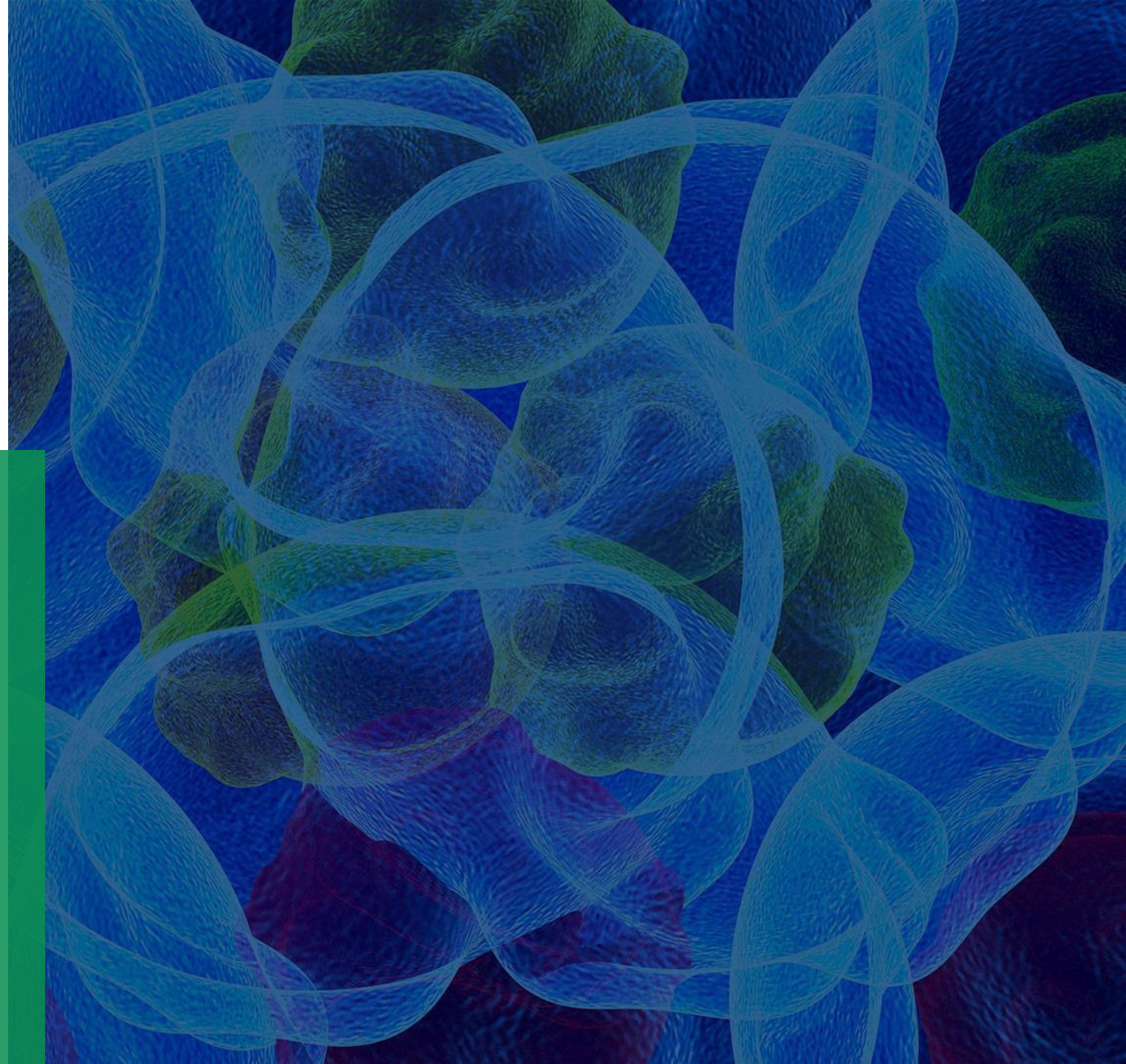
CELLECTAR BIOSCIENCES

Corporate Presentation

August 2022

NASDAQ: CLRB



Forward-Looking Statements

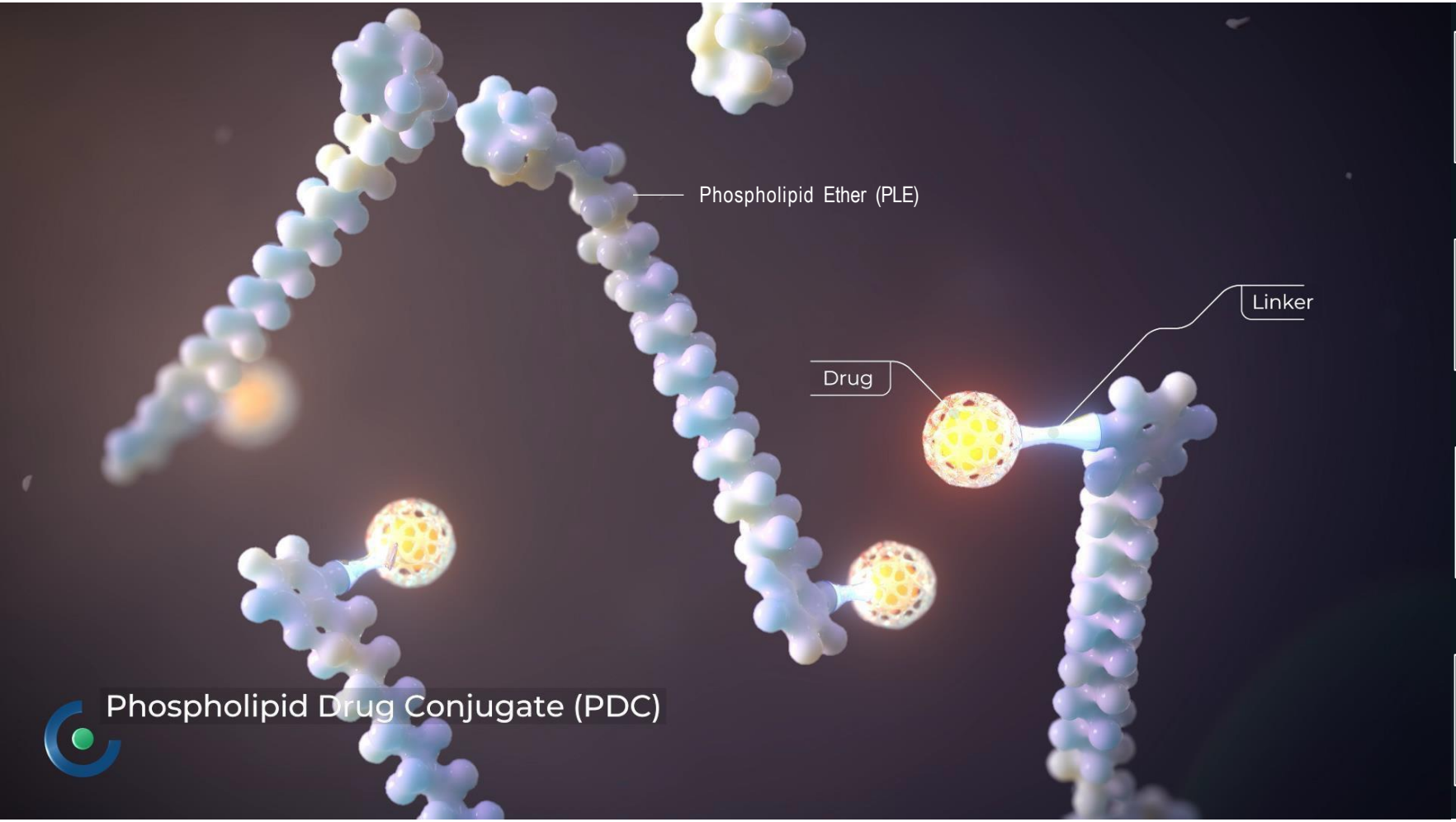
This presentation contains forward-looking statements. Such statements are valid only as of today and we disclaim any obligation to update this information. These statements are only estimates and predictions and are subject to known and unknown risks and uncertainties that may cause actual future experiences and results to differ materially from the statements made. These statements are based on our current beliefs and expectations as to such future outcomes including our expectations of the impact of the COVID-19 pandemic. 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, uncertainties related to the disruptions at our sole source supplier of iopofosine, the ability to attract and retain partners for our technologies, the identification of lead compounds, the successful preclinical development thereof, patient enrollment and the completion of clinical studies, the FDA review process and other government regulation, our ability to maintain orphan drug designation in the United States for iopofosine, the volatile market for priority review vouchers, our pharmaceutical collaborators' ability to successfully develop and commercialize drug candidates, competition from other pharmaceutical companies, product pricing and third-party reimbursement. 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, 2021 and our Form 10-Q for the quarter ended March 31, 2022.

