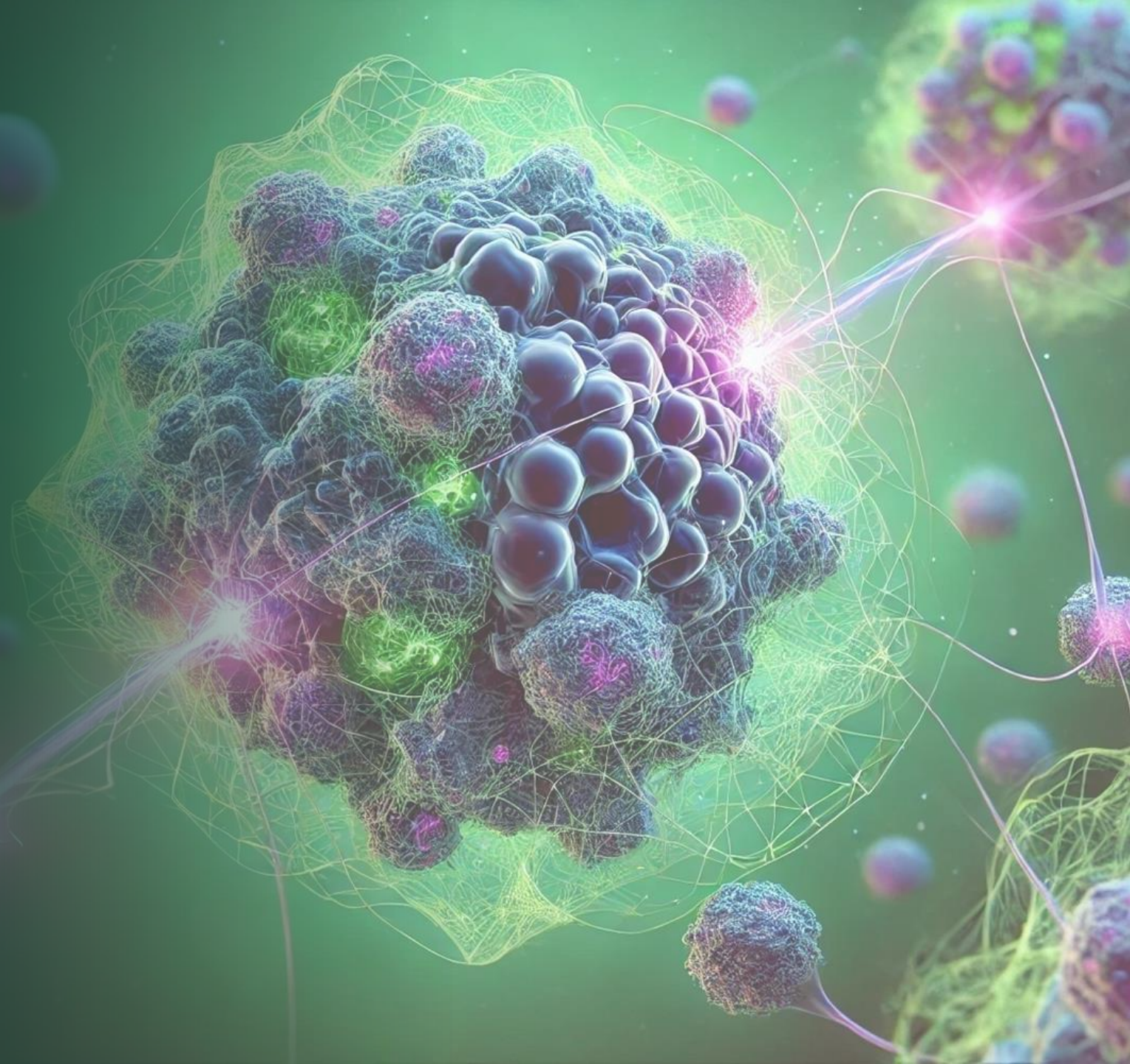
Corporate Presentation | December 2024

Evolutionary Cytokines Revolutionary Medicines



TSX: MDNA OTCQX: MDNAF

MEDICENNA

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MEDICENNA Overview

Clinical Stage Immunotherapy Company

TSX: MDNA | OTCQX: MDNAF

MDNA11 – Phase 1/2

for Advanced Solid Tumors

Bizaxofusp (MDNA55) – Phase 3 Ready

for Recurrent Glioblastoma

Multiple 'Pipeline in a Product' Assets

Pre-Clinical Autoimmune, Inflammation and Oncology Assets in Deal-Heavy Spaces

2024/2025 Program Milestones

MDNA11
- Monotherapy Expansion Data
- KEYTRUDA® Combination Data

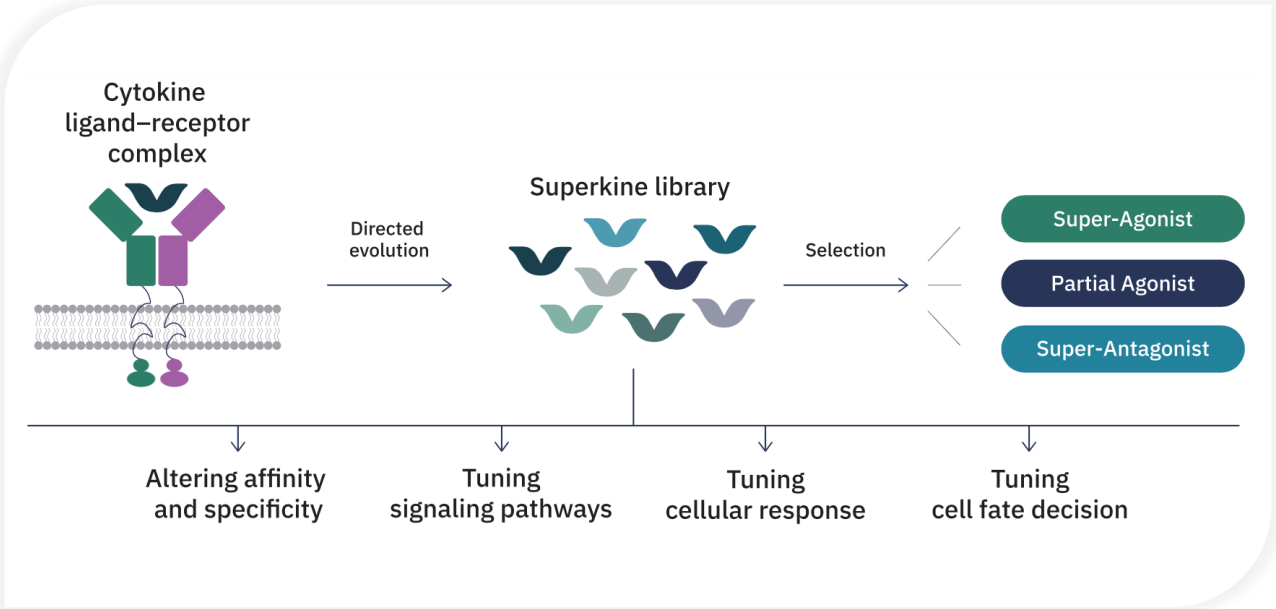
Bizaxofusp
- BTD & PRIME Designations
- EMA Alignment for Trial Design
- Partnership for Phase 3

Funded through mid-calendar 2026

Generating value by advancing Superkines

Superkine Platform

Transforming IL-2, IL-4 and IL-13 into Best-in-Class Superkines Using Directed Evolution



Our IL-2, IL-4 and IL-13 Superkines are known to modulate immune activity in many diseases, each providing "A Pipeline in a Product" opportunity

Superkine Design and Development

Generate Tunable Superkine Library

Transform interleukins using directed evolution to enhance desired properties

Enhance via Protein Fusion

To improve PK, add a second MOA, or confer new capabilities

Lead Selection & Development

Advance the most promising candidates towards clinical studies

Robust Pipeline of Next Generation Superkines

Candidate	Indication	Discovery	Preclinical	Phase 1	Phase 2	Phase 3
Bizaxofusp (MDNA55) IL-4–Toxin Fusion	Recurrent Glioblastoma (rGBM)	Phase 3 Ready Asset				
MDNA11 IL-2 Super Agonist monotherapy	Melanoma, non-melanoma skin cancer, MSI-H/dMMR					
MDNA11 IL-2 Super Agonist KEYTRUDA® combo	Various solid tumors					
MDNA113 Anti PD-1-IL-2 Masked BiSKIT	Various solid tumors expressing IL-13Rα2					
MDNA209 IL-2/15 Pathway Super Antagonist	Autoimmune Diseases					
MDNA413 IL-4/13 Pathway Super Antagonist	Oncology and Th2-mediated diseases					

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.

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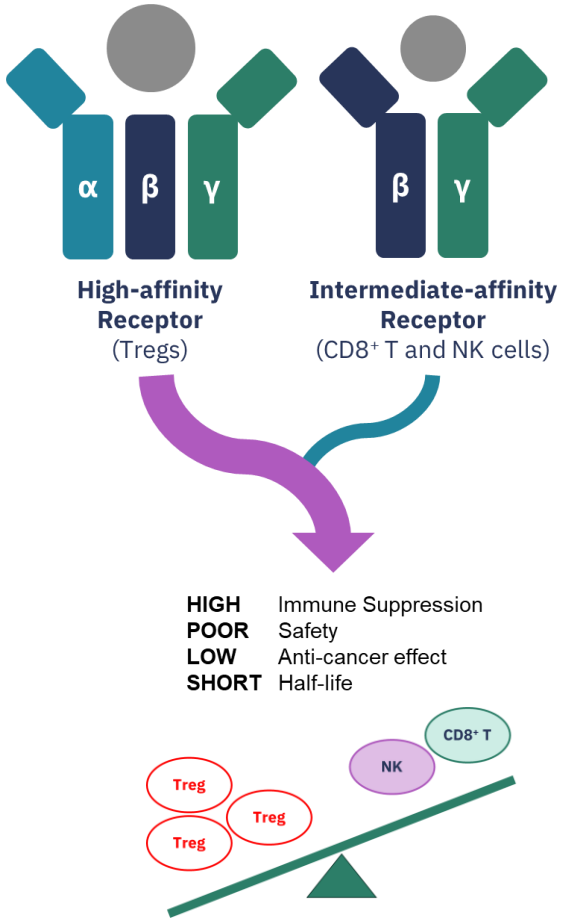
MDNA11: The Need for a Safe and Effective IL-2 Immunotherapy

Proleukin® (*Iovance*) rhIL-2



Approved in the 1990s:

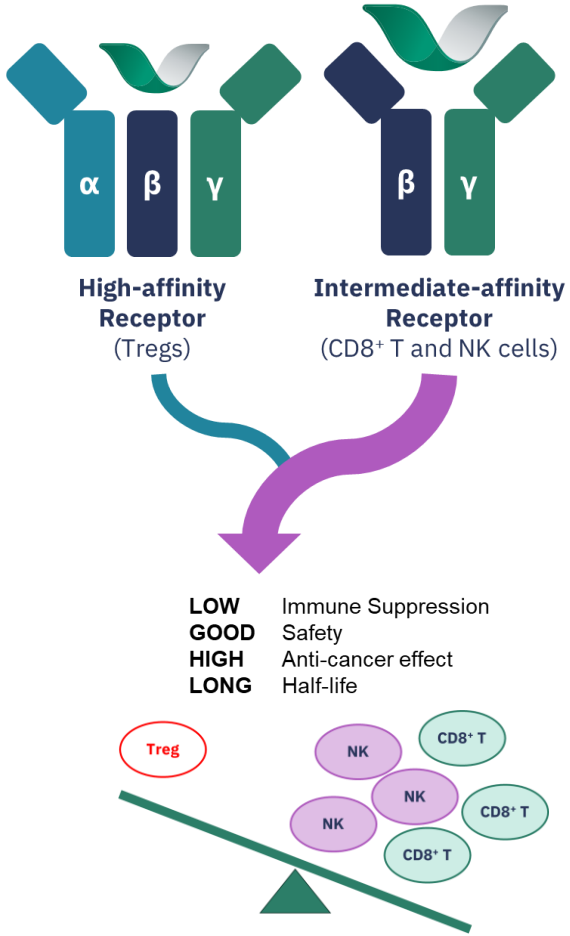
- Metastatic melanoma
  - ORR 16%, 7% CR
- Renal cell carcinoma
  - ORR 15%, 6% CR

Limited Clinical Use:

- Toxicity via **IL-2Rα**
- Requires ICU administration
- Frequent dosing every 8 hours for up to 5 days

