advance Pierre Fabre Program	☐	CLR 131: Phase 2 Interim	☐	Advance UW/NCI Head & Neck	☐	CLR 131 & CLR 125: JP MOU	☑
Initiate Avicenna Program	☐	CLR 131: Phase 1 mOS	☐	Additional Collaboration(s)	☐	CLR 1501/1502: US MOU	☑
CLR 1800 Series: Lead Candidate Selected	☐	Pierre Fabre Preclinical Data	☐				

Strong Year with Significant Achievements To Date

CELLECTAR BIOSCIENCES

1. Multiple Myeloma 2. Method of Use 3. Japan 4. Composition of Matter

Company Developments: Key R&D Milestones

2018

CLR 131
- Phase 2 Enrollment Completed
- Phase 1 Single Ascending Dose Completed
- Commercial Supply
- UW[1]/NCI[2] Head & Neck Preclinical Data

CLR 1700 Series
- Lead Candidate Selected

CLR 1800 Series
- Initiate IND Enabling Studies

2019

CLR 131
- Phase 2 Data
- UW/NCI Head & Neck Phase 1

CLR 1700 Series
- Initiate IND Enabling Studies

CLR 1800 Series
- Complete IND Enabling Studies

2020

CLR 131
- Initiate Pivotal Trial Multiple Myeloma
- UW/NCI Head & Neck Phase 1 Update

CLR 131
- Phase 2 Combination Studies

CLR 1700 Series
- Initiate Phase 1

CLR 1800 Series
- Initiate Phase 1

1. University of Wisconsin 2. National Cancer Institute