Company Highlights

Proprietary Versatile Drug Conjugate Platform to Target Cancer

- Developing iopofosine I 131 (formerly known as CLR 131), a small-molecule radiotherapeutic in rare adult and pediatric cancer indications
- Ongoing pivotal study of iopofosine in Waldenstrom's macroglobulinemia (WM), top-line data anticipated 2H 2022
- Clear and defined regulatory pathway in WM; granted U.S. Orphan Drug Designation and FDA Fast Track Designation
- Additional clinical studies ongoing, including a Phase 2b study in highly refractory multiple myeloma; potential for near-term commercialization and route to approval
- Cash balance of $24.8 million as of June 30, 2022, supporting strategic plan beyond expected key data readouts

PDC Platform Technology



PLE
Cancer-Targeting Vehicle

+

Linker
Versatile Chemistry

+

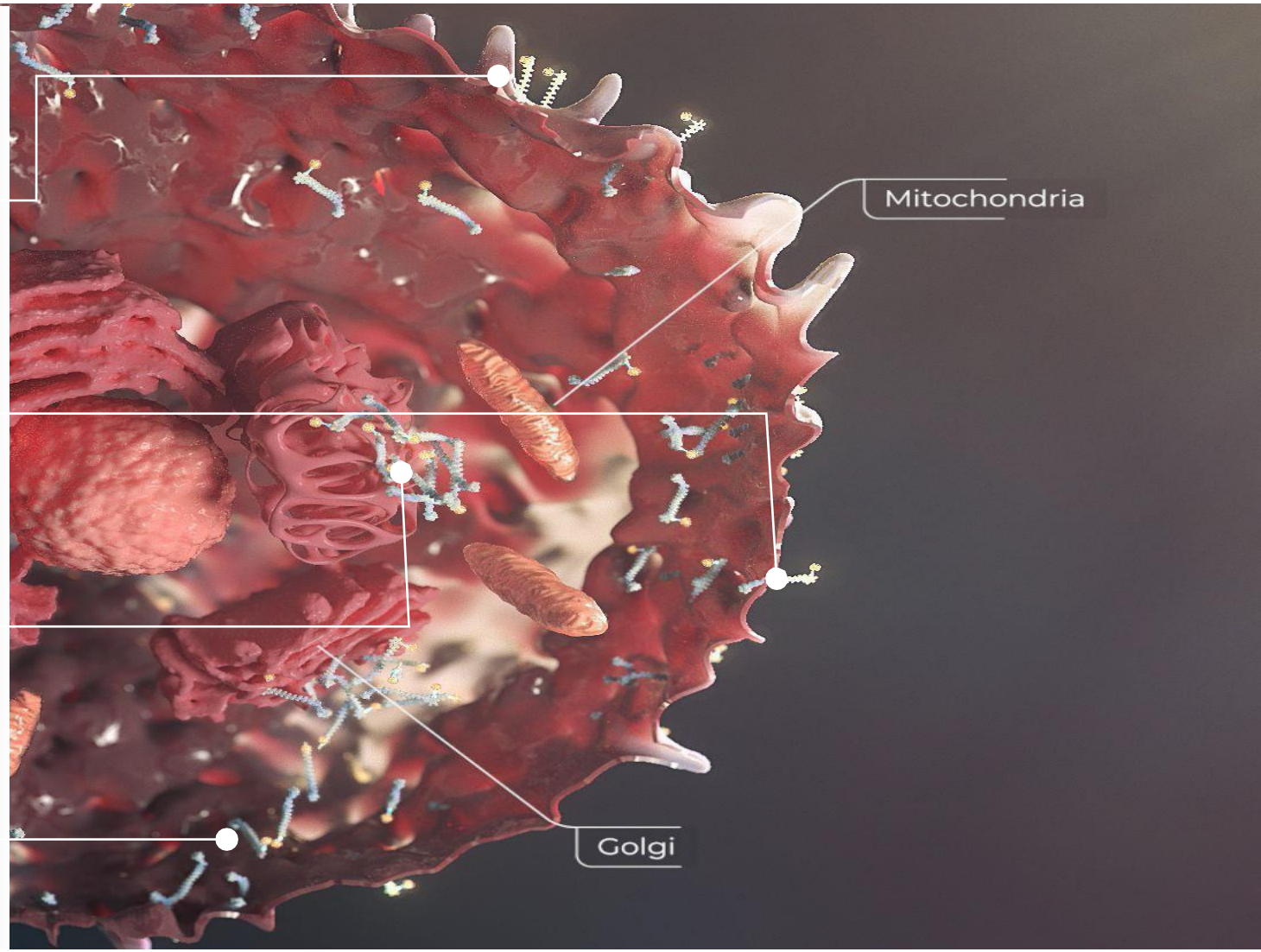
Drug
Payload

=

PDC
Cancer Targeted Payload

Targeted Delivery to Tumor Cells

1. PDC with Cancer targeted payload
2. Specific Targeting of Cancer
3. Intracellular Delivery to Cancerous Cells
4. Selective Release of Payload inside Cell