Proleukin (aldesleukin) injection label, Reference ID: 3165255

MDNA11



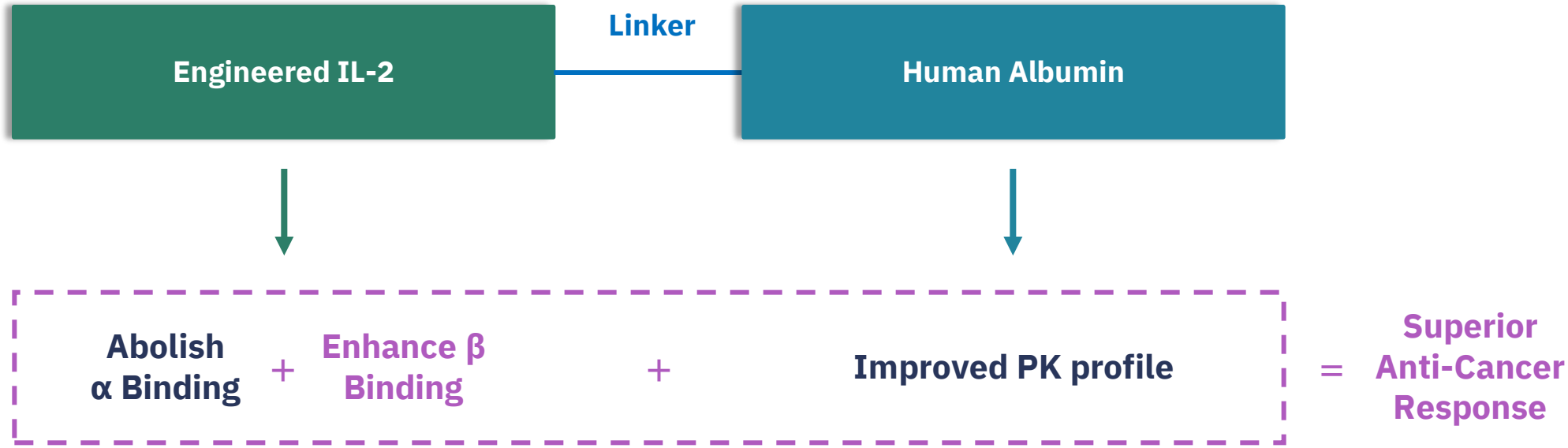
Anti-Tumor Activity:

- 2 CRs, 5 PRs in on-going phase 1/2 study
- 100% reduction of target and non target lesions in 3 patients:
  - Pancreatic (PR)
  - Melanoma (CR)
  - Colon Cancer (CR)
- Desirable safety profile
- Dosed once every two or three weeks

CR, complete response | PR, partial response | ORR, objective response rate

MDNA11: Long-acting 'Beta-enhanced Not-alpha' IL-2 Superkine

Superior selectivity with enhanced 'β-only' pharmacology



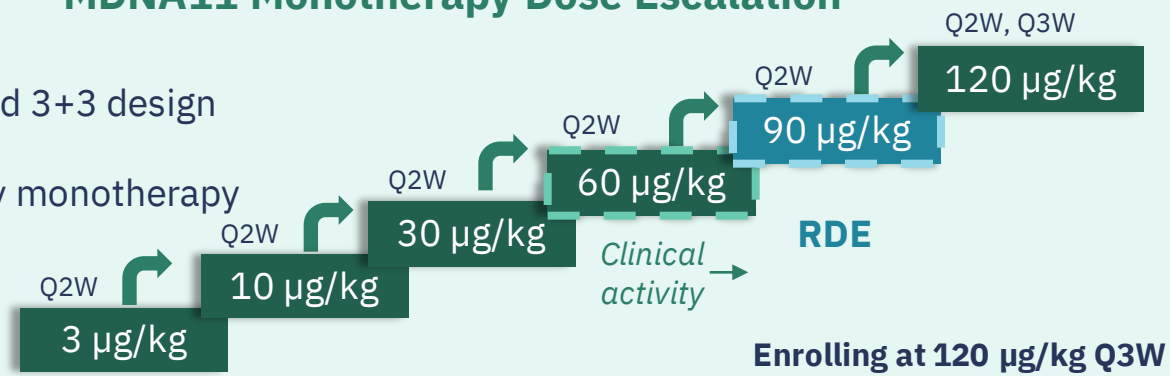
- ↓ Tregs
- ↑ Safety
- ↑ Effector Cell Activation
- ↑ T Cell Memory Response
- ↓ NK Cell Anergy
- ↑ Half-Life
- ↑ Tumor Accumulation

ABILITY-1 Phase 1/2 Study: Dose Expansion & Combination with KEYTRUDA®

Ongoing Global, Multi-Center, Open-Label Study (NCT05086692)

MDNA11 Monotherapy Dose Escalation

- Modified 3+3 design
- Identify monotherapy RDE



Enrolling at 120 µg/kg Q3W

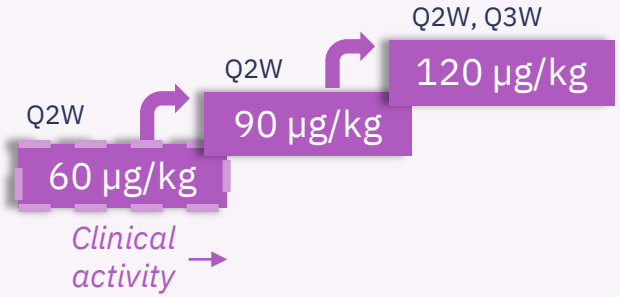
Monotherapy Dose Expansion (Phase 2)

- MDNA11 @ **RDE (90 µg/kg Q2W)** in selected CPI resistant solid tumors:
  - Melanoma
  - Non-melanoma skin cancer (cSCC, BCC, MCC)
  - MSI-H/dMMR tumors

Enrolling

MDNA11 + KEYTRUDA® (pembrolizumab) Dose Escalation

- Select CPI resistant and CPI-naïve indications
- Identify combination RDE (cRDE)



Enrolling

Combination Dose Expansion (Phase 2)

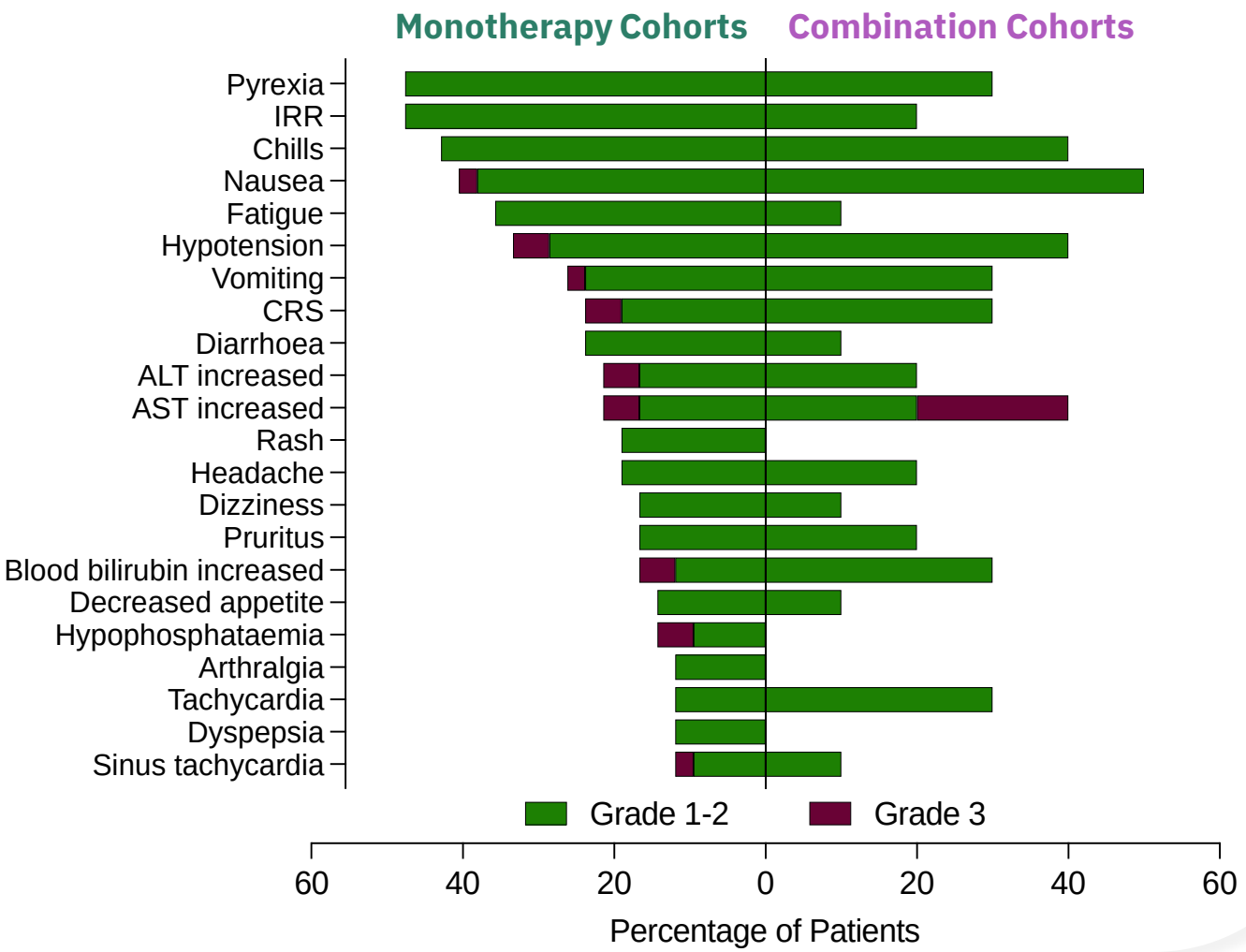
- MDNA11 (cRDE) + pembrolizumab (400 mg, Q6W)
- Melanoma and other select advanced solid tumors

Anticipated to start in H1 2025

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

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 and No Dose Limiting Toxicities (DLTs)



Monotherapy Safety Profile

- Majority TRAEs were Grade 1-2 (94.4%) and resolved within 48 hours
- Grade 3 liver function test elevations (ALT/AST) were asymptomatic and transient
- Grade 3 hypotension in patients with adrenal insufficiency
- No non-laboratory grade 4 TRAEs

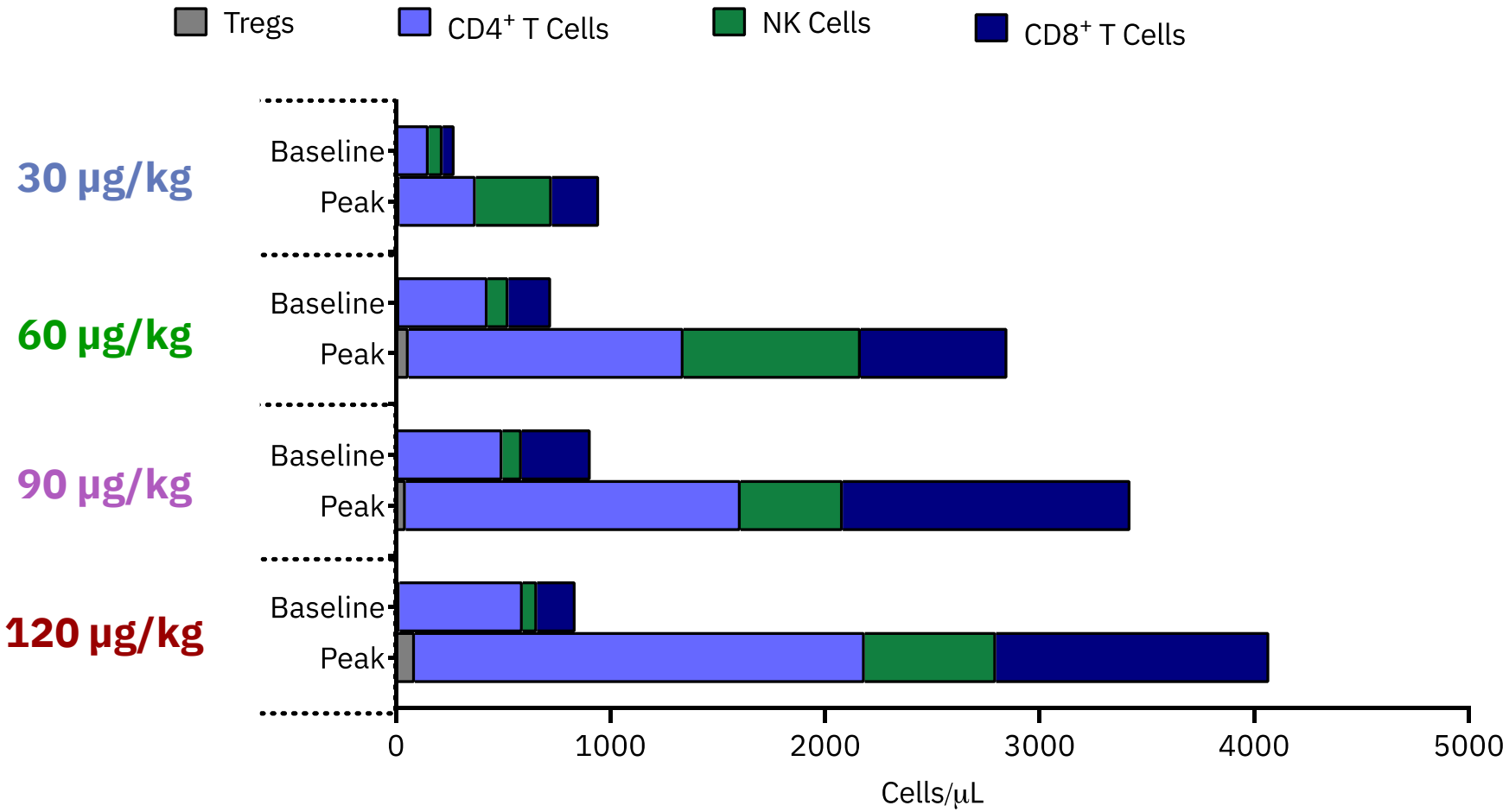
Combination Safety Profile

- Majority TRAEs were Grade 1-2 (95.5%) and resolved within 48 hours
- Grade 3 liver function test elevations (ALT/AST) were asymptomatic and transient
- No non-laboratory grade 4 TRAEs
- **No new safety signals in combination cohorts**

