MEDICENNA

TSX: MDNA OTCQX: MDNAF

Corporate Overview

H.C. Wainwright 27th Annual Global Investment Conference

Disclaimers and Forward-Looking Statements

Certain statements in this presentation may constitute “forward-looking statements” under applicable securities laws. These forward-looking statements include, but are not limited to, information about possible or assumed future results of the Medicenna Therapeutics Corp’s (the “Company” or “Medicenna”) business, clinical trials, drug development, financial condition, results of operations, liquidity, plans and objectives. Further, any statements that express or involve discussions with respect to predictions, expectations, beliefs, plans, projections, objectives, assumptions or future events or performance (often, but not always, using words or phrases such as “expect”, “seek”, “endeavour”, “anticipate”, “plan”, “estimate”, “believe”, “intend”, or stating that certain actions, events or results may, could, would, might or will occur or be taken, or achieved) are not statements of historical fact and may be “forward-looking statements”.

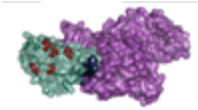
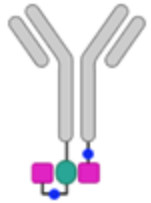
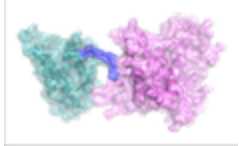
Forward-looking statements are based on expectations, estimates and projections at the time the statements are made that involve a number of risks and uncertainties which would cause actual results or events to differ materially from those presently anticipated. Forward-looking statements are based on expectations, estimates and projections at the time the statements are made and involve significant known and unknown risks, uncertainties and assumptions. A number of factors could cause actual results, performance or achievements to be materially different from any future results, performance or achievements that may be expressed or implied by such forward-looking statements. These include, but are not limited to, the risk factors discussed in the public filings made by Medicenna with the applicable securities commissions and regulators in Canada and the United States, including, but not limited to, the Annual Information Form dated June 25, 2025, filed in Canada on SEDAR+ at www.sedarplus.ca. Should one or more of these risks or uncertainties materialize, or should assumptions underlying the forward-looking statements prove incorrect, actual results, performance or achievements could vary materially from those expressed or implied by the forward-looking statements contained in this document. These factors should be considered carefully, and prospective investors should not place undue reliance on these forward-looking statements.

Although the forward-looking statements contained in this document are based upon what Medicenna currently believes to be reasonable assumptions, Medicenna cannot assure prospective investors that actual results, performance or achievements will be consistent with these forward-looking statements. Furthermore, unless otherwise stated, the forward-looking statements contained in this presentation are made as of the date hereof. Except as required by law, Medicenna does not have any obligation to advise any person if it becomes aware of any inaccuracy in or omission from any forward-looking statement, nor does it intend, or assume any obligation, to update or revise these forward-looking statements to reflect new events, circumstances, information or changes.

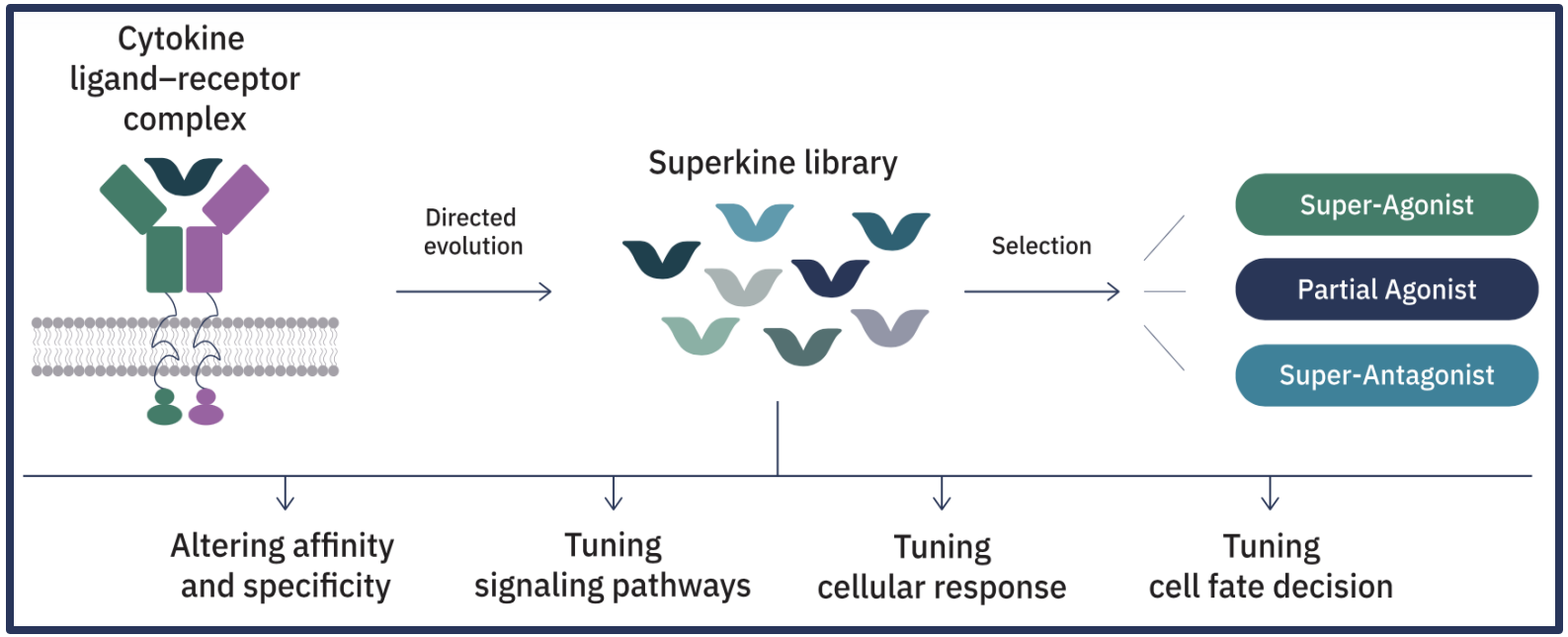
Legal Disclaimers

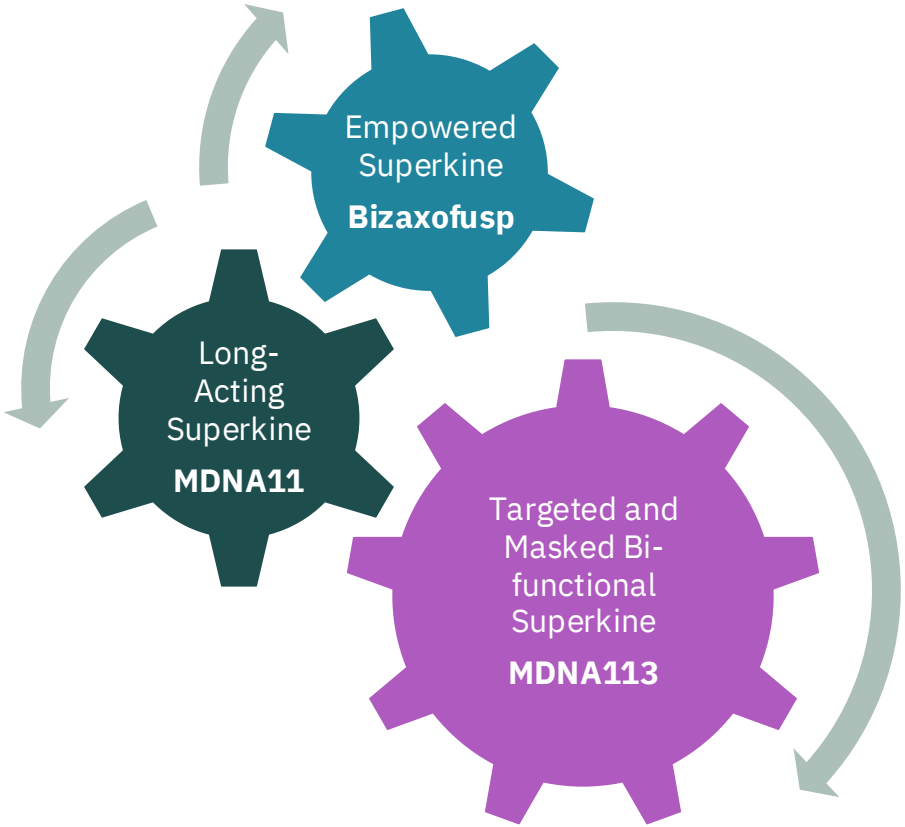
This presentation of Medicenna is for information only and does not, and is not intended to, constitute or form part of, and should not be construed as, an offer or invitation to buy, sell, issue or subscribe for, or the solicitation of an offer to buy, sell or issue, subscribe for or otherwise acquire any securities in any jurisdiction in which such offer, solicitation or sale would be unlawful, nor shall it or any part of it be relied upon in connection with or act as any inducement to enter into any contract or commitment or investment decision whatsoever.
Certain information contained in this presentation and statements made orally during this presentation relate to or are based on studies, publications and other data obtained from third-party sources and the Company’s own internal estimates and research. While the Company believes these third-party sources to be reliable as of the date of this presentation, it has not independently verified, and makes no representation as to the adequacy, fairness, accuracy or completeness of, any information obtained from third-party sources.