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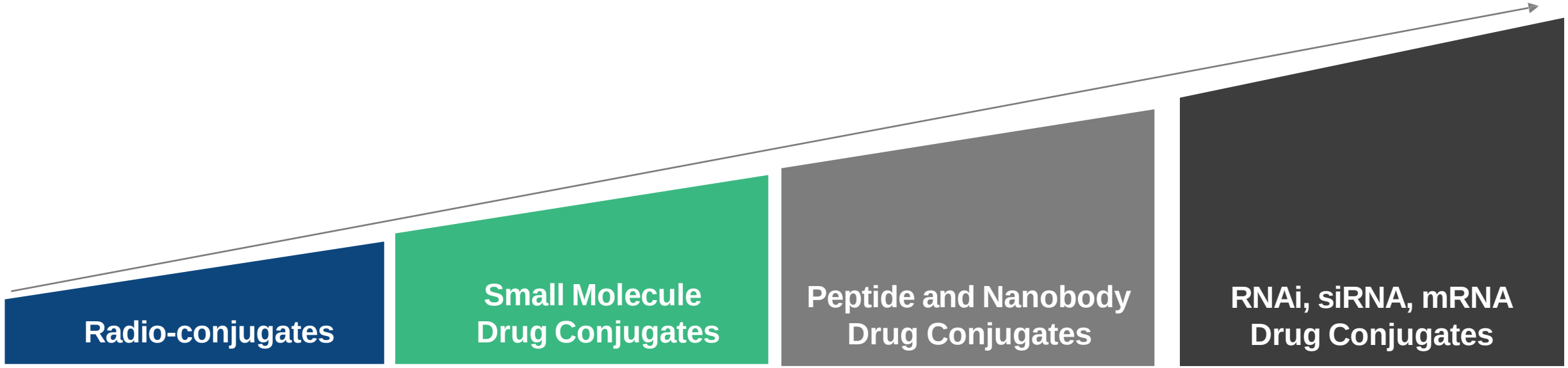
PDC Strategy

Phospholipid Ether Franchises - Value Creation Through Intracellular Delivery



Radio-conjugate Franchise

- Ability to provide targeted delivery of any radioisotope
- Currently developing alpha & beta emitters
- Lead beta emitter program iopofosine I 131 in a pivotal study

Small Molecule Franchise

- Demonstrated in vivo safety and efficacy in multiple animal models
- Pico and nanomolar activity

Biologics Franchise

- Targeting intracellular pathways that cannot be targeted with small molecules

Nucleic Acid Franchise

- Intracellular delivery of nucleic acids providing knockdown or knock-in gene control in cancer cells

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Targeted Delivery with a Broad Range of Therapeutic Modalities

Pipeline

PDC Program	Indication	Discovery	Preclinical	Phase 1	Phase 2	Pivotal	Collaboration Partner
Iopofosine I 131	Waldenstrom's macroglobulinemia	→	→	→	→	→	
	Highly Refractory Multiple Myeloma	→	→	→	→		
	Pediatric	→	→	→			
	Head and Neck (IIS)	→	→	→			WISCONSIN UNIVERSITY OF WISCONSIN–MADISON
CLR 1900	Solid Tumors	→	→				
Partnerships							
CLR 2000	Solid Tumors	→	→				
CLR 12120	Solid Tumors	→	→				oranomed
New PDCs	Various targets	→	→				LCB LegoChemBio
New PDC's	Various targets	→	→				Intocell into practice

Additional Value Creation Through Innovative Partnering Approach and Platform Utility

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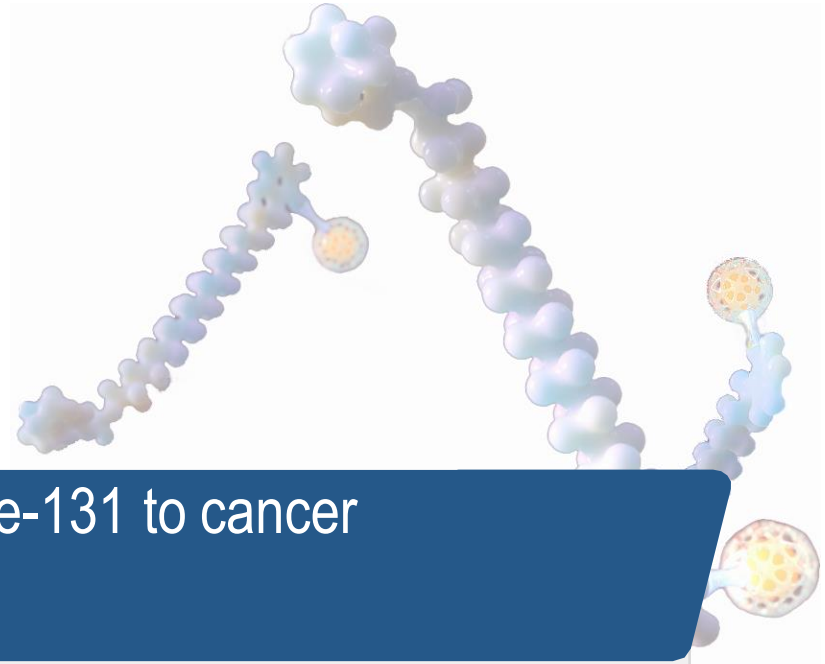
IIS = Investigator Initiated Study

Iopofosine I 131: Our Lead Product Candidate



A small-molecule PDC designed to provide targeted delivery of iodine-131 to cancer cells while limiting exposure to healthy cells

Currently being evaluated in:

Pivotal Study in Waldenstrom's macroglobulinemia	Phase 2 CLOVER-1 study in highly refractory MM	Phase 1 CLOVER-2 study in relapsed pediatric cancers (high grade glioma & soft tissue sarcomas)	Phase 1 Investigator Initiated Study in relapsed Head & Neck

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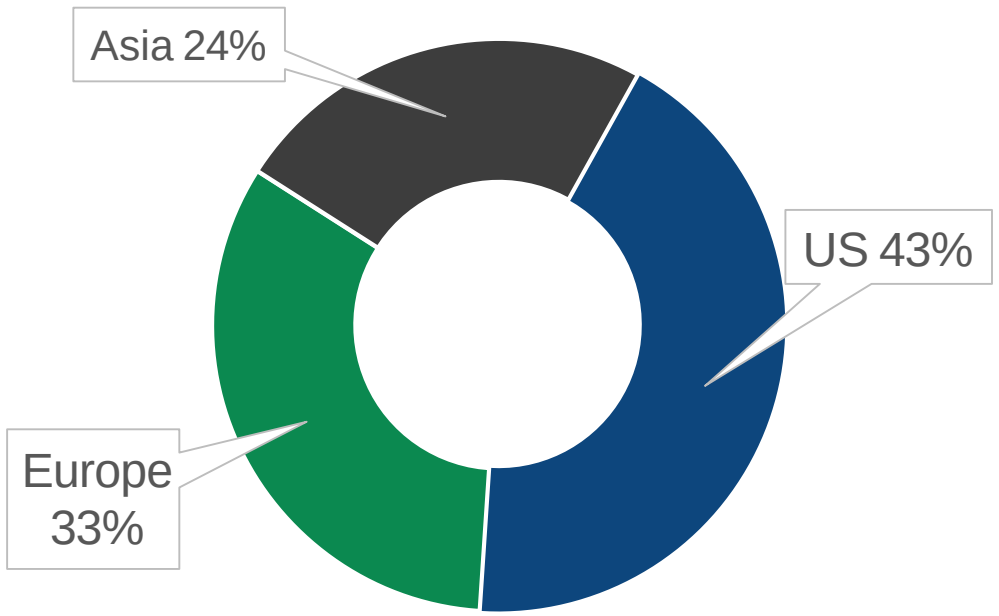
Waldenstrom's Macroglobulinemia

Waldenstrom's macroglobulinemia is a rare cancer that begins in the white blood cells

Global Prevalence Patient % Distribution[1]