CRS, cytokine release syndrome | IRR, infusion related reaction

MDNA11 Preferentially Expands Circulating Effector Immune Cells

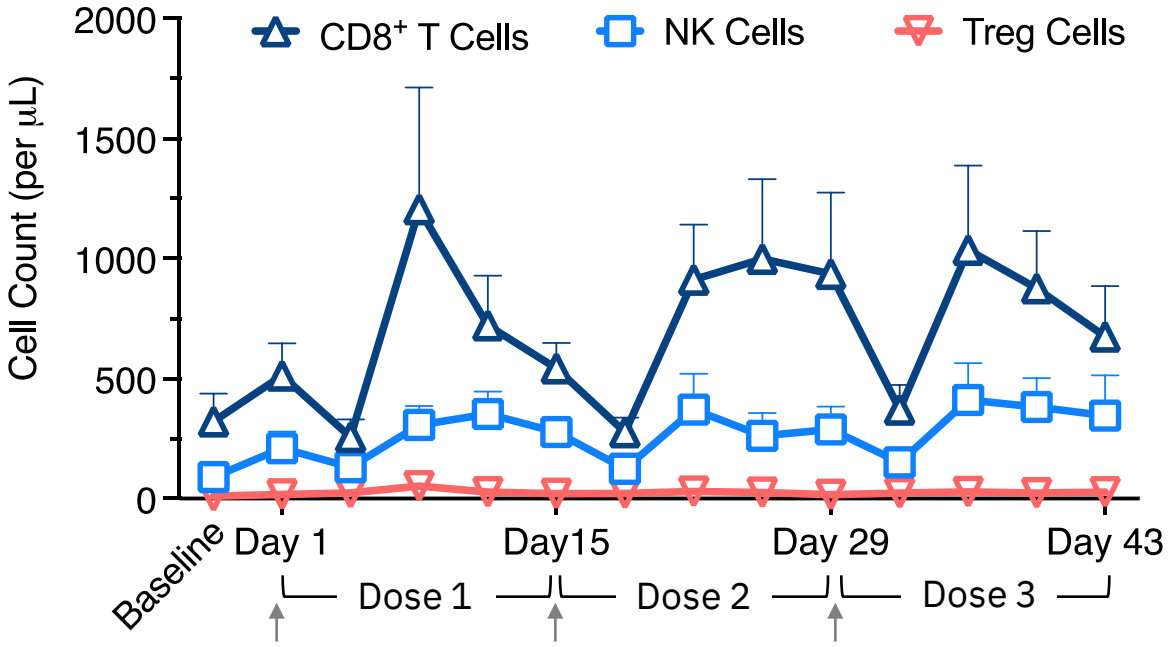
CD8⁺ T Cells Demonstrate the Most Expansion Compared to Baseline



Immune cells were assessed by flow cytometry and the numbers were calculated based on the absolute lymphocyte count
Peak values are from day 8 post treatment following dose 1, 2 or 3
Tregs: $CD4^+CD25^+FOXP3^+$, NK Cells: $CD3^-CD56^+$

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

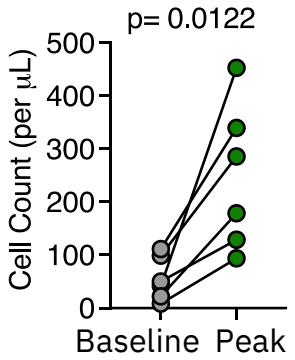
Patients Treated with MDNA11 90 µg/kg Q2W (Recommended Dose for Expansion)



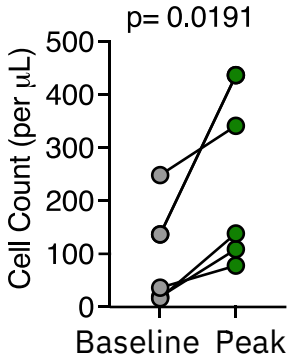
Analysis of PBMC processed from whole blood

Patients Treated with MDNA11 ≥ 60 µg/kg Q2W

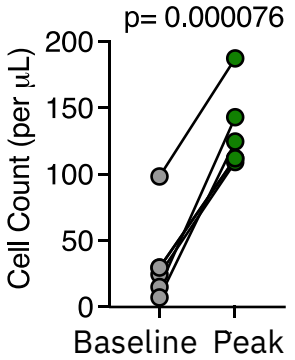
CD25+ (Activation) CD8+ T Cells



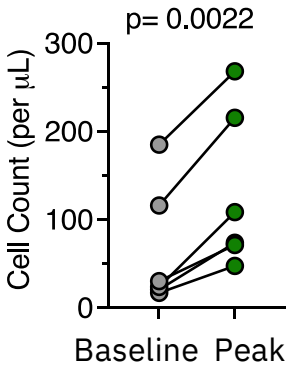
DNAM1+ (Effector) CD8+ T Cells



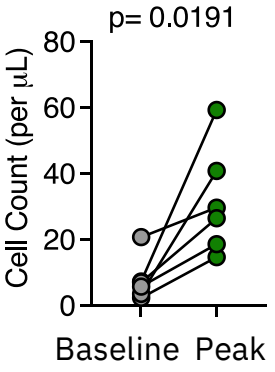
TCF1+ ('Stemness like') CD8+ T Cells



Effector Memory CD8+ T Cells



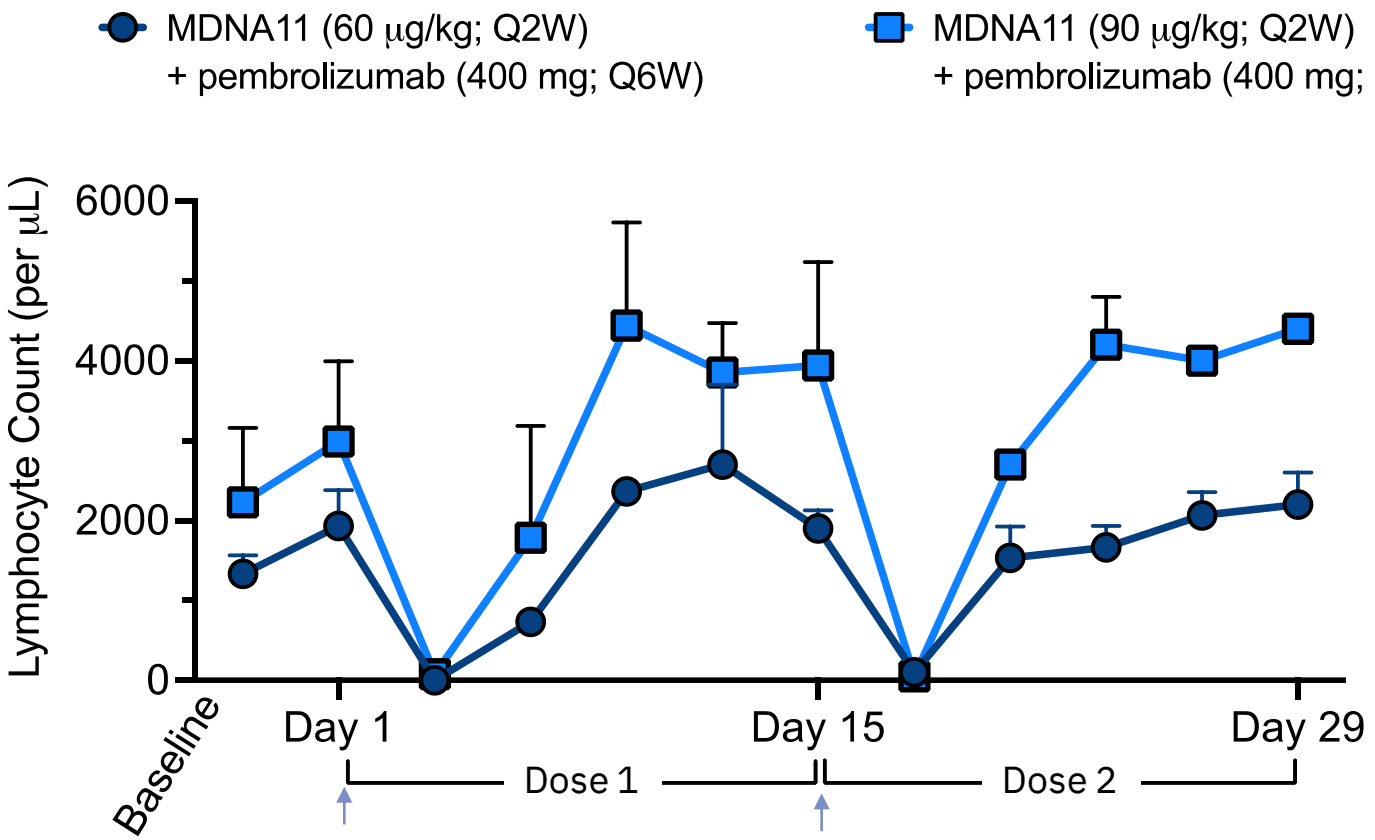
Central Memory CD8+ T Cells



p-values based on paired t-test

Combination with KEYTRUDA®: Robust Lymphocyte Expansion

Dose Dependent Lymphocyte Increase in Combination Dose Escalation



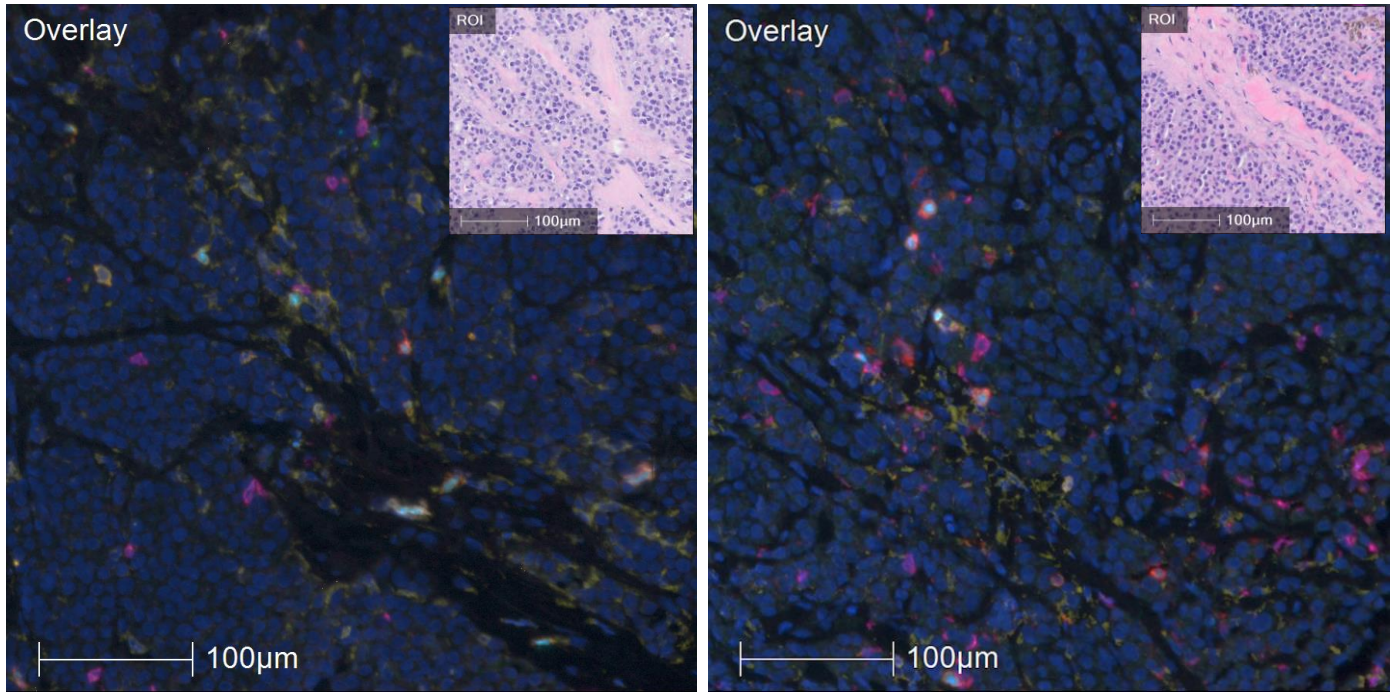
Monotherapy: Increased Tumor Infiltrating CD8⁺ T and NK Cells