Clinical-Stage Immunotherapy Company Focused on **Evolutionary Superkines** to Develop **Revolutionary Medicines** for **Patients with Unmet Needs**

Programs			**Planned Milestones for H2 2025**
MDNA11 	***Best-in-class IL-2 Superkine*** **The only non-α, β-enhanced long-acting** IL-2 super agonist	**30-50% ORR** in checkpoint resistant cancers (P1/2 ABILITY-1 Trial)	➢ Complete ABILITY-1 Enrollment ➢ Monotherapy Expansion Data ➢ Top-Line Combo Data w/ KEYTRUDA®
MDNA113 	***Targeted aPD1 Bispecific*** **The only tumor-activated antiPD-1 x IL-2 bispecific** targeting IL-13Rα2 cancers	**Preclinical PoC** Promising efficacy with wide therapeutic window	➢ Non-human primate testing underway to support IND enabling studies
Bizaxofusp 	***First-in-Class IL-4R Targeted Therapy*** Delivers potent payload **treating deadliest form of brain cancer, rGBM**	**Doubling Survival** median OS ~14 months versus ~7 months for matched control	➢ Pursue partnerships to commence P3 trial in 2026

Superkine Platform Powers our Pipeline of Precision Immunotherapies





Robust and Balanced Pipeline of Early, Mid-, & Late-Stage Assets

Candidate	Indication	Discovery	Preclinical	Phase 1	Phase 2	Phase 3
MDNA11 IL-2 Super Agonist monotherapy	Various solid tumors	Key Data Readouts in H2 2025				
MDNA11 IL-2 Super Agonist KEYTRUDA® combo	Various solid tumors	Key Data Readouts in H2 2025				
MDNA113 Anti PD-1-IL-2 Masked BiSKIT	Various solid tumors expressing IL-13Rα2	IND-Enabling Ready				
MDNA209 IL-2/15 Pathway Super Antagonist	Autoimmune diseases	Select Lead				
MDNA413 IL-4/13 Pathway Super Antagonist	Inflammatory diseases	Select Lead				
Partnering Asset						
Bizaxofusp (MDNA55) IL-4–Toxin Fusion	Recurrent glioblastoma (rGBM)	Partner Phase 3 Ready Asset				

MERCK
Clinical Collaboration

MDNA11

Clinical-Stage Asset in Phase 1/2 with a Monotherapy Treatment Arm and a Combination Arm with KEYTRUDA® (pembrolizumab)

This study is in collaboration with Merck Sharp & Dohme LLC, a subsidiary of Merck & Co., Inc., Rahway, NJ, USA.

MEDICENNA

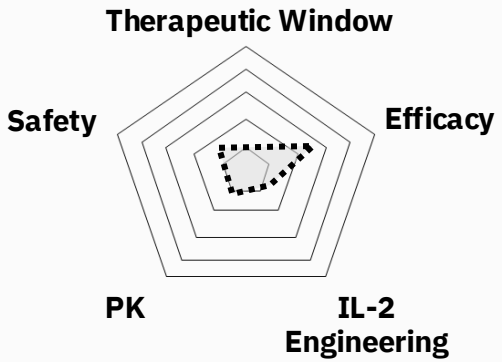
Biology-Driven Evolution of IL-2 Therapies

Wild-type IL-2

1998

PROLEUKIN® For injection (aldesleukin) Recombinant IL-2

- First approved IO drug for RCC and melanoma
- Limited clinical utility because of short half-life, toxicity



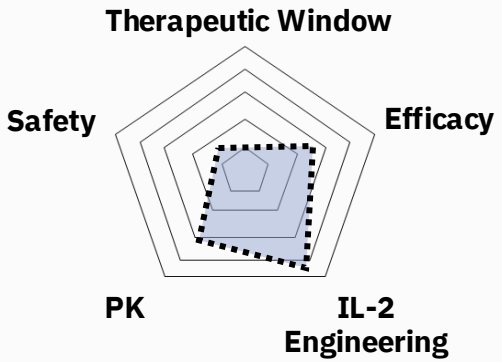
2nd Generation IL-2

2015 2017 2018

Roche NEKTAR sanofi

RG7813 (CEA/IL2v)
RG7461 (FAP/IL2v)
NKTR-214 (PEG-IL2v)
SAR-444245 (PEG-IL2v)

- Failed programs, due to poor PK/PD profiles, toxicity or lack of efficacy with PEGylation reducing potency

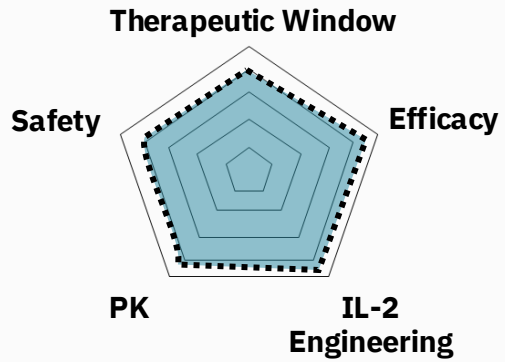


Next-Generation IL-2

Present

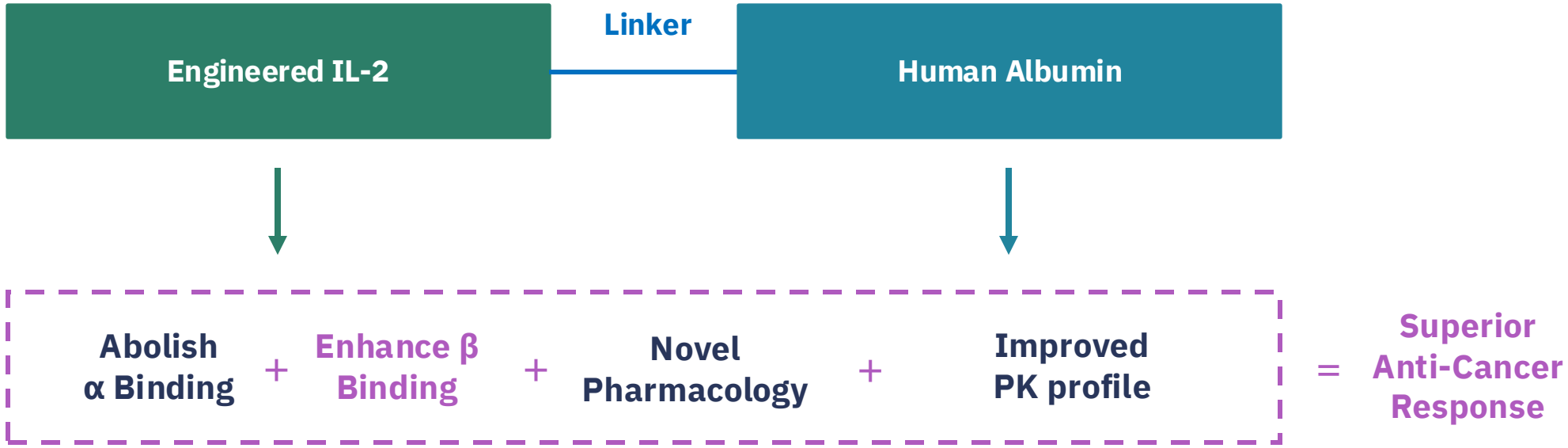
MEDICENNA

- MDNA11 continues to demonstrate best-in-class potential with durable single agent activity
- 30-50% ORR at high doses (≥60 µg/kg) in checkpoint resistant melanoma, MSI-H, TMB-H cancers with potential for Phase 2b registrational trials based on unmet need



MDNA11: Novel ‘Beta-Enhanced Not-Alpha’ Pharmacology

Superior selectivity and anti-cancer response with enhanced ‘β-only’ binding



- ↓ Tregs
- ↑ Safety

- ↑ Effector Cell Activation
- ↑ T Cell Memory Response
- ↑ Effective Against MHC I–Deficient Tumors
- ↓ NK Cell Exhaustion

- ↑ Half-Life
- ↑ Tumor Accumulation
- ↑ Localization in Tumor & Tumor Draining Lymph Nodes

ABILITY-1 Phase 1/2 Trial: Expansion Phase In-Progress

Monotherapy and KEYTRUDA® combination for advanced solid tumors

☑ Escalation Enrollment Complete

MDNA11 Monotherapy

90 µg/kg
RDE

MDNA11 + KEYTRUDA®

90 µg/kg
cRDE

Expansion Enrollment Underway

High unmet need tumors with **potential for accelerated approval**

MONOTHERAPY	COMBINATION
Cutaneous Melanoma *Secondary ICI-resistant*	**Cutaneous Melanoma** *Primary ICI-resistant*
MSI-H / dMMR	**MSI-H / dMMR**
TMB-H	**TMB-H**
Virally Associated Tumor[1]	**Gynecological Cancer**

'Phase 2 eligible patients' refer to patients with cancers planned for phase 2 expansion cohorts treated with ≥60 µg/kg MDNA11 Q2W