- The bone marrow produces too many abnormal white blood cells crowding out healthy blood cells
- The abnormal white blood cells produce a protein (IgM) that accumulates in the blood, impairs circulation and causes complications
- It is slow growing. Typical signs & symptoms include:
  - Easy bruising; bleeding from nose or gums; fatigue; weight loss; numbness in hands or feet; fever; headache; shortness of breath; changes in vision; confusion
- Ultra-rare orphan disease
  - ~8-year survival post-initial diagnosis [2,3]
  - Median age 65
  - U.S. Annual incidence ~3,000; 30% annual growth rate through 2025
  - U.S. prevalence ~45,000[4]

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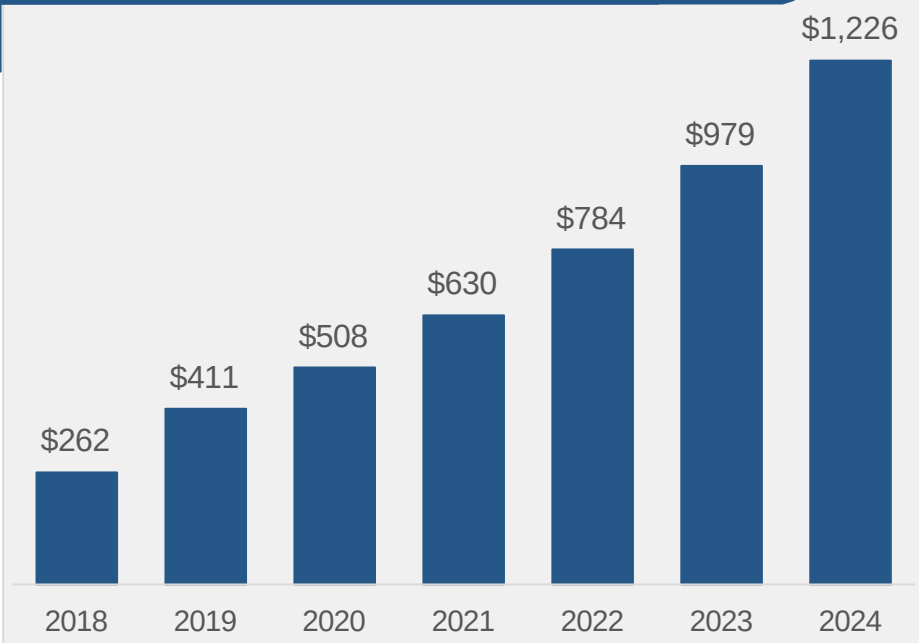
WM Second Line Current Standard of Care

Ibrutinib Projected Revenues in WM Alone to Exceed $1.2 Billion



Global Ibrutinib WM Revenues[1]
(USD millions)

Only 1 class (BTKi's) of approved drugs in WM (ibrutinib and zanubrutinib)

Prior to first line combination approval, ibrutinib projected peak year sales of >$1.2B in 2024

Limited switching between ibrutinib and zanubrutinib

No monotherapy demonstrating major responses in dual WT patients (MYD88 & CXCR4 representing 20-40% of patients)

In addition to initial approval positioning; opportunity for iopofosine I 131 label expansion into early lines of therapy

"For a patient who has progression on ibrutinib, then acalabrutinib or zanubrutinib are not right answers in terms of the next line of therapy because they work the same way."

- Dr. Shadman, Fred Hutch

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Iopofosine I 131 Response Rates in WM

83.3% MRR and 16.7% CRR as Monotherapy in R/R WM

Iopofosine I 131[5]

Administered in 4 x 20-minute doses • No requirement for continuous dosing

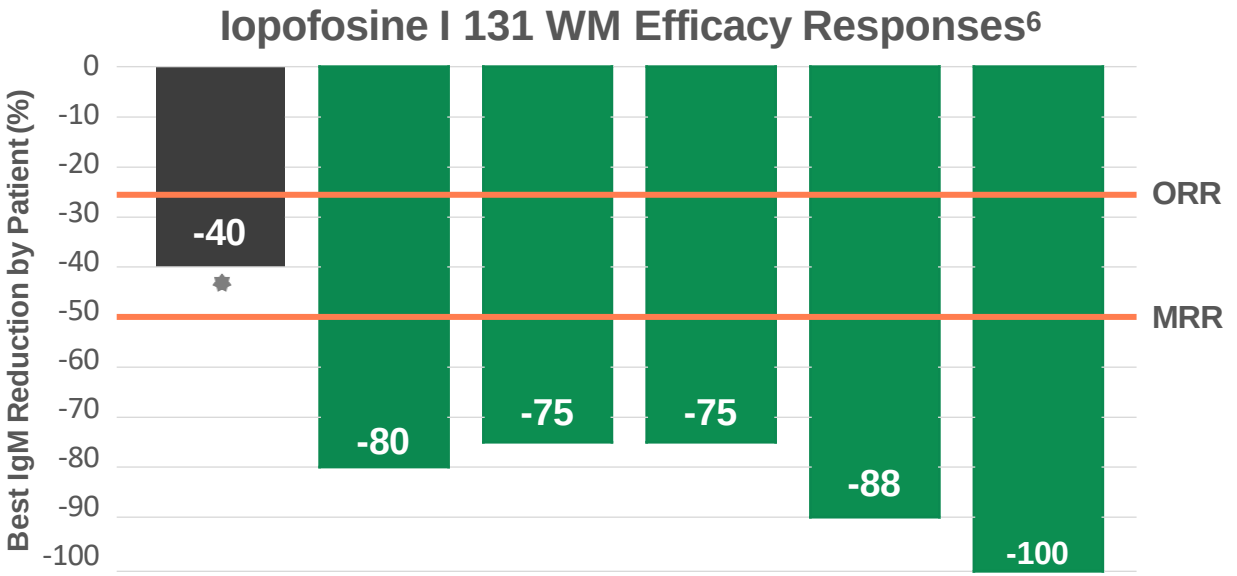
100% (6/6)
Overall Response Rate (ORR)

83.3% (5/6)
Major Response Rate (MRR)

16.7% (1/6)
Complete Response Rate (CR)

100% ORR (2/2)
in Dual Wild Type Patients

Treatment Free Remission Exceeding 1 Year



- Only treatment tested in BTKi failure patients
- Effective across all genotypes[7]
- 100% of high-risk patients achieved an MRR; including one Complete Response
- Deep and durable responses achieved in challenging relapsed or refractory patients
  - Total average ~72%
  - Median 45% reduction within 4 weeks of initial dose