Cutaneous melanoma at 10 µg/kg MDNA11, Q2W

Disease Progression at week 12

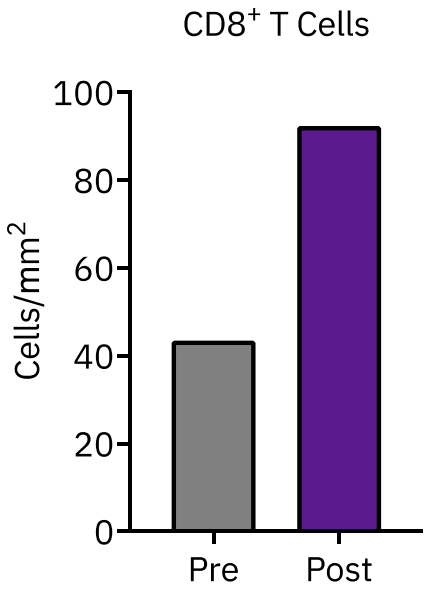
Pre-treatment

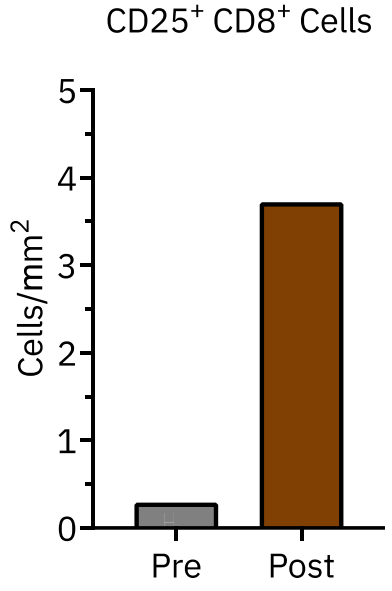
Post-treatment (Week 7)

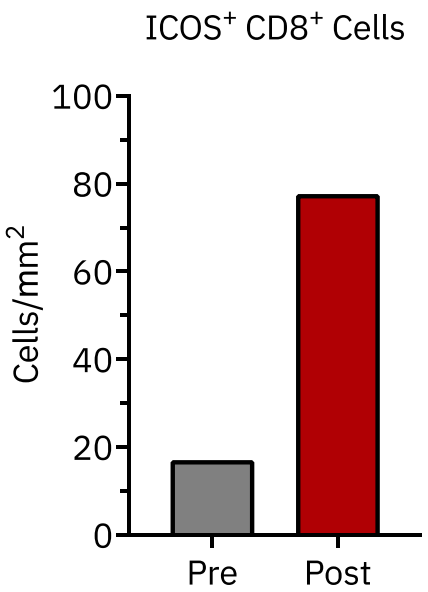


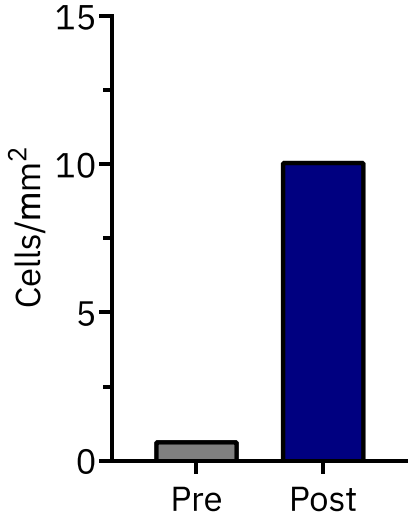
CD8 CD56 CD25 ICOS DAPI

multiplex immunofluorescence (mIF)









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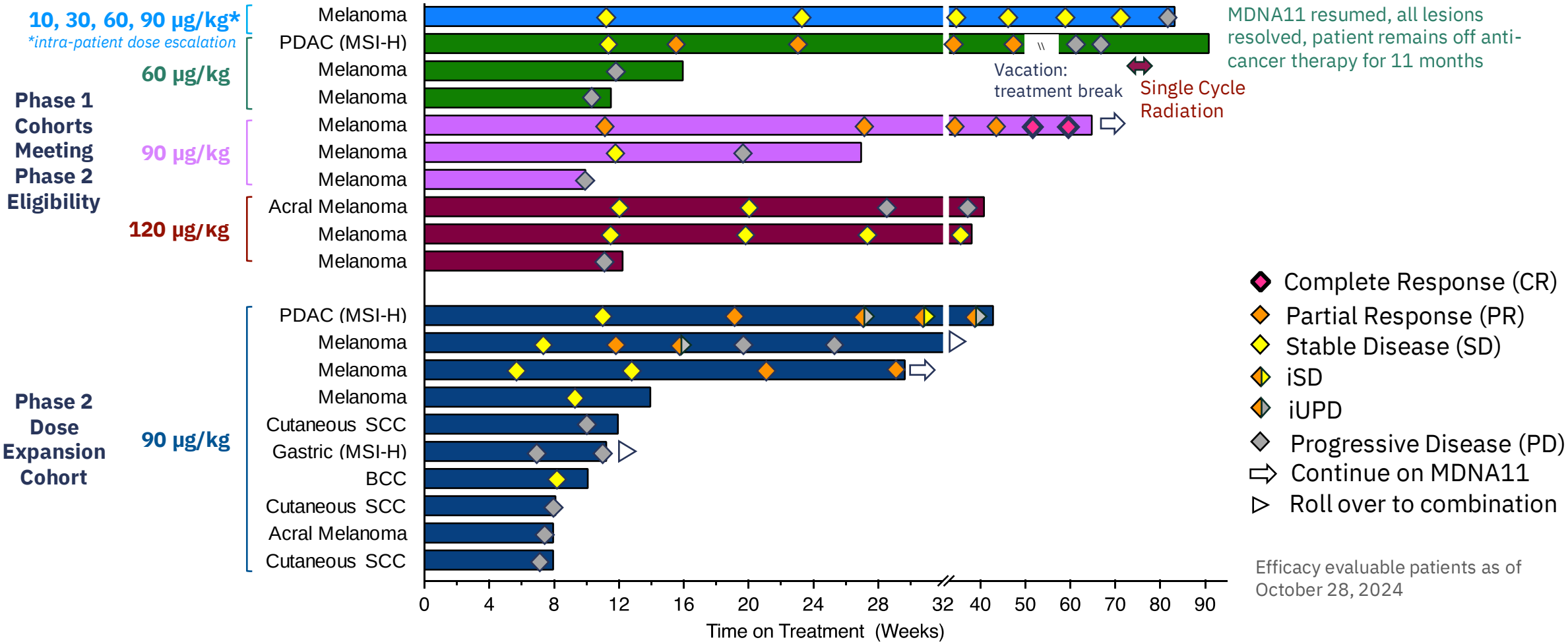
Monotherapy: MDNA11 Shows Durable Tumor Response in Patients who Failed CPI Therapy (CPI-Resistant)

30% Response Rate in Monotherapy Expansion Cohort and 25% Among all High-Dose Phase-2 Eligible Patients

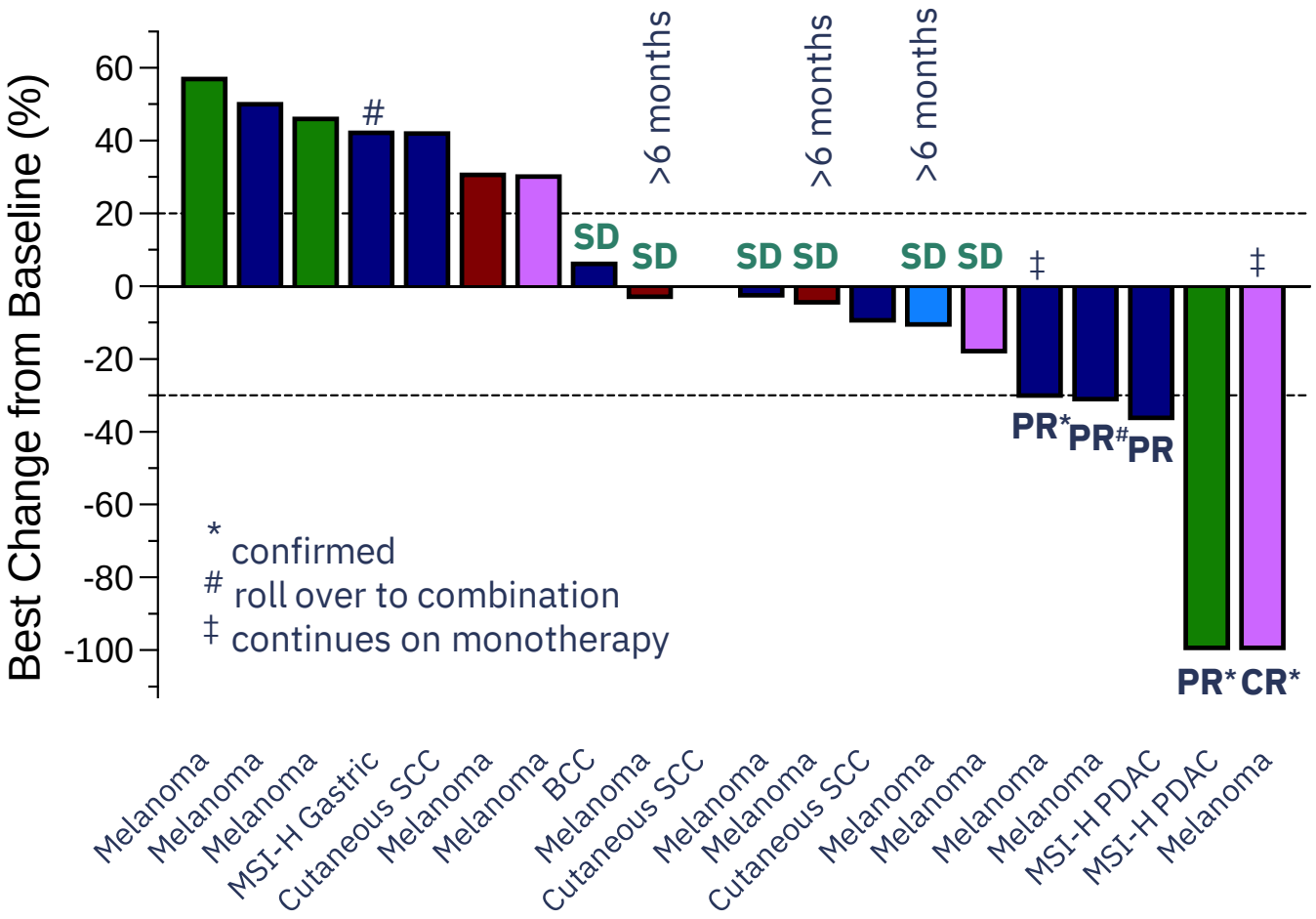


Efficacy evaluable patients as of October 28, 2024

Phase 2 Eligible: Patients with CPI resistance treated with single agent MDNA11 ≥ 60 µg/kg that have melanoma, non-melanoma skin cancer, or MSI-H cancer

Monotherapy: 1 CR, 4 PRs, Including 100% Reduction of Target and Non-Target Lesions in 2 Patients

Best Response in CPI-Resistant Patients: Phase 2 Eligible Treated with MDNA11 ≥ 60 µg/kg