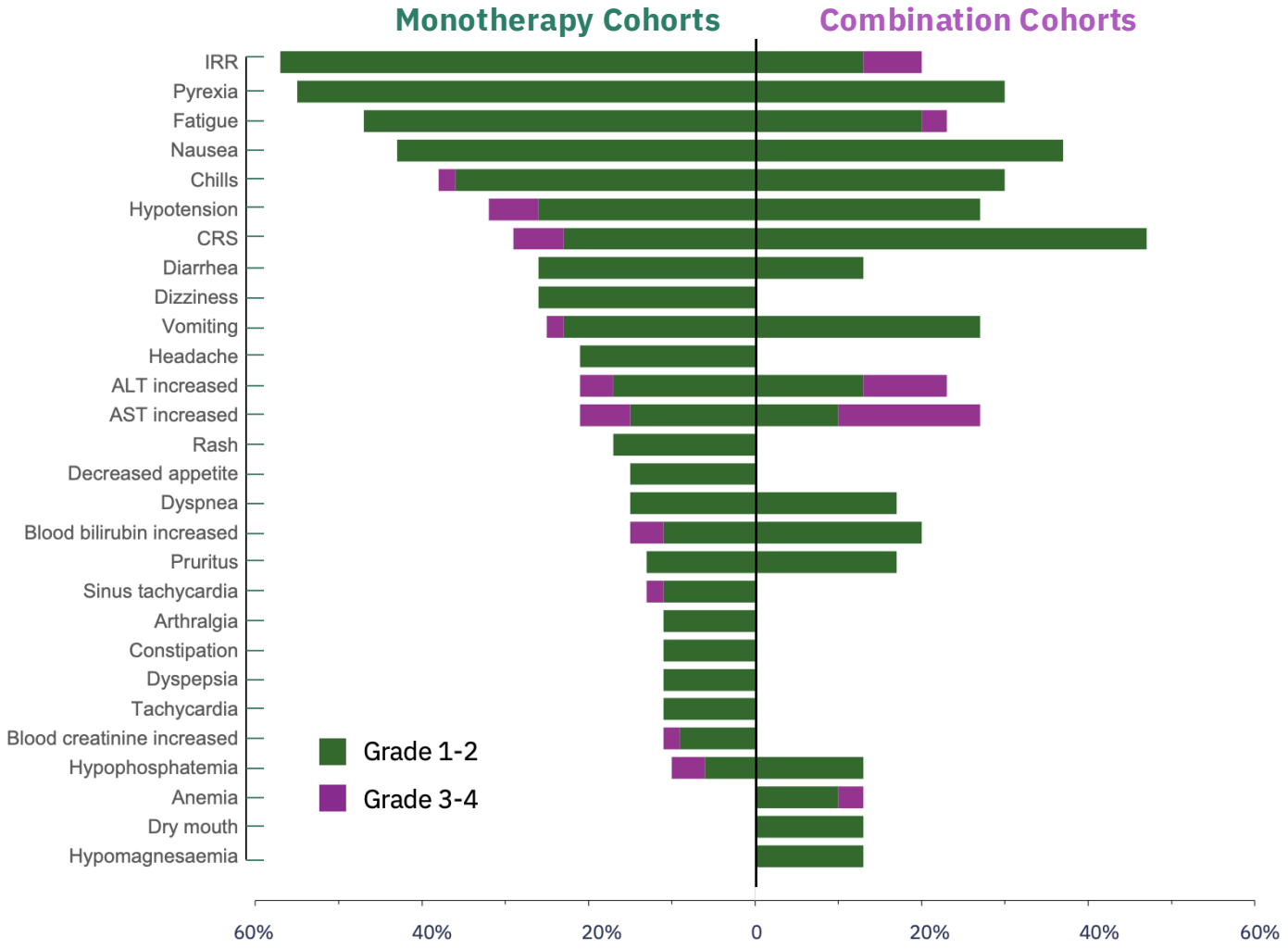
ClinicalTrials.gov Identifier: NCT05086692

[1] Replaced non-melanoma skin cancer cohort

CPI, immune checkpoint inhibitor | RDE, recommended dose for expansion
ABILITY-1: **A** **B**eta-only **IL**-2 **I**mmuno**T**herap**Y** Study

Desirable Safety Profile With No Dose Limiting Toxicities (DLTs)

Treatment Related Adverse Events (TRAEs) in ≥ 10% of Patients



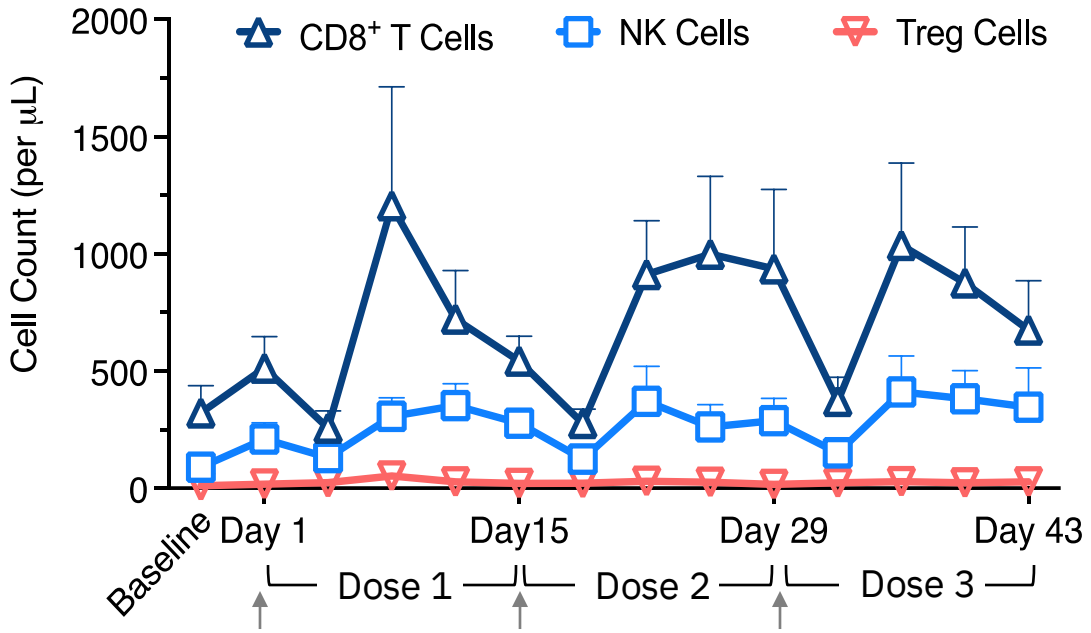
- Majority TRAEs were Grade 1-2 (> 92%) and resolved within 48 hours
- Grade 3 liver function test elevations (ALT/AST) were asymptomatic and transient
- Monotherapy: grade 3 hypotension in patients with adrenal insufficiency
- No non-laboratory grade 4 TRAEs

Data cut-off: April 15, 2025

CRS, cytokine release syndrome | IRR, infusion related reaction

Sustained Effector Cell Expansion with Repeat Dosing and Enhanced Stemness, Activation, and Memory

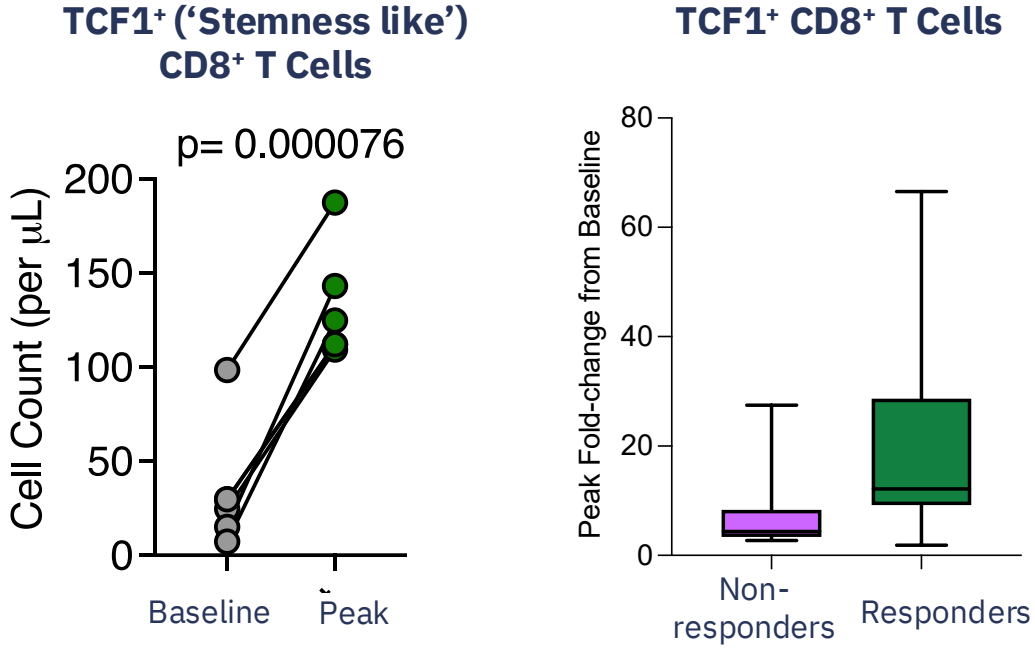
Sustained effector cell expansion



Analysis of PBMC processed from whole blood

Patients Treated with MDNA11 90 µg/kg Q2W
(Recommended Dose for Expansion)