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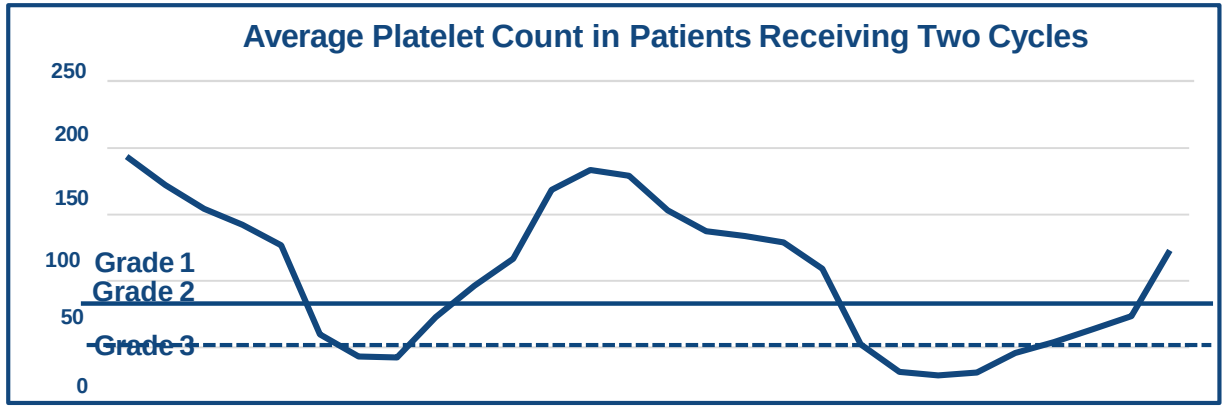
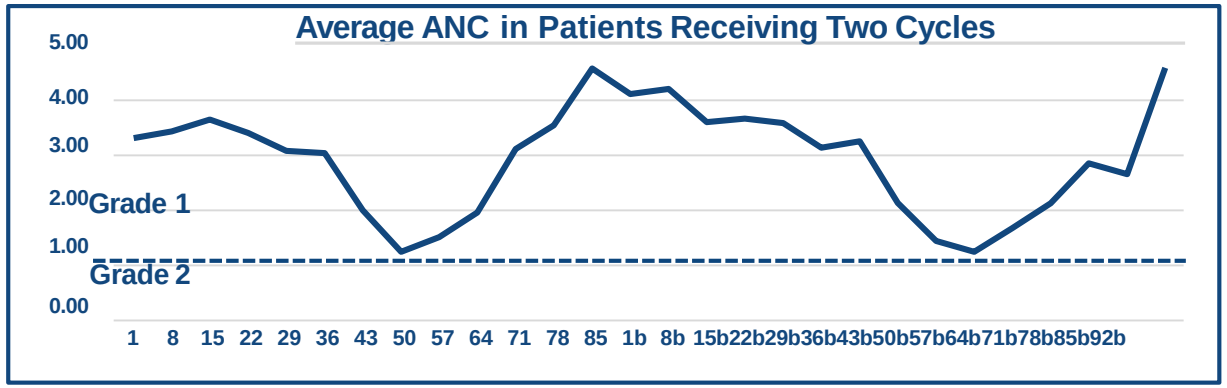
Iopofosine Safety Profile: Well-Tolerated in WM, MM and Other NHLs

Predictable and Manageable AE-profile/Predictable Time to AE-Resolution

Treatment Emergent Adverse Events[7] (≥25% of All Patients)

	All Doses	
	Total n=88	Phase 1 & 2 Pts
Preferred Term	**Overall n (%)**	**≥ Grade 3 n (%)**
Thrombocytopenia	73 (83)	64 (73)
Lymphocyte Count Decreased	40 (45)	35 (40)
Decreased White Blood Cell Count	52 (59)	41 (47)
Anemia	60 (68)	15 (17)
Neutropenia	49 (56)	45 (51)
Fatigue	51 (60)	12 (14)
Nausea	29 (33)	0





"Irrespective of the type of cytopenia, they were very predictable showing consistent timing to patients starting to experience cytopenias, the timing to nadir, and recovery."

- Sikander Ailawadhi, MD
ASCO 2021

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Iopofosine I 131: Global WM Pivotal Study Design

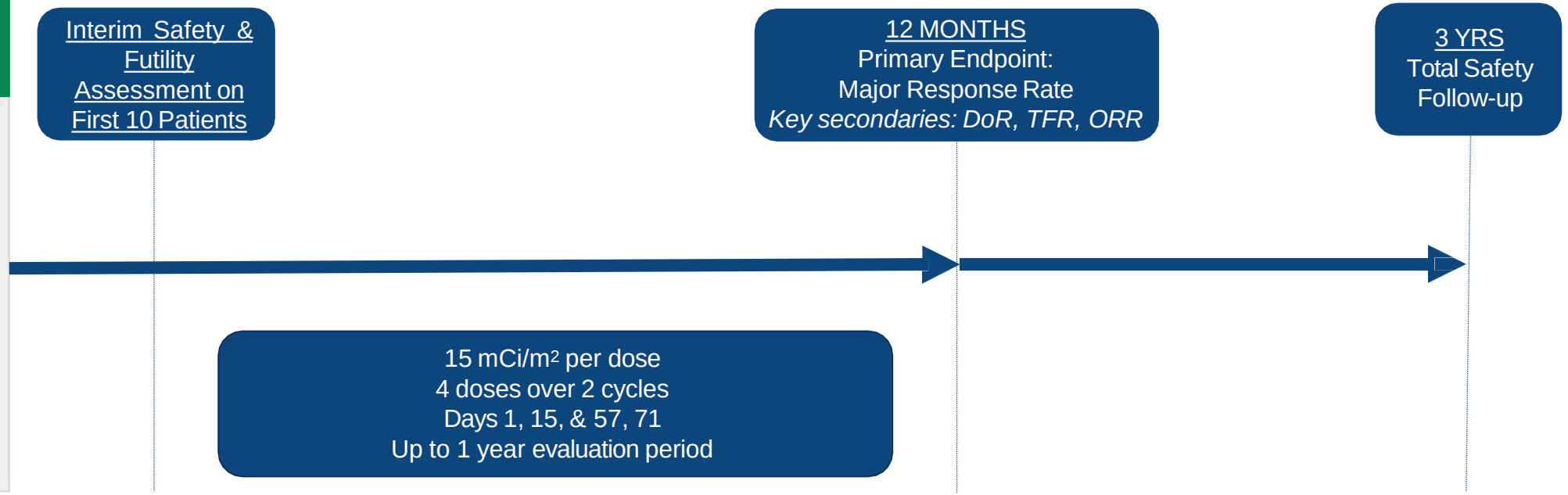
FDA Agreed Upon Pathway to Approval

Single Arm Open-label Registration Study Enrolling; Fast Track Designation

Screening	Treatment and Evaluation Period	Long Term Safety Follow-up

Enrollment Criteria

50 WM patients who received at least 2 prior lines of therapy, including failed or suboptimal response to BTKi



Primary Endpoint: Major Response Rate (MRR) of 20% (10 of 50 Patients) Achieves Statistical Significance