Objective Response Rate:

- 5/20 (25%) [95% CI: 6-44]
  - 1 CR
  - 4 PRs

Clinical Benefit Rate:

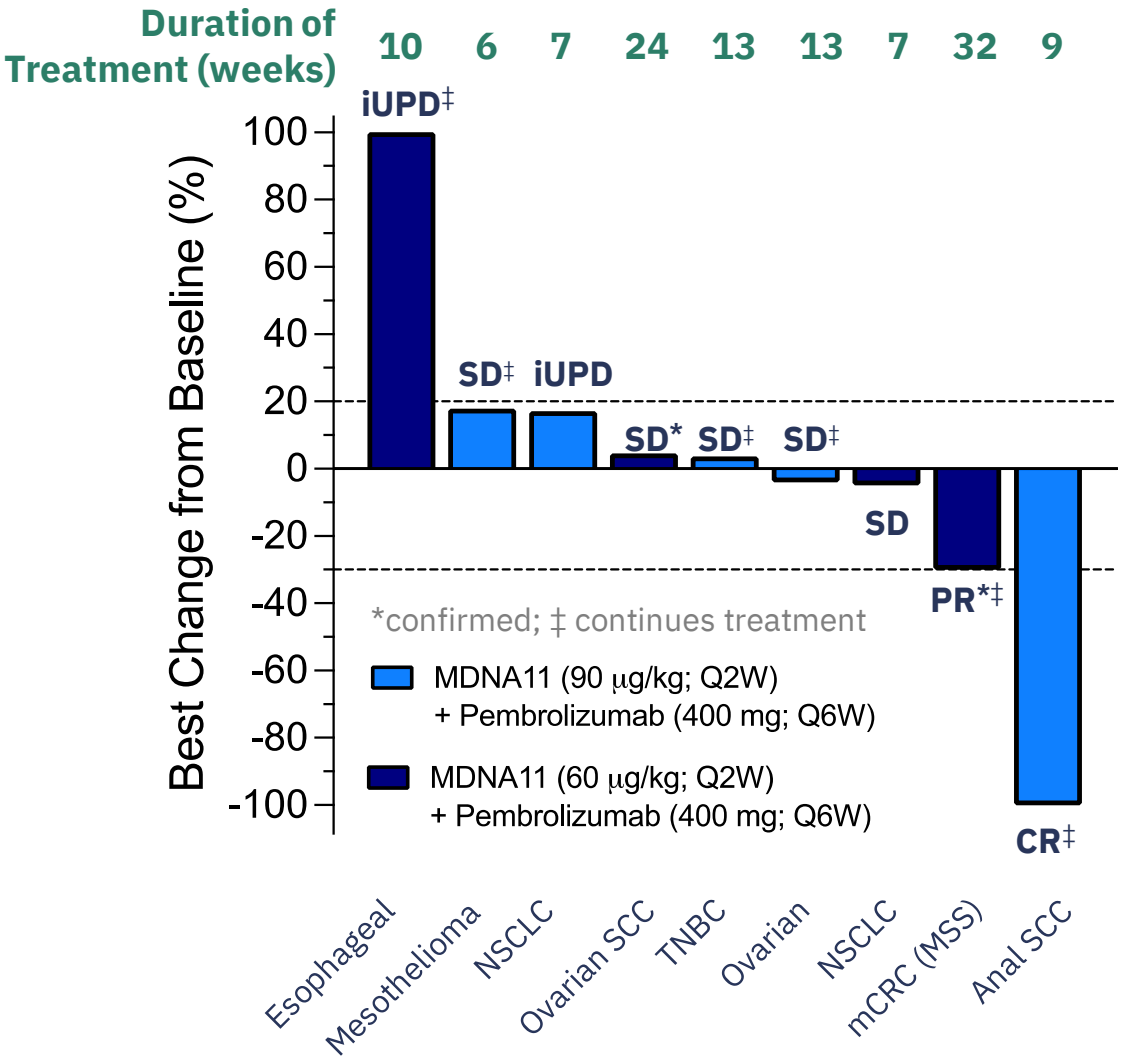
- 8/20 (40%)
  - 1 CR
  - 4 PRs
  - 3 Durable SD (> 6 months)

Disease Control Rate:

- 55% (1 CR, 4 PRs, 6 SDs)

Monotherapy expansion (90 µg/kg)
120 µg/kg
90 µg/kg
60 µg/kg
10, 30, 60, 90 µg/kg (intra-patient dose escalation)

Combination Dose Escalation: 1 CR and 1 PR in Tumor Types with Historically Low Immunotherapy Response Rates



Complete Response (CR) in 70 yr M with anal SCC

- Progressed on 2 prior lines of treatment (1L capecitabine/mitomycin + radiation; 2L carboplatin/paclitaxel)
- No prior IO
- CR achieved on first on study evaluable imaging scan; continues on treatment

Confirmed PR in 52 year-old-patient with metastatic MSS colorectal cancer

- Progressed on 2 prior lines of chemotherapy (1L folinate/fluorouracil/oxaliplatin; 2L capecitabine)
- No prior IO
- Continues on treatment

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

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Data cut-off: November 18, 2024

MDNA11: A Potential Best-In-Class IL-2

Compelling Single Agent Activity in CPI-Failed Patients with Advanced Solid Tumors

30% ORR in Monotherapy Expansion Cohort
25% ORR in all High Dose Phase-2 Eligible Patients

1 **Complete Response**

4 **Partial Responses**

2/3 **Responses in MSI-H**

3/11 **Responses in Cutaneous Melanoma**

- ✓ Desirable Safety, Dosing Every 2 Weeks
- ✓ Expansion of Circulating $CD8^+$ T and NK cells
- ✓ Enhanced Memory & 'Stemness'
- ✓ Tumor infiltration of CD8+ T and NK cells

Combination with KEYTRUDA®: Encouraging Safety and Anti-Tumor Activity

Responses in Tumor Types with Historically Low Immunotherapy Response Rates in Dose Escalation

1 **Complete Response** ***in advanced chemo-recractory anal SCC patient at 8 weeks, continues on treatment***

1 **Partial Response** ***confirmed in MSS colorectal cancer patient, continues on treatment at week 32***

- ✓ Desirable Safety Profile
- ✓ No DLTs and no new safety signals
- ✓ Robust Expansion of Lymphocytes
- ✓ Responses in tumors where CPI isn't approved

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

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Bizaxofusp: A Significant Market Opportunity for Brain Cancer

Bizaxofusp

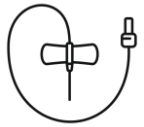
GBM is the most aggressive primary brain tumor

100% of patients relapse following standard of care

rGBM is uniformly fatal with median survival of 6-9 months

Bizaxofusp Targets IL-4R: overexpressed in GBM and TME but not healthy brain tissue

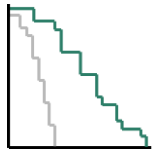
Compelling Results



Single intra-tumoral treatment similar to brain tumor biopsy

By-passes the blood brain barrier

No systemic toxicity



Significant survival benefit vs. propensity matched control arm

Strict inclusion criteria

Phase 3 Ready

FDA-agreed Phase 3 design, utilizing an ECA

Pursuing Partnership for Phase 3

Seeking Breakthrough Therapy and PRIME Designations

Has FDA Fast-Track Designation and Orphan Drug status

FDA's Project Orbis allows for swift international adoption

Value Creation

$800M Market Opportunity for rGBM (US/EU)

Follow-on Applications Upwards of $4B

1st line for non-resectable GBM
IL-4R expressing metastatic brain tumors

GBM, glioblastoma | rGBM, recurrent glioblastoma | TME, tumor microenvironment

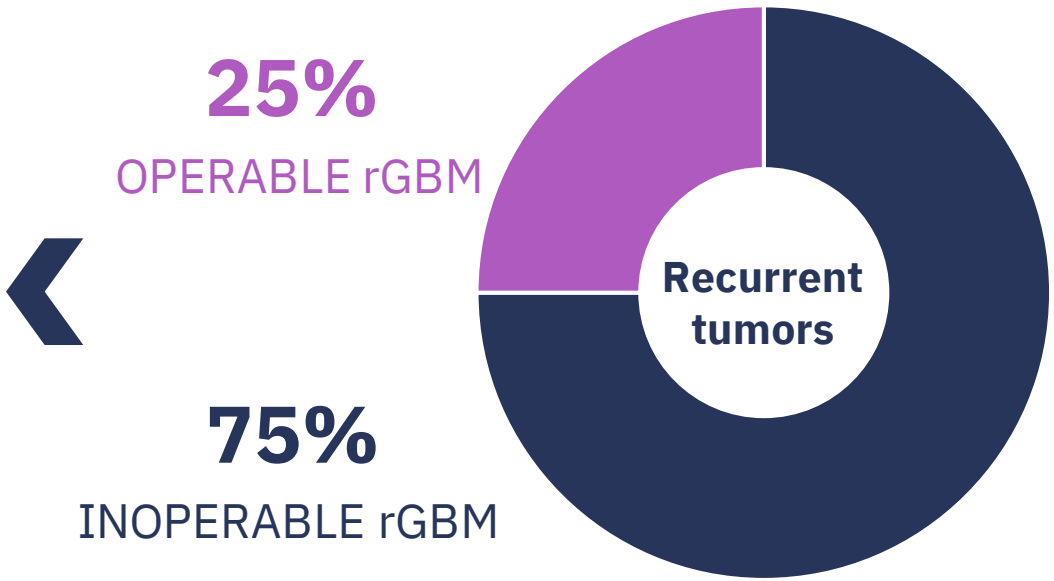
Current Treatment Paradigm for GBM is Inadequate

Diagnosis → **Surgery** → **Radiotherapy + TEMODAR** → **Adjuvant TEMODAR** → **100% of patients RELAPSE**

85-90% of patients

55% of GBM Temodar-Resistant*

1. Recurrent tumors are less accessible surgically
2. No defined rGBM standard of care
3. At relapse, rGBM is uniformly fatal
4. Median overall survival (mOS) with approved therapies** is 6-9 months
5. 2-year survival for rGBM is 5-10%



* Expression of the DNA repair protein O6-methylguanine-DNA methyltransferase (MGMT) is responsible for resistance to Temodar

** Avastin, Lomustine, Gliadel, Optune,Temodar, Radiotherapy

Bizaxofusp: A Molecular Trojan Horse

A First-in-Class Phase 3-ready Empowered IL-4 Superkine for rGBM

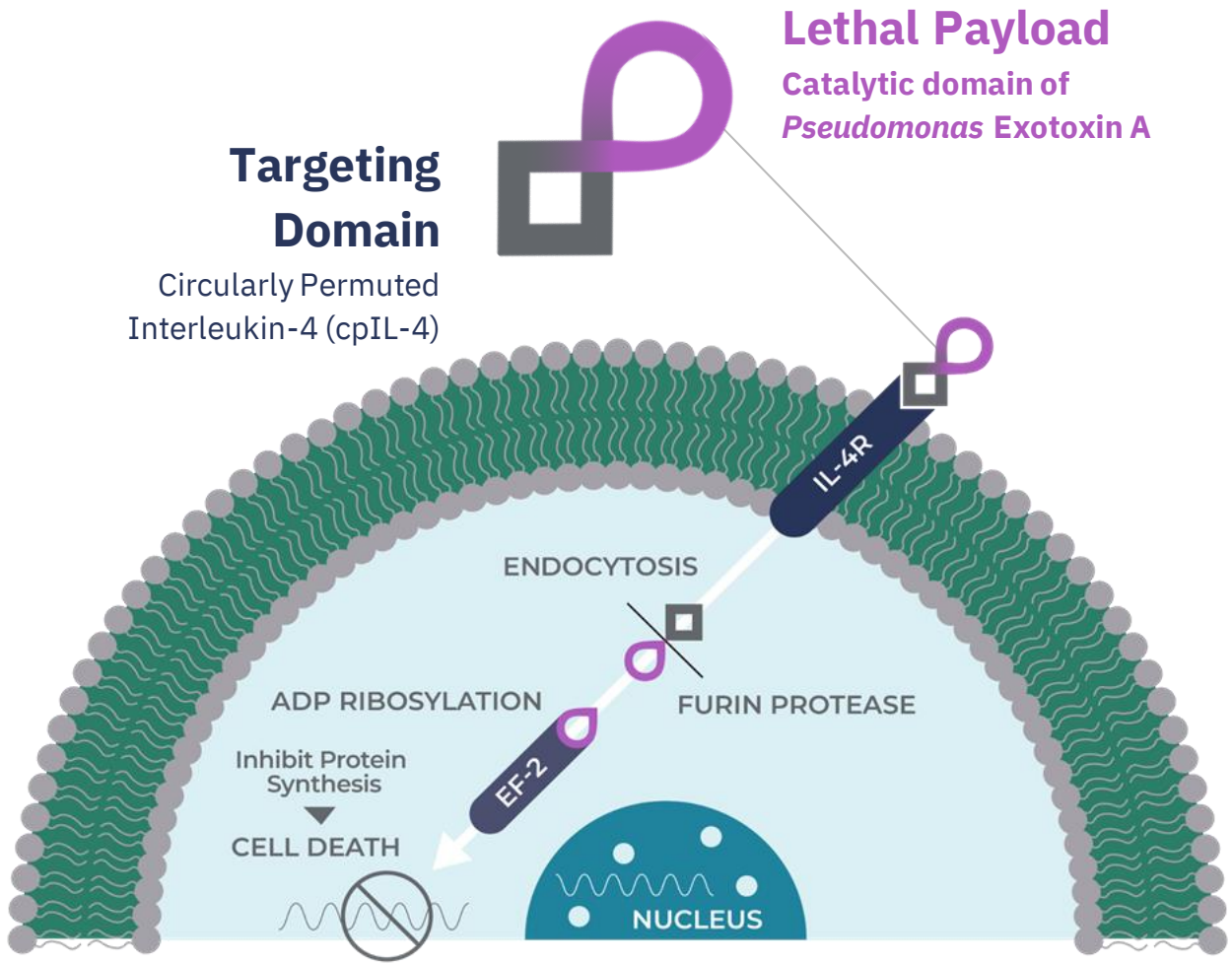
Approach By-Passes BBB
Single intra-tumoral CED infusion **avoids systemic toxicity** and achieves tumor control