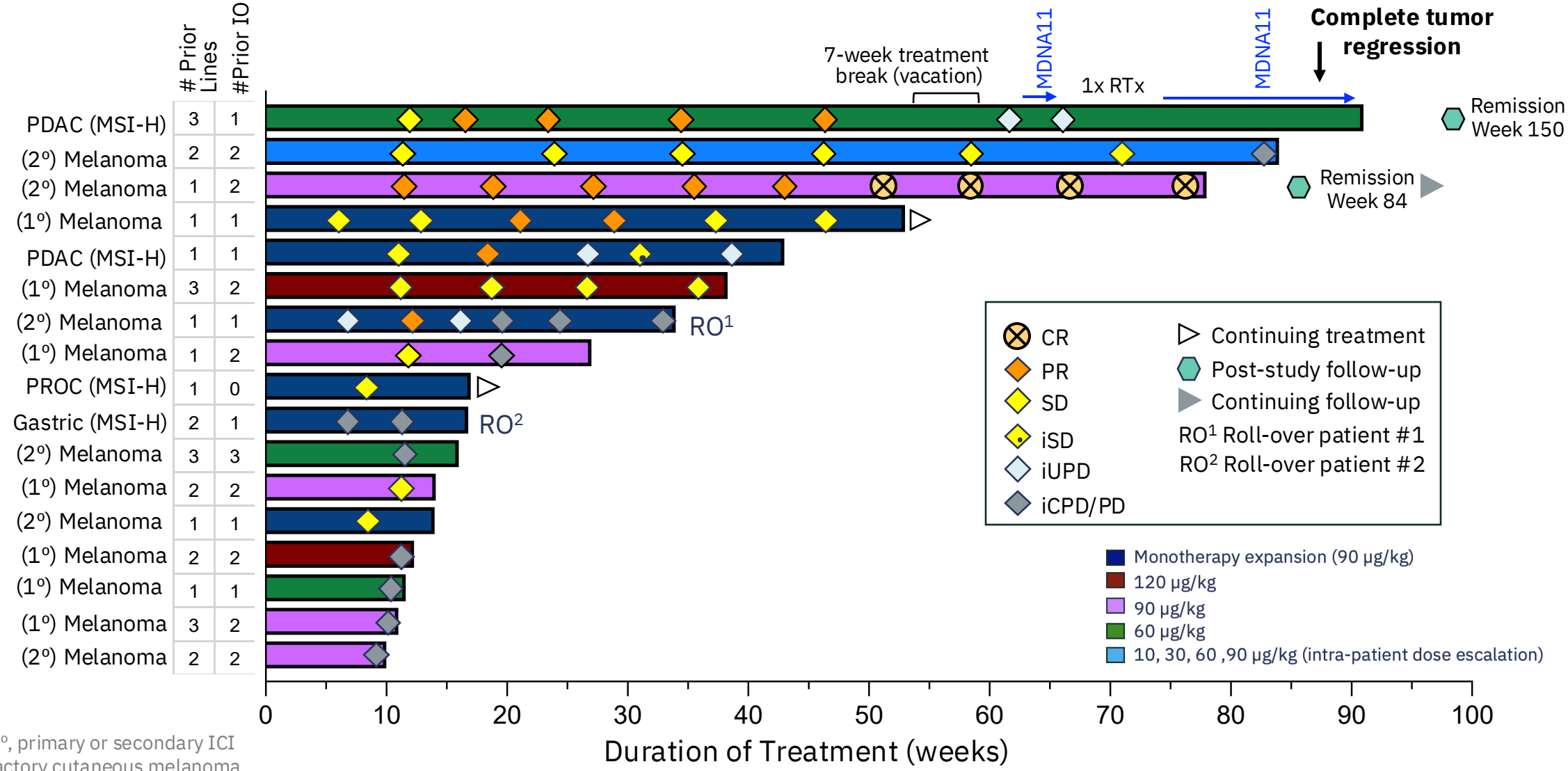
Memory and Stemness Immunodynamics Differentiate MDNA11 from other IL-2s



Patients Treated with MDNA11 ≥ 60 µg/kg Q2W

p-values based on paired t-test

Monotherapy: MDNA11 Shows Durable Tumor Response In Patients Who Failed Prior Immunotherapy

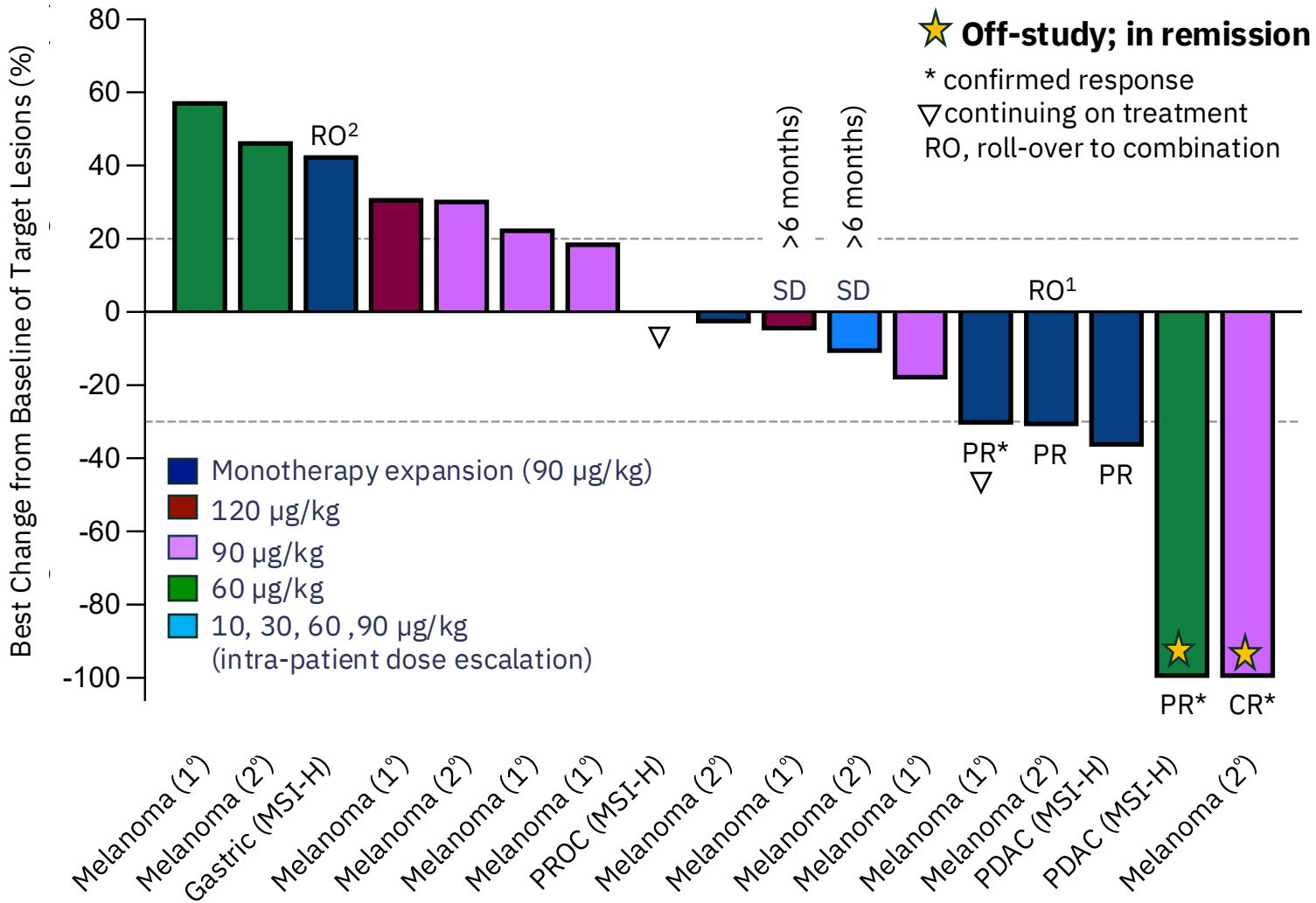


1º/2º, primary or secondary ICI refractory cutaneous melanoma

Phase 2 Expansion Eligible and Primary ICI Resistant Melanoma Patients Treated with ≥ 60µg/kg MDNA11
PDAC, pancreatic ductal adenocarcinoma; PROC, platinum resistant ovarian cancer

Data cut-off: April 15, 2025

Monotherapy: 1 CR, 4 PRs, Including 100% Reduction of Target And Non-target Lesions In 2 Patients



Data cut-off: April 15, 2025

Monotherapy ORR

40%[1] (1 CR, 3 PRs)
Ph2 eligible patients (n = 10)

29.4%[2] (4 PRs, 1 CR)
Ph2 eligible + 1° ICI-resistant melanoma (n = 17)

Tumor-Specific ORR

50% (2 PRs)
MSI-H tumors (n = 4)

33% (1 CR, 1 PR)
2° ICI-resistant melanoma (n = 6)

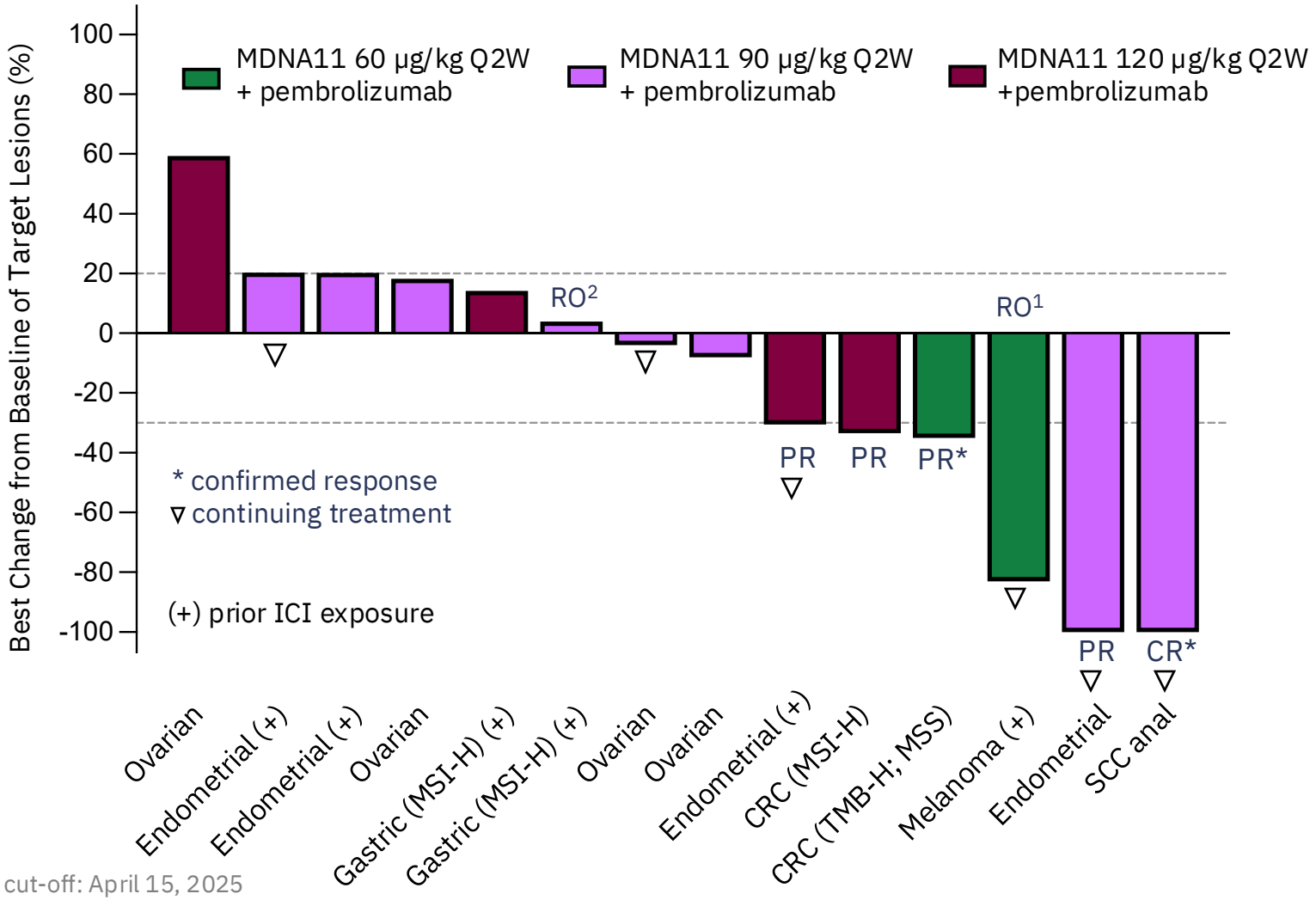
Disease Control Rate: 65%
1 CR, 4 PRs, 6 SDs (11/17)