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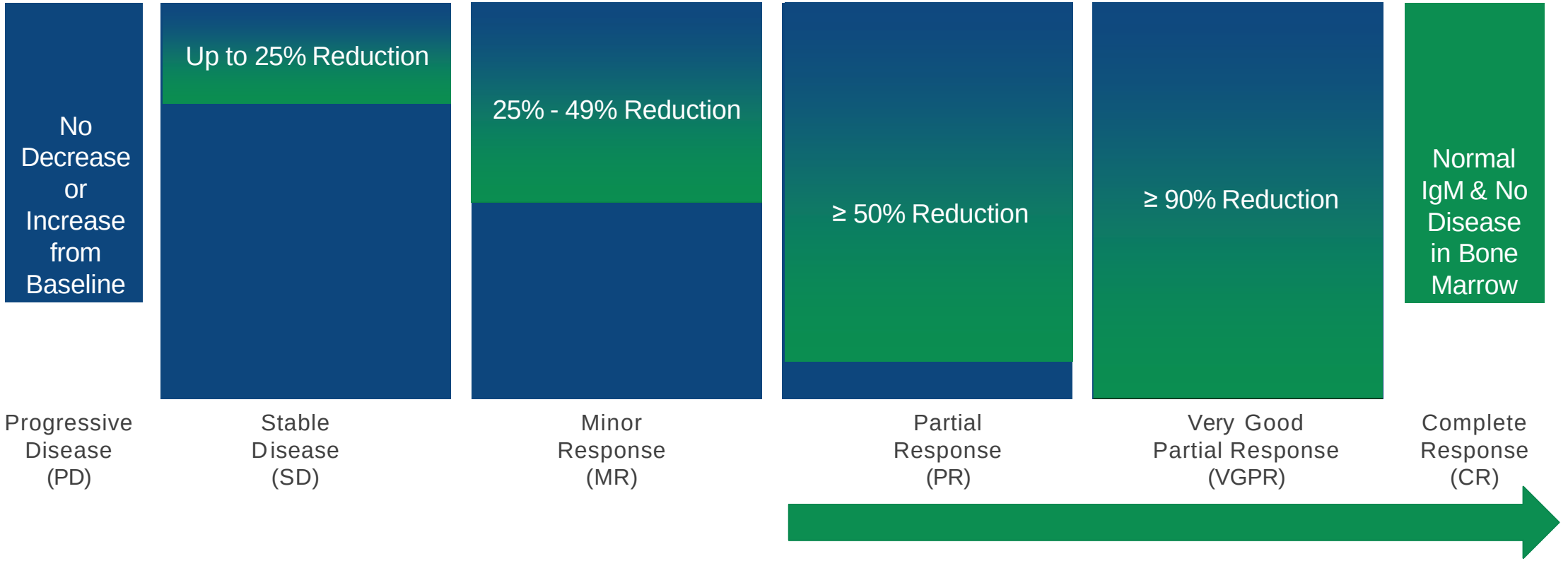
Waldenstrom's Macroglobulinemia Disease Assessment

Serum IgM is Primary Biomarker for Response Rate

Decreasing Serum IgM Levels and Clinical Symptoms/Extramedullary Disease



Iopofosine I 131 Achieved an 83.3% MRR in Phase 2a
Surpassing Pivotal Study Primary Statistical Endpoint of 20%

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WM Pivotal Study Expected Milestones

U.S. Breakthrough and EU Prime Designation Submissions Planned for 2022

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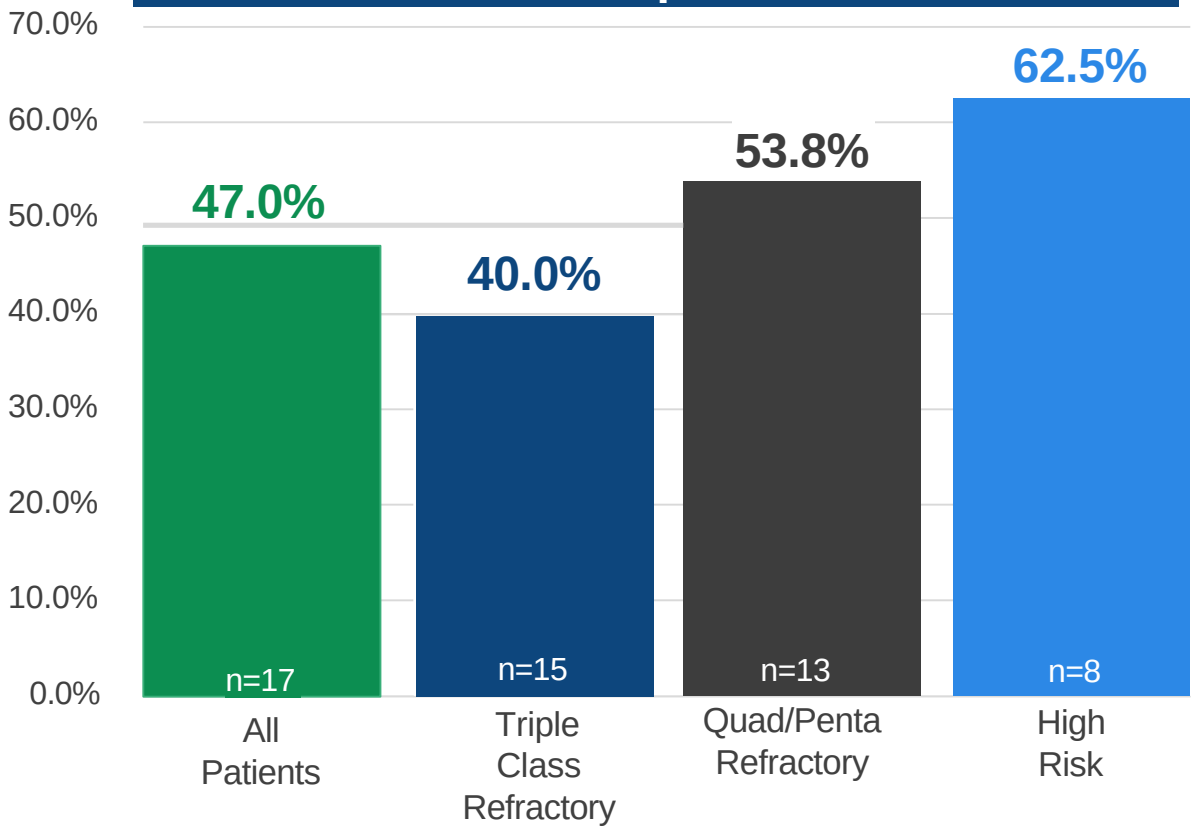
Iopofosine I 131 in Multiple Myeloma

Demonstrates Profound Activity in Late Line Difficult to Treat MM Patients

Overall Response Rate



Additional Efficacy-Related Patient Benefits

40 – 62.5% ORR in relapsed/refractory multiple myeloma

~73% clinical benefit rate in triple class refractory patients

Triple class refractory mPFS = 3.4m (belantamab = 2.9m)

100% disease control

Enrichment of Highly Refractory MM Patient Data Provides Strategic Route to NCCN Guideline Inclusion and Potential Third-party Reimbursement