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 unblinds 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

Localized “One and Done” Delivery By-passes the BBB

Next generation high-flow convection enhanced delivery (CED) achieves uniform distribution to tumoral & peritumoral areas

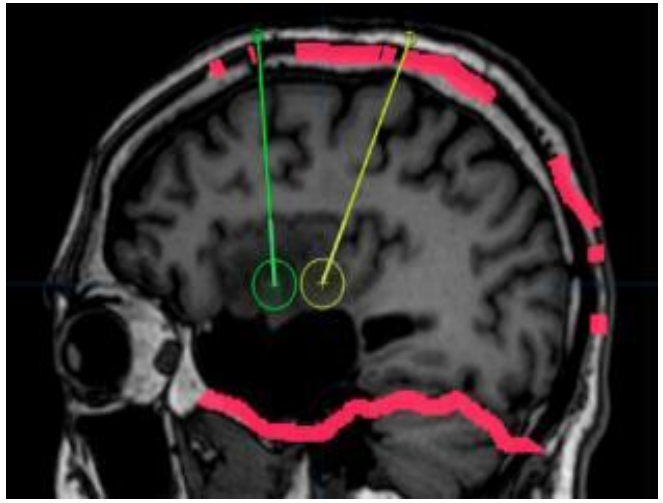
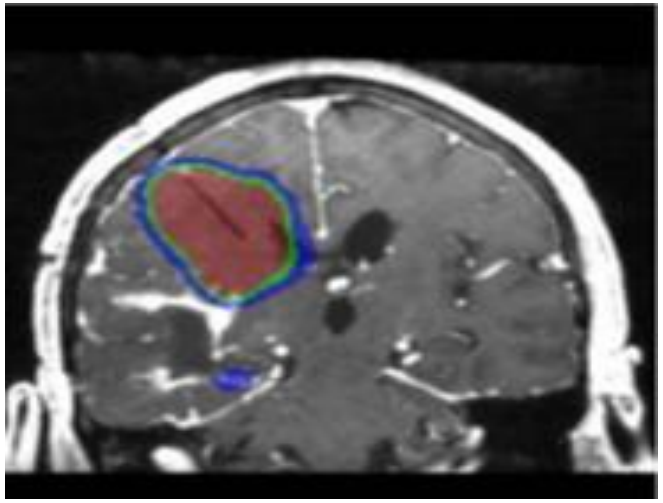
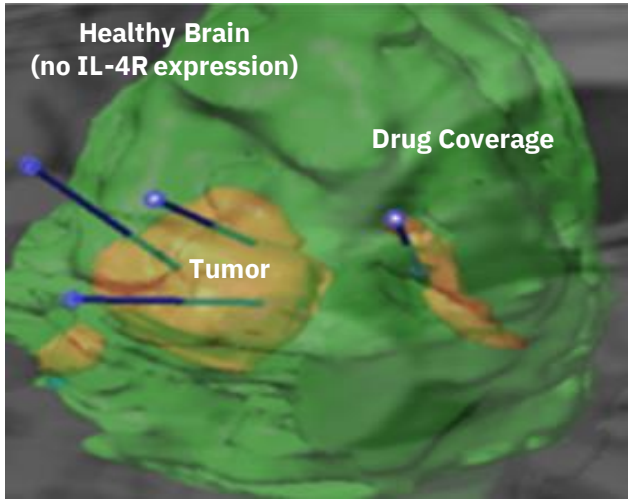


Image guided catheter placement to identify the **ideal catheter trajectory**



Unique catheter stepped design to **prevent backflow**



Novel delivery improves tumor coverage

One-time treatment | Repeat administration has been shown to be safe
Minimally invasive CED techniques for catheter placement are similar to those used used for brain tumor biopsies

Bizaxofusp$^{\text{High Dose}}$: Improved OS in the Open-Label Phase 2b of rGBM

Phase 2b intentionally enrolled only patients with **characteristics associated with worse clinical outcomes** (NCT02858895)

Eligibility

- Adults ≥ 18 yrs
- ***de novo* GBM at initial diagnosis**
- **1st or 2nd relapse (rGBM)**
- **No resection**
- **KPS ≥ 70**
- **IDH wild-type only**

Treatment

- Image-guided catheter placement
- Single infusion (median 26.5 hrs.)
- Total Dose range: 18-240µg

Endpoints

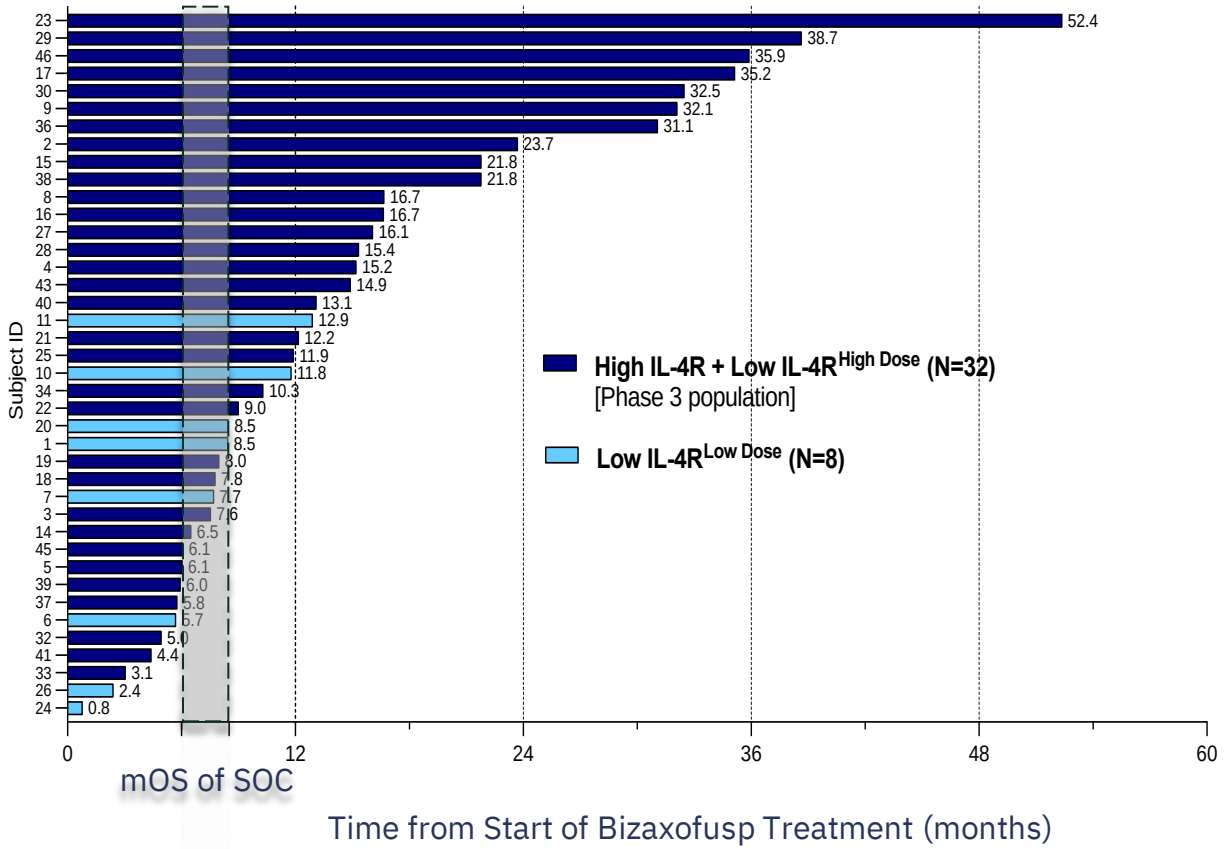
1 º Endpoint

- OS

2 º Endpoint

- ORR
- PFS
- OS vs. IL4R expression
- Safety

Survival Benefit in Phase 3 Target Population: 14 months OS



GBM, glioblastoma | IDH, isocitrate dehydrogenase | KPS, Karnofsky Performance Scale | OS, overall survival | ORR, overall response rate | PFS, progression free survival | rGBM, recurrent glioblastoma | SOC, standard of care

Propensity Matched Study with an External Control Arm (ECA)

Comparison of Survival in the Phase 2b Study versus a Propensity Matched ECA

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Propensity Matched Scoring for ECA

Eligibility

- Adults ≥ 18 yrs
- ***de novo* GBM at initial diagnosis**
- **1st or 2nd relapse (rGBM)**
- **No resection**
- **KPS ≥ 70**
- **IDH wild-type only**

ECA Balancing Criteria

- Age
- Sex
- KPS
- MGMT methylation status
- Time from initial diagnosis to relapse
- Number of prior relapses
- Extent of resection at initial diagnosis
- Tumor size/location at relapse
- Steroid use prior to treatment

ECA Propensity Score Balancing

STEP 1
Data preparation: feasibility and quality, mapping, standardization, covariates

STEP 2
Estimate propensity scores: statistical models

STEP 3
Propensity score balancing algorithm - weighting

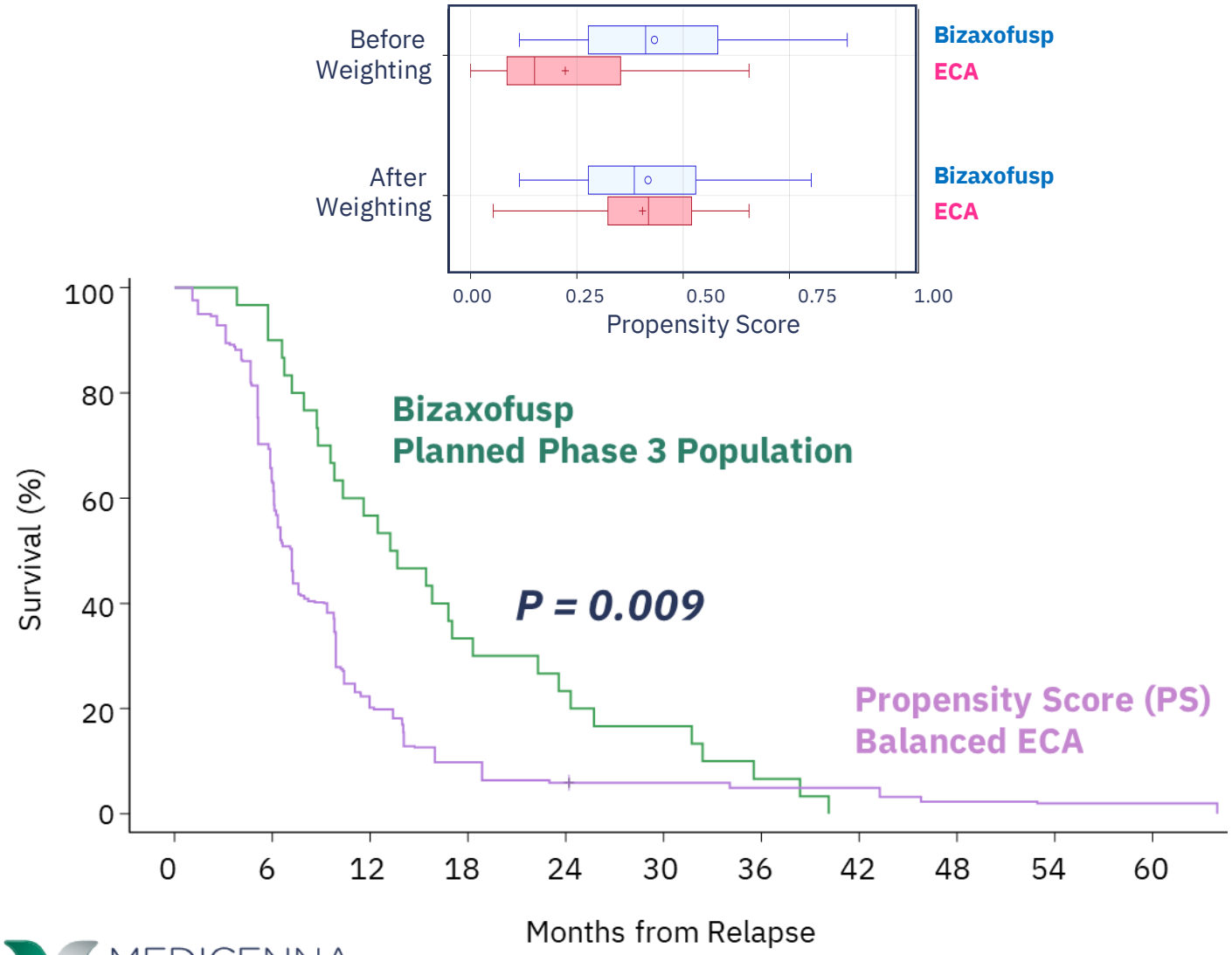
STEP 4
Evaluation of balance in baseline characteristics