Clinical Benefit Rate: 41%
1 CR, 4 PRs, 2 Durable SD (7/17)

[1] 95% CI: 17-69%
[2] 95% CI: 13-53%

ICI, immune checkpoint inhibitor | CR, complete response | PR, partial response | SD, stable disease

Combination Dose Escalation: Clinical Activity Across Multiple Tumor Types With Historically Low Immunotherapy Response Rates



Combination ORR

31%[1]
(4 PRs)
Ph2 eligible patients[3]
(n = 13)

36%[2]
(1 CR, 4 PRs)
Ph2 eligible + virally associated tumors
(n = 14)

Tumor-Specific ORR

50%
(2 PRs)
Endometrial cancer
(n = 4)

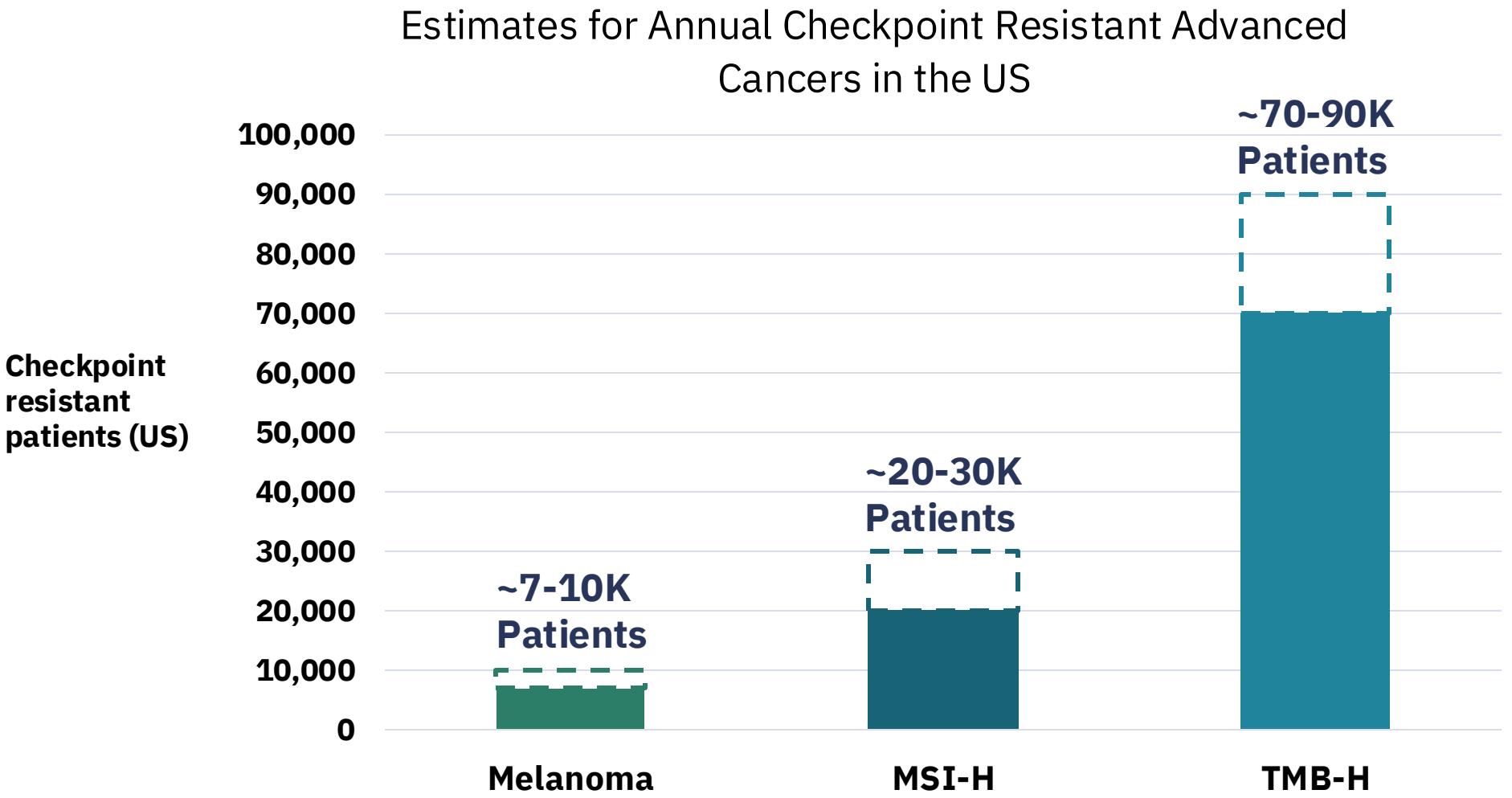
Disease Control Rate: 57%
1 CR, 4 PRs, 3 SDs (8/14)

[1] 95% confidence interval: 13-58%
[2] 95% confidence interval: 16-61%
[3] Excludes CR in anal SCC

Data cut-off: April 15, 2025

This study is in collaboration with Merck Sharp & Dohme LLC, a subsidiary of Merck & Co., Inc., Rahway, NJ, USA.
Pembrolizumab: 400 mg (Q6W) | CRC, colorectal cancer | SCC, squamous cell carcinoma

Addressable Markets In Checkpoint-Resistant MSI-H, TMB-H and Melanoma Cancers



Future MDNA11 Development Potential

MDNA11 has the potential to expand into additional tumor types where PD-(L)1 is approved

Additional tumor types with US revenue > $30B (in 2024)

Source: SEER; American Cancer Society; Marcus L et al. Clin Cancer Res 2021; Jung J et al. J Immunother Cancer 2023; Wang R et al. Biomol Biomed 2023; Nayan L et al. JAMA 2022; Serra-Bellver P et al. EJ Cancer 2022.

MDNA113

Lead Pre-clinical Program

PD-1 x IL-2 Bi-specific Molecule

First-in-Class with Novel IL-13 Targeted and Conditionally Activated Bifunctional Approach

MEDICENNA

Commercial Interest in Anti-PD1 Bi-Specifics is Accelerating

Big Pharma is Facing a Patent Cliff for Checkpoint Inhibitors

	MERCK	Bristol Myers Squibb	REGENERON	Roche	AstraZeneca	MERCK
Approved CPI	Keytruda	Opdivo	Libtayo	Tecentriq	Imfinzi	Bavencio
Peak Sales / LoE[1]	**$30B** / 2028	**$12B** / 2028	TBD / 2035	**$6B** / 2030	**$7B** / 2031	TBD / 2036

Anti-PD1 Bi-specifics are Gaining Significant Interest

$500M upfront, up to $5B	*$588M upfront, up to $2.7B*	*$1.5B upfront, up to $11B*	*$1.25B upfront, up to $6B*
Summit therapeutics	MERCK	BIONTECH	Pfizer
Akesobio	礼新医药 LaNova Medicines	Bristol Myers Squibb	三生制药 3SBIO INC.