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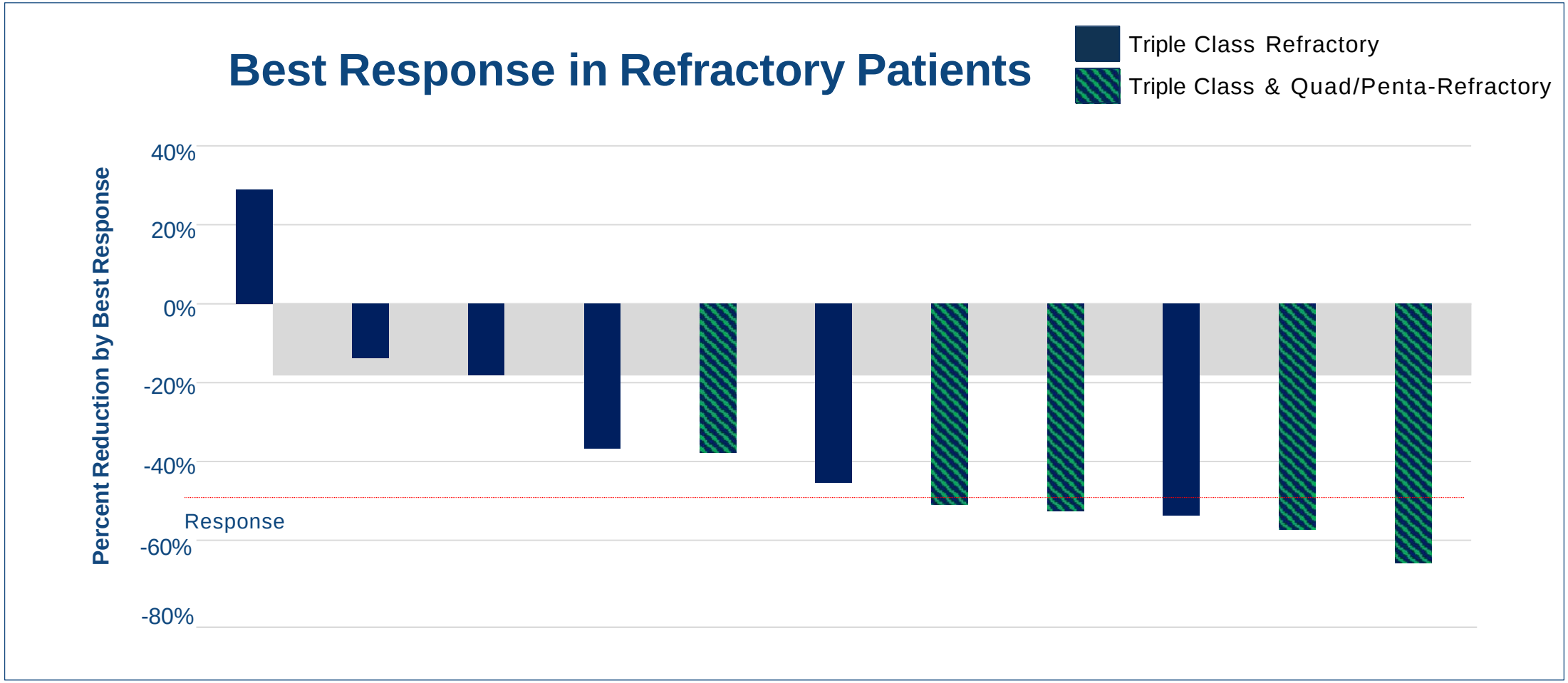
Iopofosine I 131 r/r Multiple Myeloma

Triple Class and Penta-drug Refractory



Iopofosine I 131 Demonstrates Strong Activity in Triple Class Refractory MM

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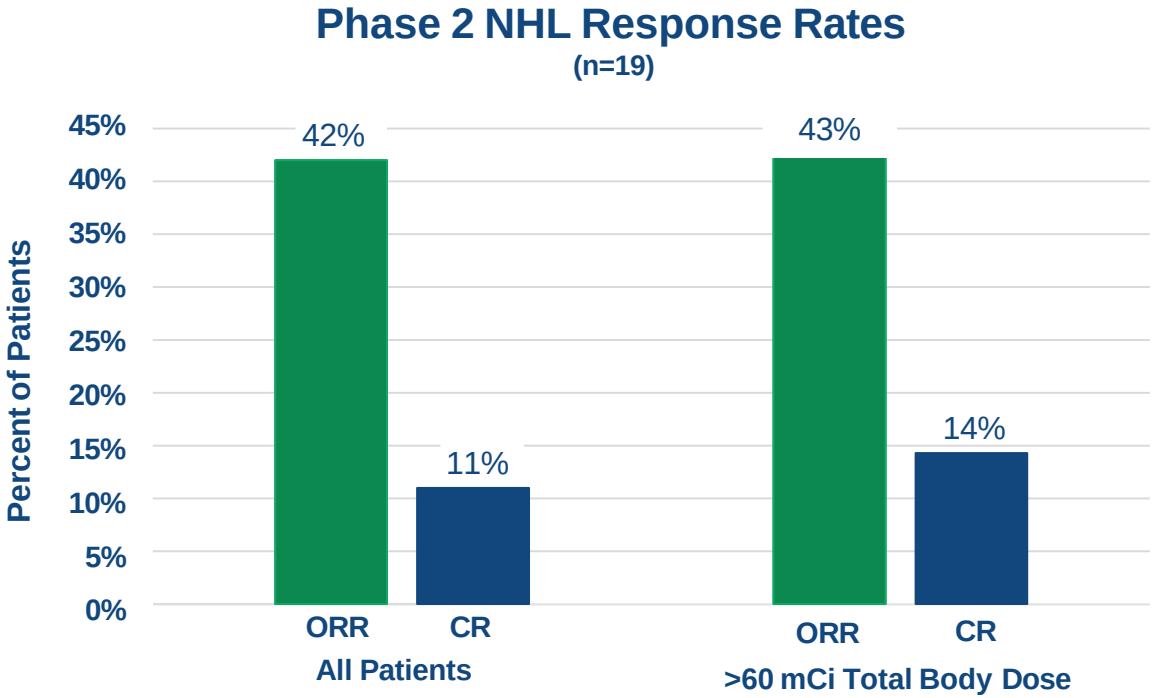
Iopofosine I 131 Phase 2 CLOVER-1 Study in B-cell Lymphomas

Part A Completed



- Median age = 70
- Median third line patients
- Highly refractory DLBCL, CLL/SLL, MZL and MCL
  - ~60% of patients were multi-drug refractory

Non-Hodgkin's Lymphoma

Key Efficacy Measures

- 43% ORR in NHL
- >14% Complete Response Rate
- 71.4% Clinical Benefit Rate
- Median tumor volume reduction of ~25%

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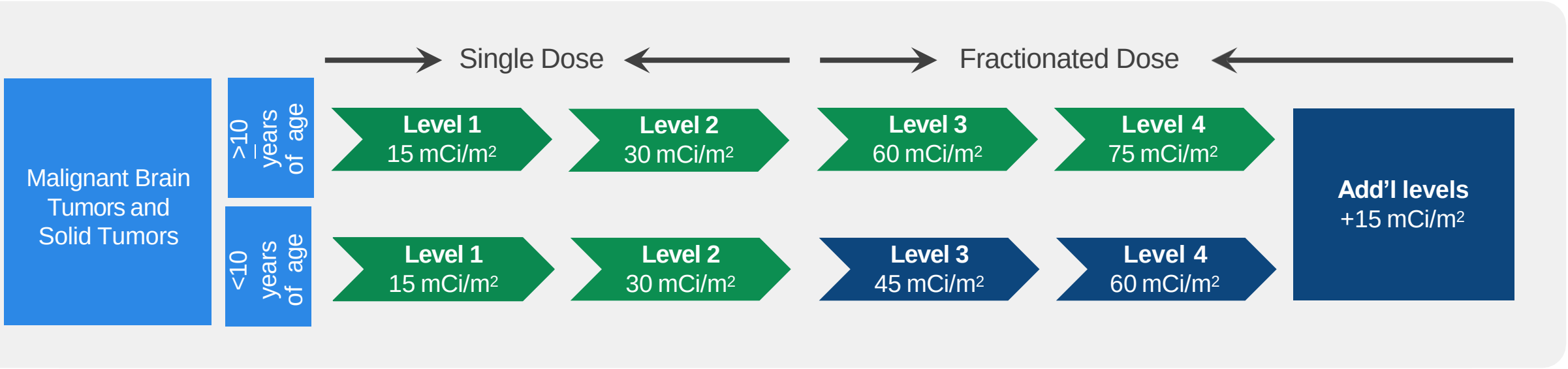
Iopofosine I 131 in Pediatric