Patients enrolled in the ECA met the same eligibility criteria as Phase 2b and were then matched using propensity score balancing

GBM, glioblastoma | IDH, isocitrate dehydrogenase | KPS, Karnofsky Performance Scale | OS, overall survival | ORR, overall response rate | PFS, progression free survival | rGBM, recurrent glioblastoma

Bizaxofusp Significantly Increased Median Overall Survival vs. ECA

OS Increased by 180% at 1 Year | OS at 2 Years Improved by 290%



	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

Phase-3 Ready Asset with Orphan Drug Status and Fast Track Designation

Medicenna is Pursuing a Commercial and Development Partnership to Conduct the Pivotal Phase 3 trial of Bizaxofusp in Recurrent GBM

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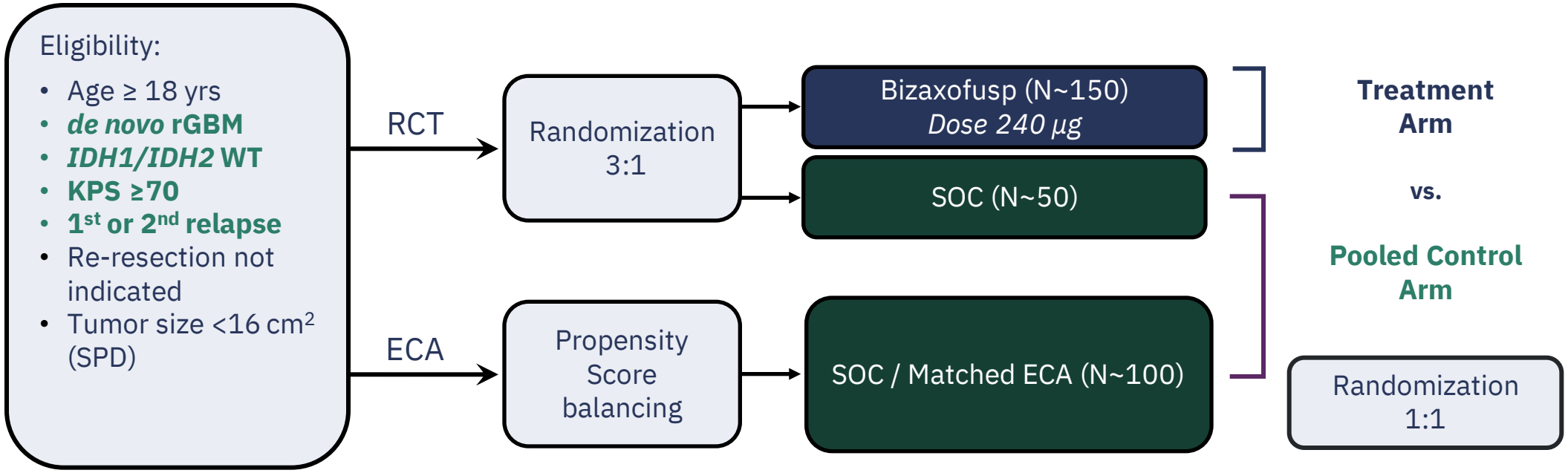
Phase 3 Trial Design Agreed with FDA

Hybrid with ECA: The First Time FDA has Agreed to Inclusion of an ECA in a Phase 3 Trial for Brain Cancer



SOC therapies allowed:

- Bevacizumab (Avastin®)
- Lomustine (CCNU, CeeNU®, Gleostine™)
- Temozolomide (Temodar®)
- Tumor Treating Fields (Optune®)
- Radiation Therapy

Primary Endpoint:

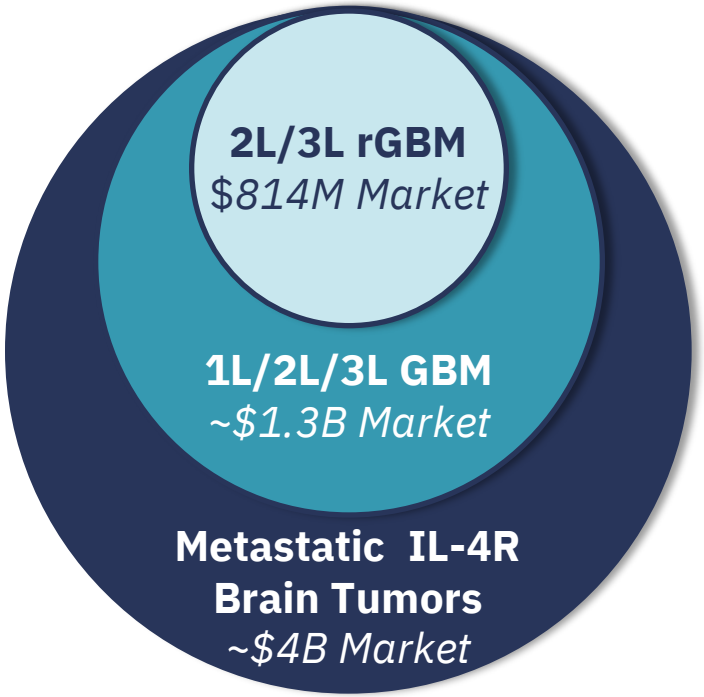
- **OS**

Assumptions:

- **Effect size = 4.6 months in mOS (vs. 6.3 months achieved in Phase 2b)**
- 90% power
- HR of Bizaxofusp vs. pooled control = 0.65
- 2-sided alpha = 0.05

Primary Research Confirms $800M Market for rGBM in US and EU

Potential $4 Billion market for follow-on IL-4R primary and metastatic brain tumors indications



Near-term

2L/3L rGBM

Total market
~10,000 annually (US/EU)

Catalysts
- Partnering
- Breakthrough Therapy Designation
- EMA Alignment

Medium-term

Non-resectable GBM

Total market
~18,000 annually (US/EU)

Catalysts
- Robust uptake from 2L/3L rGBM market

Longer-term

Metastatic IL-4R Brain Tumors

Renal | Breast | Colon | Leptomeningeal

Total market:
~76,000 annually (US/EU)

Catalysts
- Follow-on studies in other tumors

Several Precedent Market Transactions have Demonstrated the Potential for Medicenna's Pre-Clinical Assets

Pre-clinical assets

MDNA113 | Anti PD1-IL-2 Masked BiSKIT

MDNA209 | IL-2/15 Super Antagonist

MDNA413 | IL-4/13 Super Antagonist

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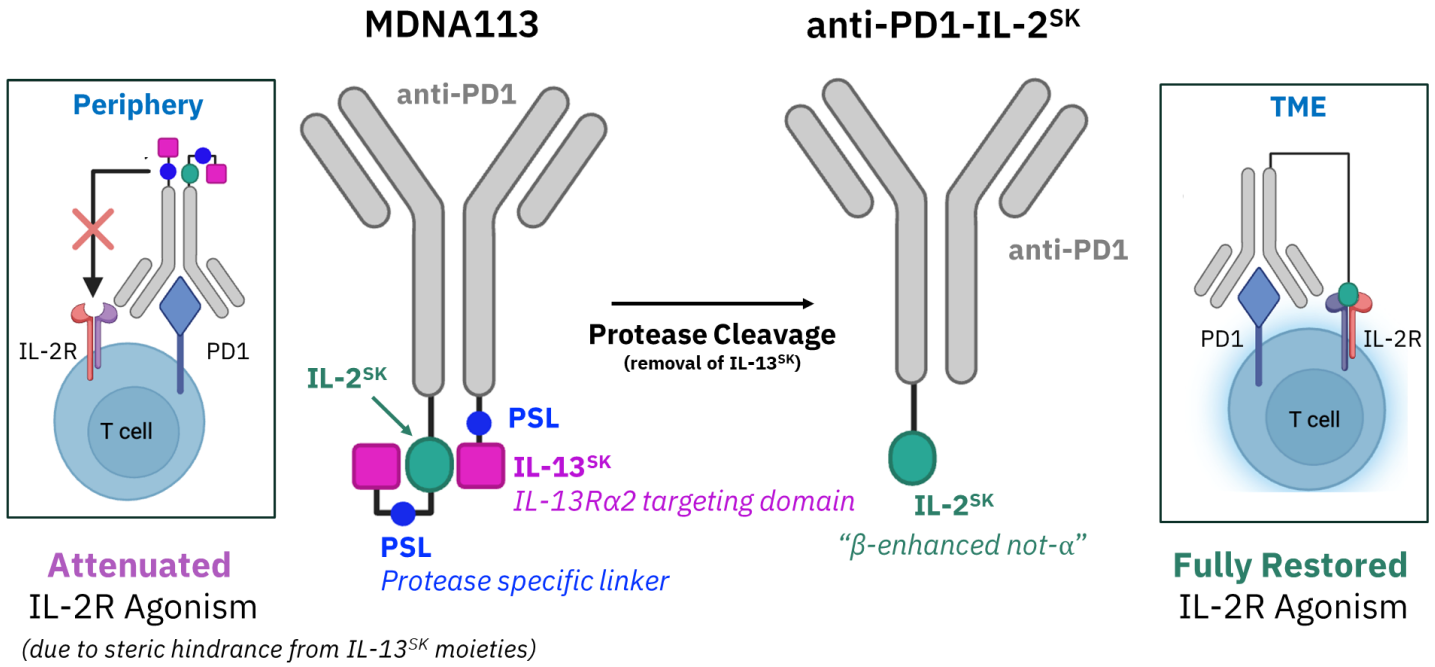
MDNA113: An Anti PD1-IL-2 Masked and Targeted BiSKIT

Masked and Targeted Superkines: Increased Safety, Maintaining Anti-Tumor Efficacy and Tumor Localization

Roche
ACQUIRED
GOOD
$250M
Sep 2022

Targeting IL-13Rα2 Positive Cancers: Annual World-Wide Incidence > 2M



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

Fully Restored
IL-2R Agonism

- **Selectively targets IL-13Rα2 on solid tumors**
- **Conditionally activated at the tumor site of tumors expressing IL-13Rα2**
- **Designed to facilitate cis-binding to IL-2R and PD-1 on immune cells**

A potential solution to the 2028 expiration of "Big Pharma's" anti-PD-1 Intellectual Property