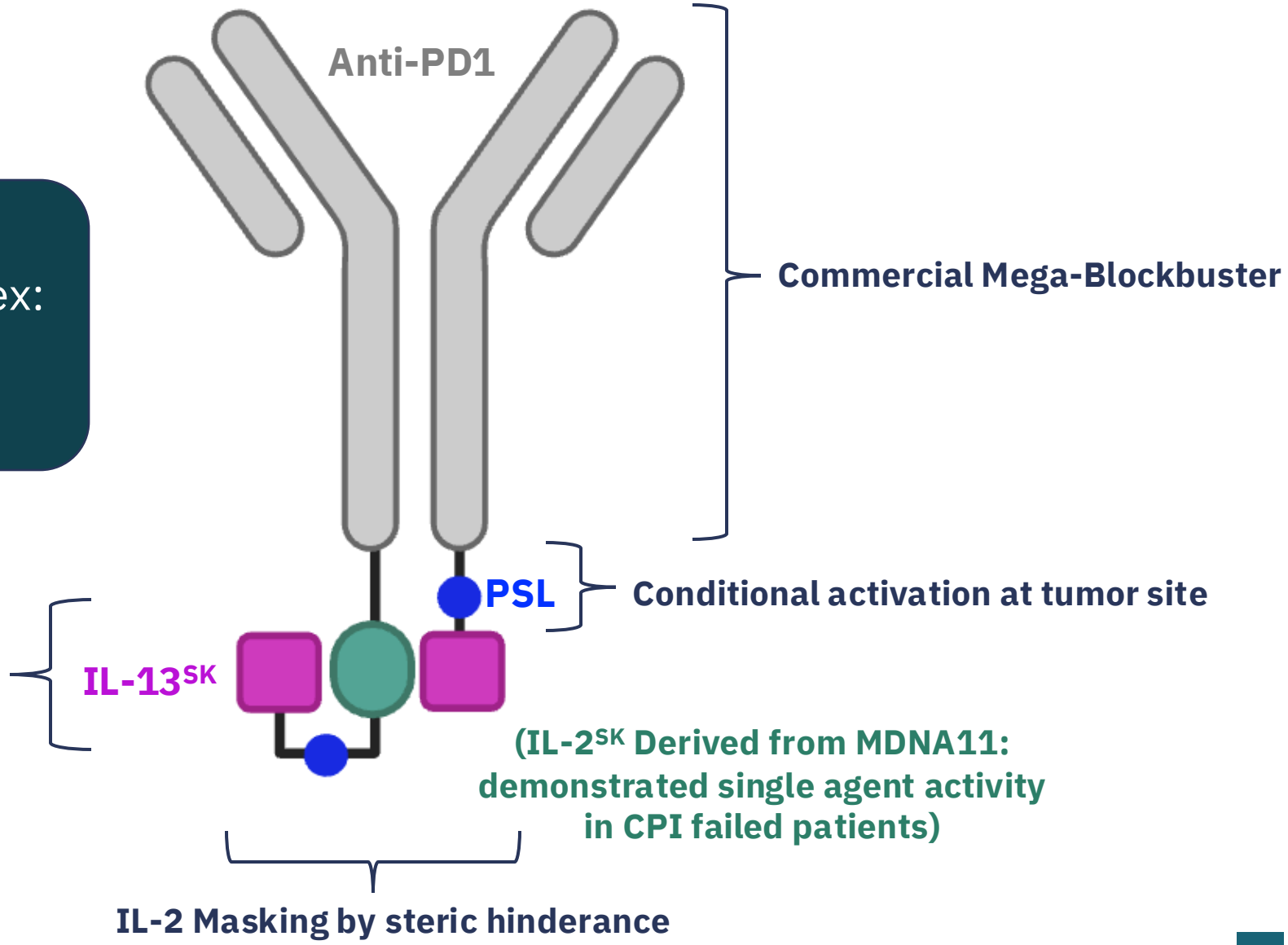
[1] Loss of exclusivity

MDNA113 is a Tumor Targeting & Conditionally Activated Anti-PD1-IL-2^{SK} BiSKIT

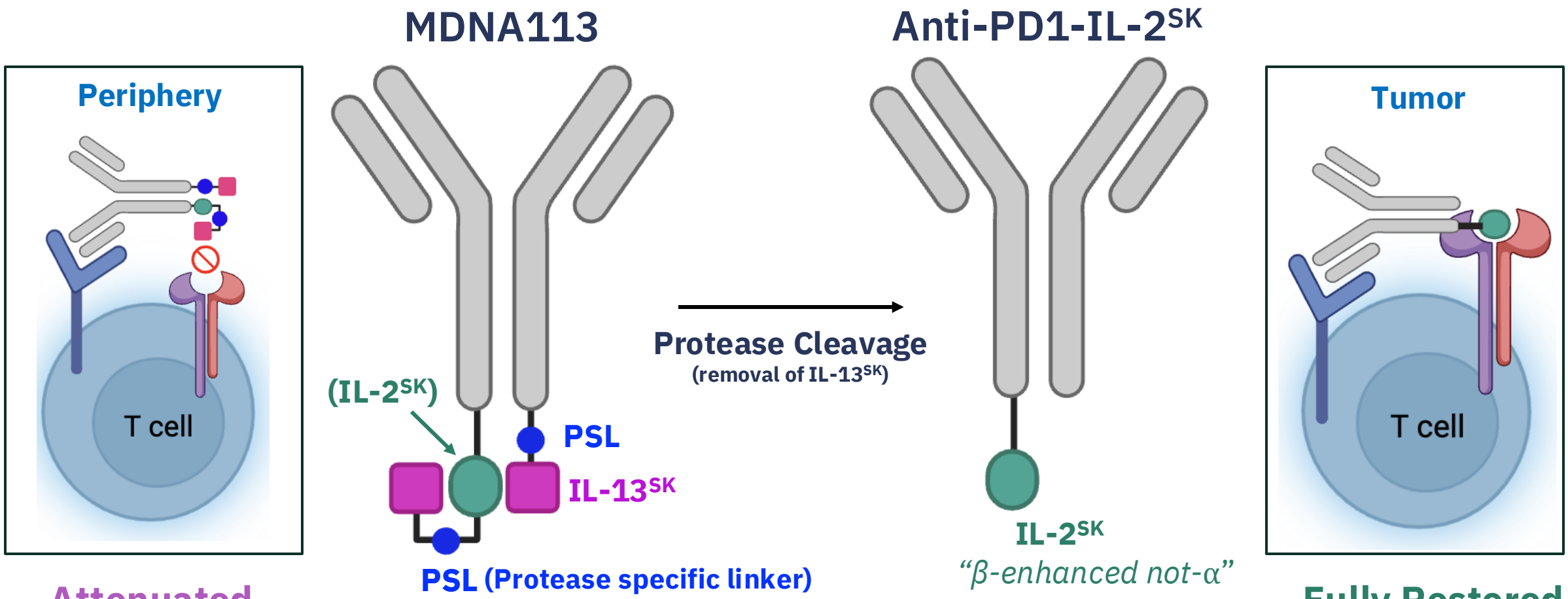
MDNA113

Designed to Widen Therapeutic Index:

- ❖ Reduces risk of systemic toxicity
- ❖ Maximizes therapeutic activity



MDNA113 is a Tumor Targeting & Conditionally Activated Anti-PD1-IL-2^{SK} BiSKIT



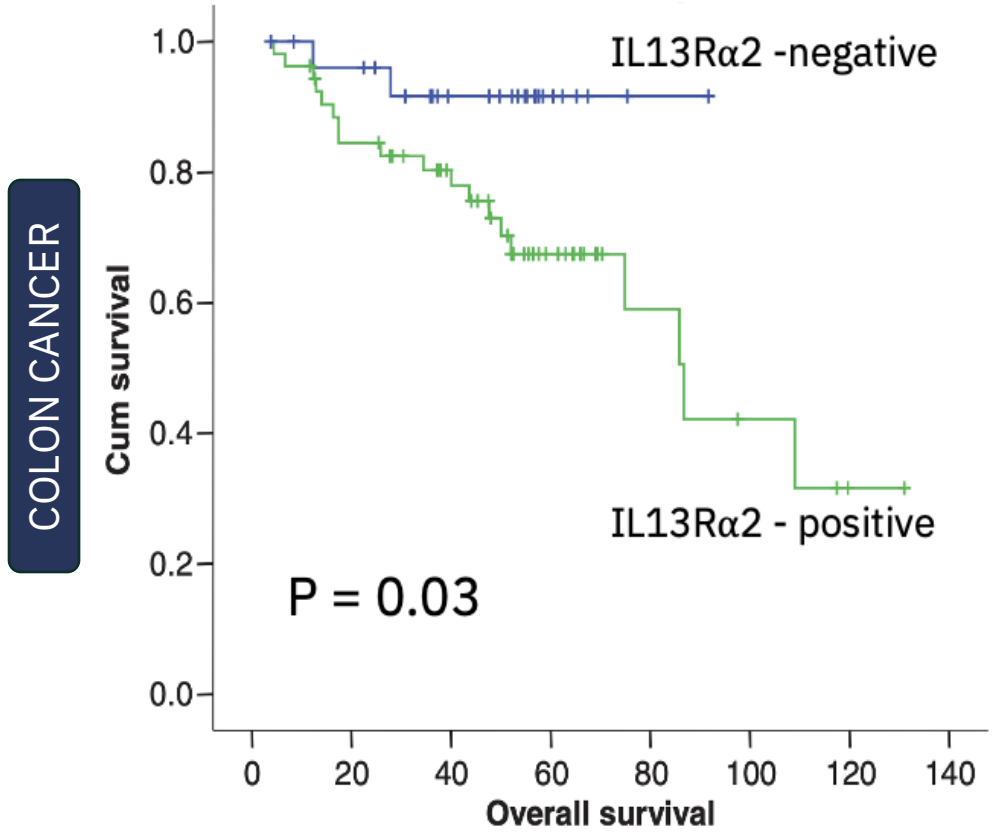
Attenuated
IL-2R Agonism
(due to steric hindrance from IL-13^{SK} moieties)

Fully Restored
IL-2R Agonism
CIS binding

IL-13Rα2 is Expressed in Many Cancers Affecting ~2M Patients/Year Globally

Mega-Blockbuster Potential: High IL-13Rα2 expression is associated with poor clinical outcomes

Liver Cancer 82% Hou et al., J Cancer Res & Clinical Oncol (2009)	**Breast Cancer** 75% Papageorgis et al., Br Cancer Res (2015)	**Glioblastoma** 75% Joshi et al., Cancer Res (2000)
Pancreatic Cancer 71% Shimamura et al. Clin Cancer Res (2010)	**Colon Cancer** 66% Barderas et al., Cancer Res (2012)	**Kidney Cancer** 53% Kang et al., J Per Med (2021)
Prostate Cancer 47% Nagai et al., Cancer Reports (2023)	**Lung Cancer** 44% Xie et al., Oncotarget (2015)	**Head & Neck Cancer** 33% Kawakami et al., Clin Cancer Res (2003)
Ovarian Cancer 75% Kioi et al., Cancer (2006)	**Mesothelioma** 50% Oncomine Cancer MicroArray (OMCA Database)	**Melanoma** 32% Beardi et al., Clin Cancer Res (2013)