Phase 1 Global Study – Accelerated Development Approach



Primary objective

- Part A to determine the safety, tolerability, and initial efficacy of iopofosine I 131 in children with relapsed/refractory malignancies (ongoing)
- Part B efficacy confirmation and potential pivotal study

Data Highlights:

- Demonstration of crossing blood brain barrier and uptake into brain tumors
- Therapeutic responses, evidenced by changes in tumor parameters observed in high grade glioma and soft tissue sarcomas
- Patients experiencing extended progression free survival

U.S. ODD and RPDD Granted for NB, RMS, OS and ES[8]

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Financial Summary

Cash position as of June 30, 2022 (millions)	**$**	**24.8 M**
Cash anticipated to support strategic plan into Q3 2023		

Capitalization as of March 31, 2022	
Common Stock Outstanding	6,110,123
Reserved for issuance:	
Convertible Preferred Stock	111,111
Warrants	1,563,381
Employee/Director Stock Options	657,317
Fully Diluted Shares Outstanding:	8,441,932

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Company Summary

- Developing iopofosine I 131, a small-molecule radiotherapeutic in rare adult and pediatric hematologic and solid tumor indications
- Anticipate top-line WM pivotal study data in 2H 2022; lead indication represents an underserved patient population and significant market opportunity
- Clear and defined regulatory pathway in WM; granted U.S. Orphan Drug Designation and FDA Fast Track Designation
- Efficacy demonstrated in multiple r/r cancer types including highly refractory MM - 47% ORR in hexa-line, 40% triple class and 54% quad/penta refractory
- Cash balance of $24.8 million as of June 30, 2022, supporting strategic plan beyond expected key data readouts

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Experienced Management

James Caruso
President, CEO and Director

Chad Kolean
Chief Financial Officer

Jarrod Longcor
Chief Business Officer

ALLOS™ THERAPEUTICS

NOVARTIS

Bristol Myers Squibb™

Abbott

BASF
We create chemistry

VIVEX BIOLOGICS

PIONEER® SURGICAL

TITAN SPINE

AVILLION

Melinta THERAPEUTICS

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THANK YOU

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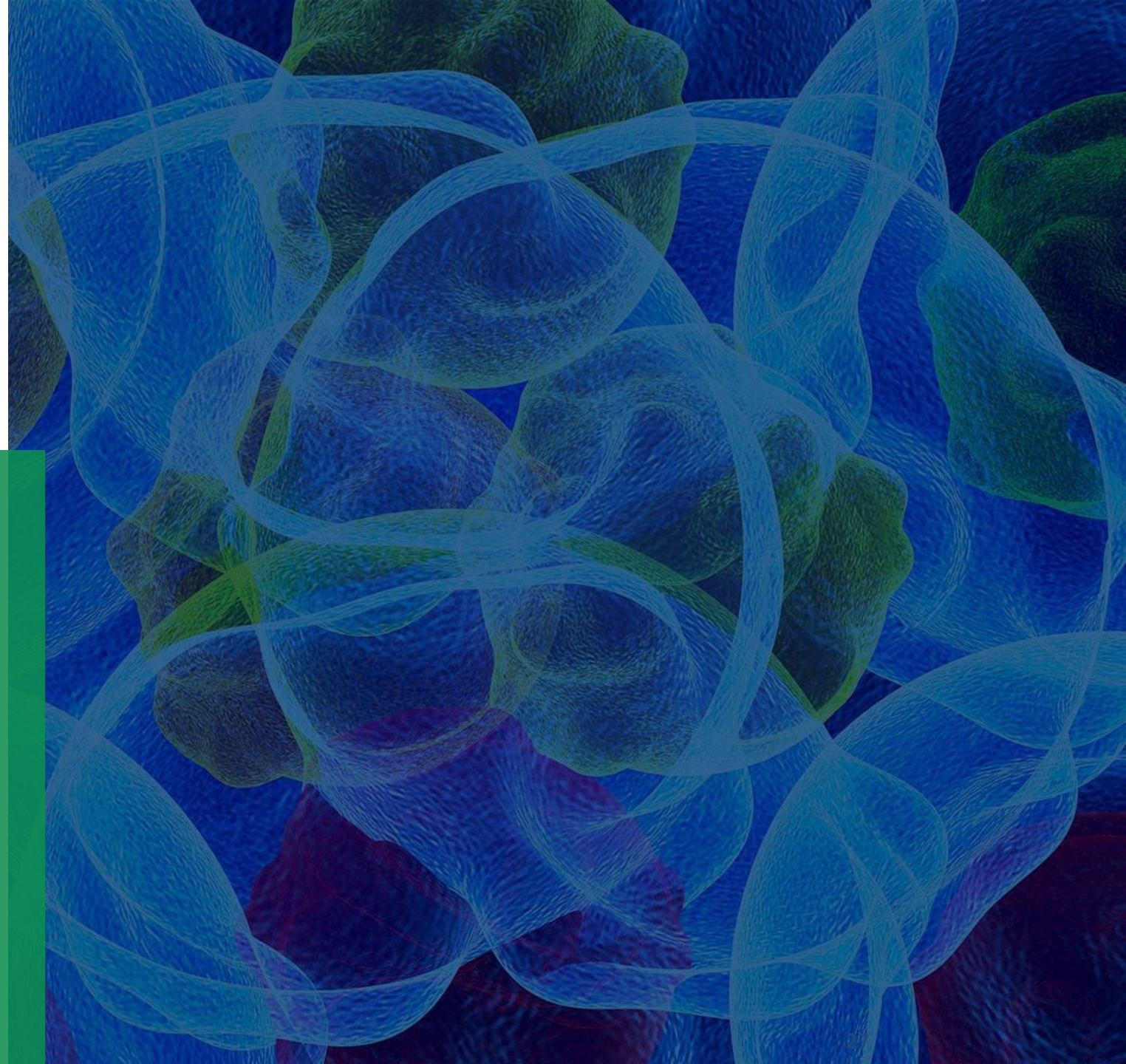

Footnotes

1. Datamonitor Healthcare; Centers for Disease Control and Prevention, 2017; Ferlay et al., 2018; National Cancer Institute, 2017; Steingrímsson et al., 2017; United Nations, 2017
2. Non-Hodgkin's Lymphoma
3. www.iwmf.com/about-wm/signs-and-symptoms
4. October 2021 IWMF Torch: Newton Guerin; Morie Gertz, MD, Mayo Clinic, Rochester, MN
5. Iopofosine I 131 Phase 2 CLOVER-1 Study in B-cell Lymphomas
6. Data as of Nov 2020
7. As of April 2021
8. U.S. Orphan Drug Designation and Rare Pediatric Disease Designation Granted for Neuroblastoma, Rhabdomyosarcoma, Osteosarcoma and Ewing's Sarcoma