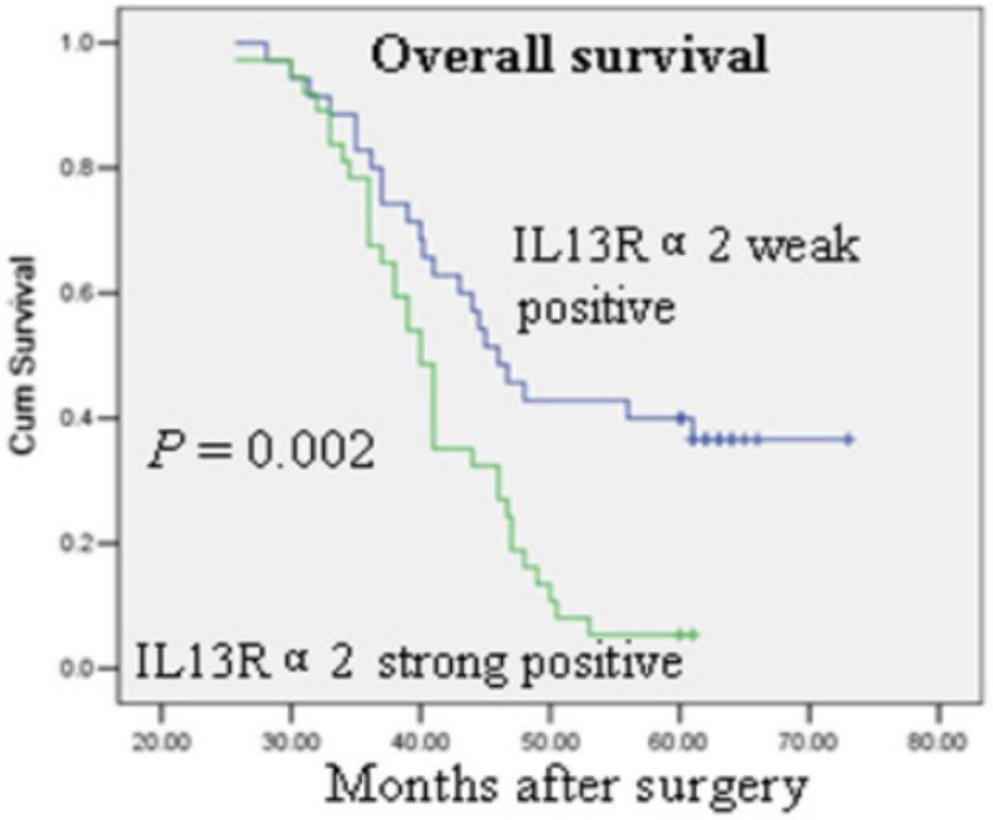
Barderas et al., Cancer Res, 2012

IL-13Rα2 is Expressed in Many Cancers Affecting ~2M Patients/Year Globally

Mega-Blockbuster Potential: High IL-13Rα2 expression is associated with poor clinical outcomes

Liver Cancer 82% Hou et al., J Cancer Res & Clinical Oncol (2009)	**Breast Cancer** 75% Papageorgis et al., Br Cancer Res (2015)	**Glioblastoma** 75% Joshi et al., Cancer Res (2000)
Pancreatic Cancer 71% Shimamura et al. Clin Cancer Res (2010)	**Colon Cancer** 66% Barderas et al., Cancer Res (2012)	**Kidney Cancer** 53% Kang et al., J Per Med (2021)
Prostate Cancer 47% Nagai et al., Cancer Reports (2023)	**Lung Cancer** 44% Xie et al., Oncotarget (2015)	**Head & Neck Cancer** 33% Kawakami et al., Clin Cancer Res (2003)
Ovarian Cancer 75% Kioi et al., Cancer (2006)	**Mesothelioma** 50% Oncomine Cancer MicroArray (OMCA Database)	**Melanoma** 32% Beardi et al., Clin Cancer Res (2013)

LUNG CANCER



Xie et. al. Oncotarget, 2015

Potential Benefits of MDNA113 versus Competing Programs

Innovent

PD-1/IL-2$^{\alpha\text{-bias}}$

- Early signs of efficacy in CPI-naïve patients
- Advancing into Phase 2 and Phase 3 Registrational Trials
- **Grade 5 events consistent with IL-2Rα binding and native IL-2**
- **Due to toxicity, IBI363 is capped on its dosage**

	Cutaneous (N=19)	Acral (N=7)	Mucosal (N=11)
Prior treatment lines ≥2, n (%	13 (68.4)	7 (100)	7 (63.6)
Median duration of prior IO treatment, months	5.6	11.3	5.2
Best overall response, n (%)			
CR	1 (5.3)	0	0
PR	5 (26.3)	3 (42.9)	2 (18.2)
SD	7 (36.8)	2 (28.6)	7 (63.6)
PD	6 (31.6)	2 (28.6)	1 (9.1)
Not evaluable	0	0	1 (9.1)
ORR, % (95% CI)	31.6 (12.6-56.6)	42.9 (9.9-81.6)	18.2 (2.3-51.8)
DCR, % (95% CI)	68.4 (43.4-87.4)	71.4 (29.0-96.3)	81.8 (48.2-97.7)

MEDICENNA

PD-1/IL-2$^{\text{non-}\alpha,\ \beta\ \text{enhanced}}$

- IL-13Rα2 tumor-anchoring
- Activation of drug at tumor site
- Designed to be safer via with conditional activation (i.e. not capped on dosage)
- Targets cold tumors
- **IL-2 component alone of MDNA113 has comparable efficacy to IBI363 in cutaneous melanoma (~30% ORR)**

MDNA113 is Designed to Precisely Deliver a Bifunctional Anti-PD1-IL2 to Maximize Therapeutic Index

Differentiation of MDNA113 to other Bifunctional Anti-PD1-IL-2 Clinical Candidates

KEY FEATURES	Medicenna MDNA113	Other IL2/anti-PD1 candidates
β–enhanced and not-α IL-2^{SK} (clinically validated)	✓	✗
Tumor Specific Targeting via Validated IL-13Rα2	✓	✗
PD-1/PD-L1 Blockade using mega-blockbuster vs novel	✓	✓✗
Cis-binding (IL-2R/PD-1) (Synergistic engagement potentiates immune activation)	✓	✓✗
IL-2^{SK} attenuated in periphery	✓	✓✗
IL-2^{SK} activated in TME	✓	✓✗

Bizaxofusp (MDNA55) for Recurrent GBM

A Phase 3-Ready Asset with Orphan Drug Status, Fast Track Status and an FDA-Endorsed Pivotal Phase 3 Trial Design

Pursuing a Development and Commercial Partnership

MEDICENNA

Bizaxofusp: A Molecular Trojan Horse

A first-in-class phase 3-ready empowered IL-4 superkine for recurrent GBM

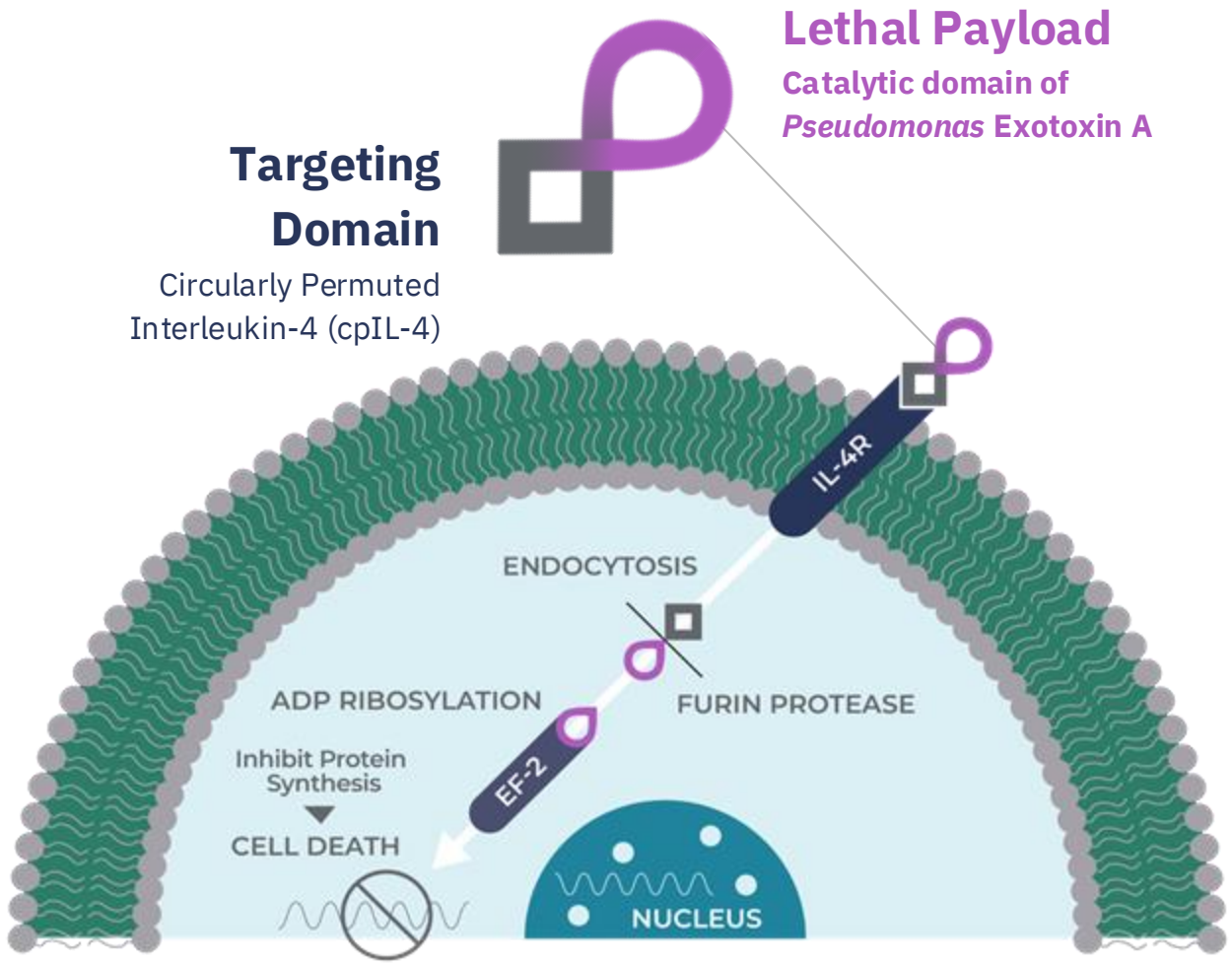
Approach By-Passes BBB
Intra-tumoral administration **avoids systemic toxicity** and achieves tumor control

Targets IL-4R
Receptor is expressed in brain tumors and immunosuppressive, non-malignant TME, **but not in healthy brain cells**

Highly Selective
Avoids off-target toxicity

Disrupts the TME
Targets IL-4R positive MDSCs in GBM uncloaks the immunosuppressive TME

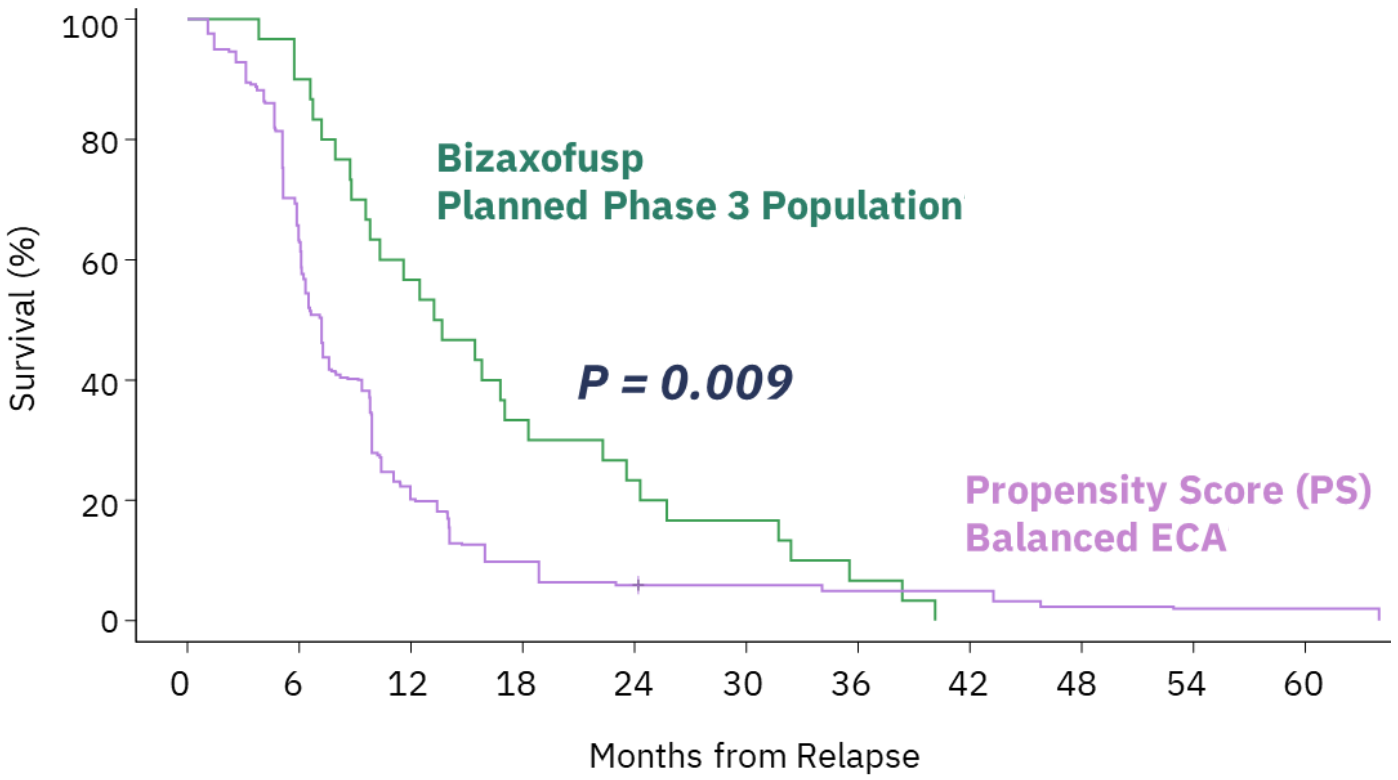
Causes Immunogenic Cell Death
Sustained anti-tumor immunity remains after clearance of bizaxofusp



BBB, blood-brain barrier | CED, convection enhanced delivery | TME, tumor microenvironment | MDSCs, myeloid-derived suppressor cells

Single Treatment **Doubled Median Overall Survival (OS)**

OS increased by 180% at 12 months and 290% at 24 months when compared to ECA



	PS Balanced ECA (N = 29.5)	Bizaxofusp (N = 30)
OS-12	20.2%	56.7%
OS-18	9.8%	33.3%
OS-24	5.9%	23.3%
OS-30	5.9%	16.7%
mOS (months)	7.2	13.5
p-value*	**0.009**	
HR* (95 % CI)	**0.536 (0.344, 0.834)**	

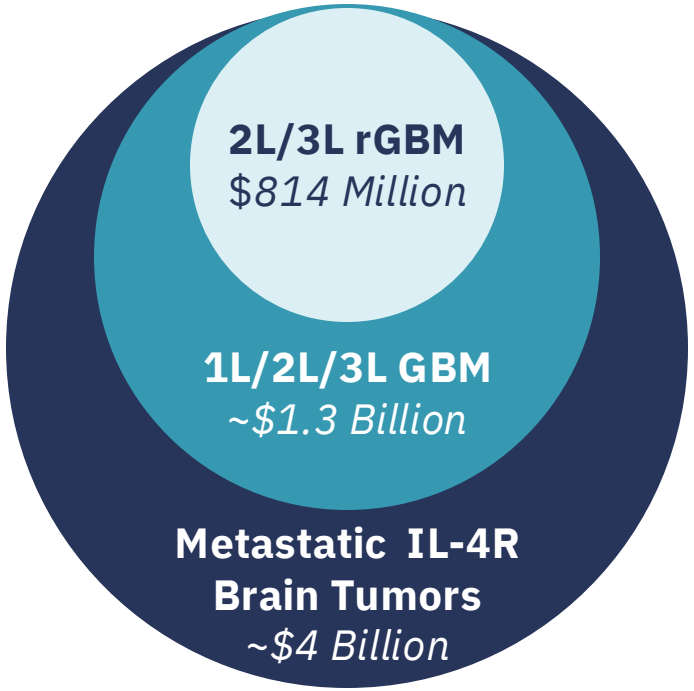
*Log-rank test

Patients enrolled in the contemporaneous external control arm (ECA) met same eligibility criteria as Phase 2b Trial and were matched using propensity score balancing

ECA, external control arm | PS, propensity score

Bizaxofusp has $1.3B Sales Potential if Approved for GBM and up to $4B if Approved in Other CNS Cancers

Projected Peak Sales[1]



2L/3L rGBM	Non-resectable GBM	Metastatic IL-4R Brain Tumors
		Renal | Breast | Colon | Leptomeningeal
Total market *(patients)*		
~19,000 annually (US/EU)	~22,000 annually (US/EU)	~76,000 annually (US/EU)

Metastatic Brain Tumors Over-expressing IL4R

Additional IL4R Positive Cancers that can be treated regionally or locally

Renal Cancer
~6,000

Breast Cancer
~47,000

Colon Cancer
~23,000

60% Ovarian
~21,500

73% Bladder
~85,000

96% Mesothelioma
~3,000

[1] Source: Triangle Insights Group

Financials & Catalysts

MEDICENNA

Stock and Financial Information

Balance sheet provides cash runway through mid calendar 2026

Capitalization Summary

TSX | OTCQX	MDNA | MDNAF
Headquarters	Toronto, CA
Market Capitalization	$100M CAD[3]
Cash	$21M CAD[1,2]
Debt	$0
Basic SO	~83 Million[1,2]
Fully Diluted SO	~105 Million[1,2]
Insider Ownership	~22%[1,2]

[1] As of 6/30/2025 – *See Company's Q1 F2026 Financial Results and MD&A*
[2] Includes $20M private placement by RA Capital, which includes ~5M common shares and ~5M pre-funded warrants
[3] As of market close August 8th, 2025

RACAPITAL

Analyst Coverage

Bloom Burton & Co.
David Martin PhD, MBA

Jones Research
Catherine Novack MS

H. C. Wainwright & Co
Swayampakula Ramakanth PhD, MBA

Research Capital
Andre Uddin PhD

Advancing Superkines with First and Best-in-Class Potential

- **IL-2 Superagonist: Phase 1/2 Underway with Promising Data in Difficult-to-Treat Tumors**
- **Superkine Platform Driving Robust and Balanced Pipeline in Deal Heavy Indications**
- **First-in-Class IL-4 Superkine: Phase 3-Ready for Recurrent Glioblastoma**
- **Healthy Balance Sheet With Runway Through At Least Mid-2026**

Upcoming Catalysts

MDNA11

Monotherapy Expansion Data (H2/25)

Complete ABILITY-1 Enrollment (H2/25)

Top-Line Combo Expansion Data (H2/25)

MDNA113

Readiness for IND Enabling Studies

Bizaxofusp

Pursue Partnership for Phase 3 Trial

Thank You

TSX: MDNA

OTCQX: MDNAF

MEDICENNA