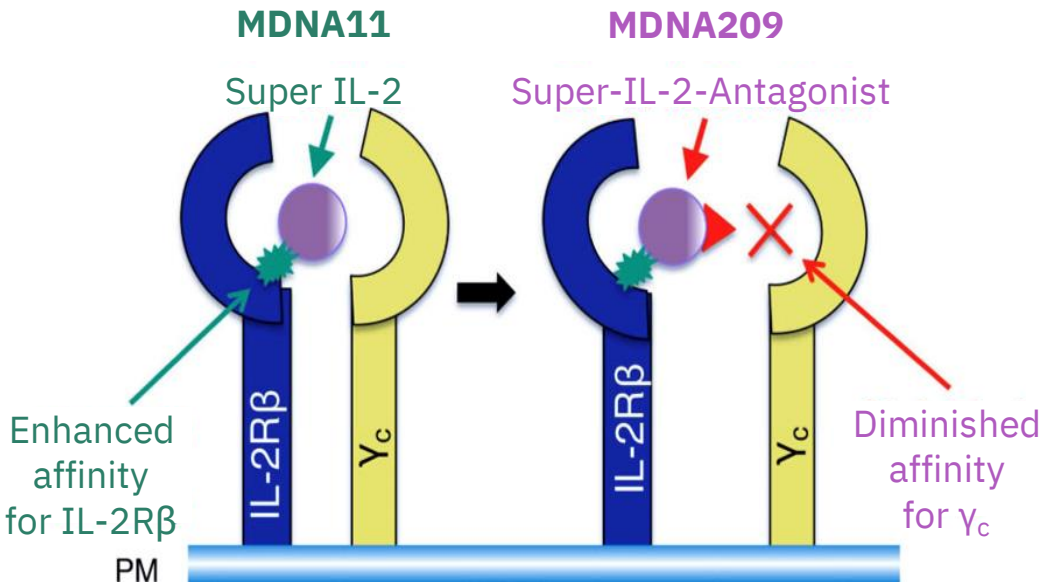
MDNA209: An IL-2/IL-15 Pathway Antagonist

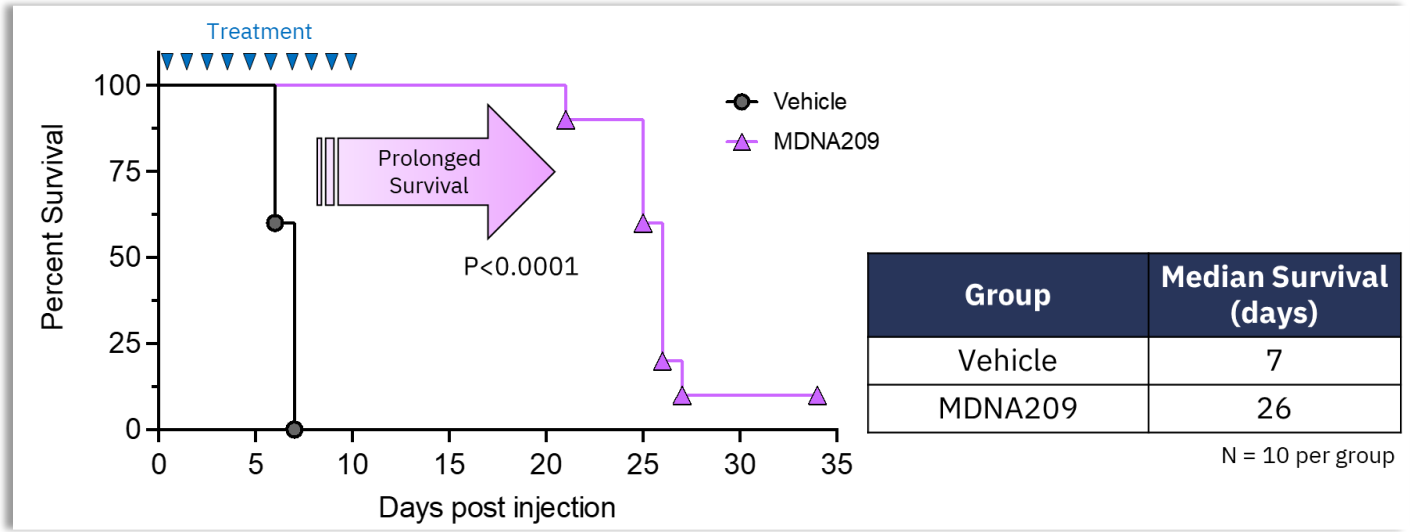
A Novel Mechanism for Treating Autoimmune Diseases

NOVARTIS
ACQUIRED
Calypso biotech

$425M
Jan 2024

Targeted Mutations Transformed IL-2 into a High-Affinity IL-2/IL-15 Receptor Antagonist





Group	Median Survival (days)
Vehicle	7
MDNA209	26

N = 10 per group

- **Mutations ablate γ_c-binding**
- **Dominant negative inhibition of effector CD4, CD8 T and NK cells**
- **400% improvement in survival in an aggressive GvHD model**

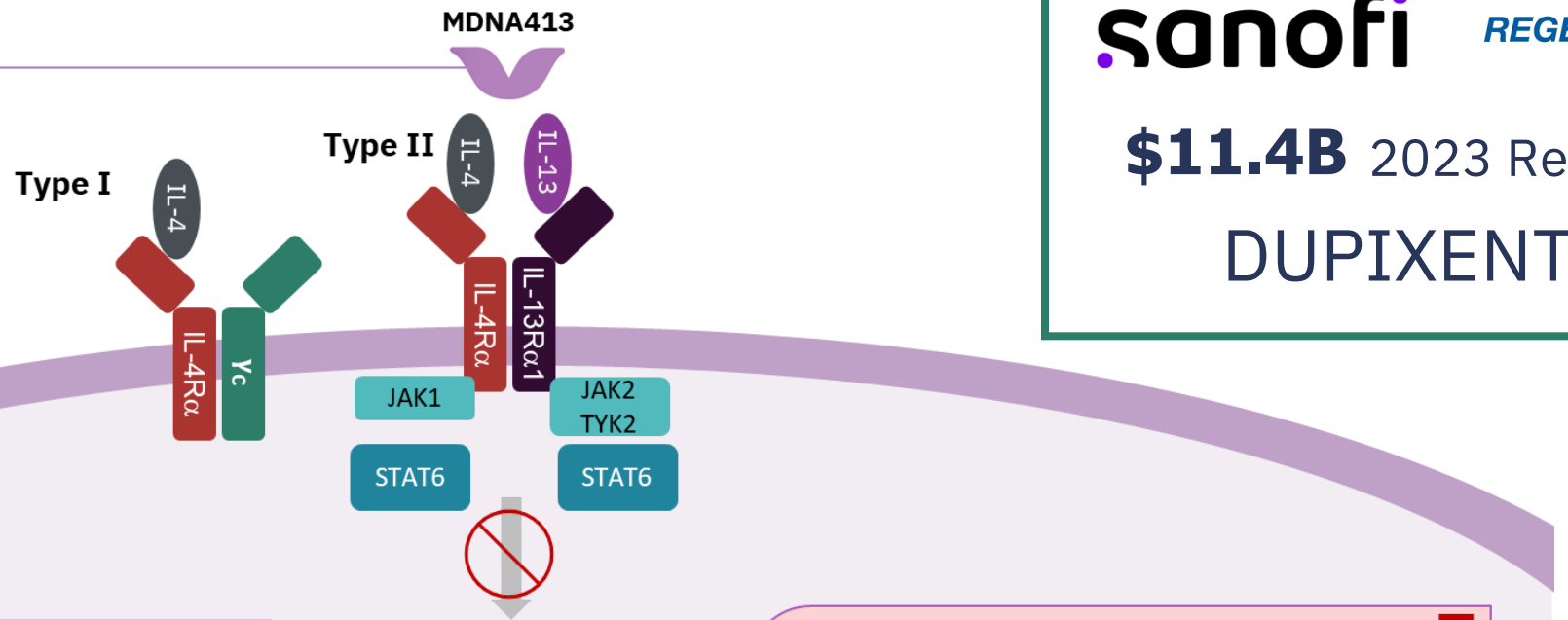
GvHD, graft-versus-host-disease

MDNA413: A Highly Selective IL-4/IL-13 Pathway Super-Antagonist

Potential for Topical or Aerosolized Administration for Chronic Inflammatory Diseases

MDNA413
Type II IL-4R Antagonist

- High affinity inhibitor of IL-13Rα1
- Preserves endogenous type I IL-4R signaling
- Potential to synergize with anti-IL-4Rα inhibitors
- Fc added to extend half-life



Cancer
- Skewing towards M2a TAMs
- Promotion of MDSCs
- Pro-tumor TME
- Promotes tumor growth and metastasis

Th2-Mediated Diseases
- Activation of myeloid cells and non-hematopoietic cells (i.e., nerve fibers)
- Promotes pathogenesis of airway inflammation, AD, EoE, itch, and other allergic indications

sanofi REGENERON

$11.4B 2023 Revenue

DUPIXENT®

Catalysts and Financials

Anticipated Milestones and Events

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Anticipated Milestones & Events

Timeline

H2 2024

H1 2025

Program Milestones

Additional MDNA11 Data Updates from ongoing Phase 1/2 ABILITY-1 study

Preclinical Data to Advance BiSKITs and Autoimmune Programs

Preclinical MDNA11 data in neoadjuvant setting

Complete MDNA11 Monotherapy Expansion and Combination Escalation Enrollment

Begin MDNA11 + KEYTRUDA® Combination Expansion Study

Bizaxofusp Regulatory Milestones, Partnering, and Commence Phase 3

Recent and Upcoming Events

Dec 4 - 5

IMMUNOTHERAPY BRIDGE 10 YEARS 2024

Dec 10 - 13

SAN ANTONIO BREAST CANCER SYMPOSIUM®

Mays Cancer Center UT Health San Antonio MD Anderson Cancer Center AACR American Association for Cancer Research

Feb 23 - 26

AACR IO

February 23 - 26, 2025
JW Marriott Los Angeles L.A. Live
Los Angeles, California

Apr 25 - 30

AACR American Association for Cancer Research

May 30 - June 3

ASCO AMERICAN SOCIETY OF CLINICAL ONCOLOGY

Evolutionary Cytokines Revolutionary Medicines

Generating Value by Advancing Superkines

MDNA11 ***'β-enhanced, not-α' IL-2 superkine, best-in-class potential***

- ✓ Favorable safety and PD/PK profile
- ✓ Deep and durable anti-tumor activity with 2 CRs, 5 PRs in ongoing Phase 1/2 ABILITY-1 study
- ✓ Demonstrating efficacy in checkpoint-resistant tumors

Bizaxofusp ***a first-in-class IL4-toxin payload for brain cancer***

- ✓ Phase-3 ready asset with Orphan Drug (FDA/EMA) and Fast Track Designations (FDA)
- ✓ Significant Survival Benefit in Phase 2b study of rGBM
- ✓ Pursuing Development and Commercial Partnerships

Multiple data read-outs anticipated in 2025

Financial Highlights

TSX | OTCQB	MDNA | MDNAF
Headquarters	Toronto, CA
Market Capitalization	$150M CAD
Cash	$32M 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 11/15/2024 – *See Company's Q2 F2025 Financial Results and MD&A*
[2] Includes $20M private placement by RA Capital, which includes ~5M common shares and ~5M pre-funded warrants

Cash runway through mid calendar 2026

Thank you

Investor Relations | ir@medicenna.com

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MDNA11: Extensive Independent Validation of IL-2 Superkine Platform

Author/Publication	Title	MDNA109 Platform
Gao, Yu et al, JCI 2023	Implication of 99mTc-sum IL-2 SPECT/ CT in immunotherapy by imaging of tumor--infiltrating T cells	SumIL2-Fc in article is MDNA109FA-Fc (Long acting "not-alpha" variant)
Bae, J et al., Nature Cell Biology 2022	IL-2 delivery by engineered mesenchymal stem cells re-invigorates CD8+ T cells to overcome immunotherapy resistance in cancer	sIL-2 in article is MDNA109FA-Fc (Long acting "not-alpha" variant)
Allen, GM et al., Science 2022	Synthetic cytokine circuits that drive T cells into immune-excluded tumors	sIL-2 in article is MDNA109
Brog, RA et al , Cancer Immunology Research 2022	Superkine IL2 and IL33 armored CAR T cells reshape the tumor microenvironment and reduce growth of multiple solid tumors	Super 2 in article is MDNA109 (variant D10)
Merchant, R et al, JITC 2022	Fine-tuned long-acting interleukin-2 superkine potentiates durable immune responses in mice and non-human primate	MDNA11 in article is MDNA109FEAA-Albumin (Long acting "not-alpha" variant)
Wolf, NK et al, PNAS 2022	Synergy of a STING agonist and an IL-2 superkine in cancer immunotherapy against MHC I–deficient and MHC I+ tumors	H9-MSA in article is MDNA109-MSA (Long acting version fused to mouse albumin)
Hsu, EJ et. al., Nature 2021	A cytokine receptor-masked IL2 prodrug selectively activates tumor-infiltrating lymphocytes for potent antitumor therapy	SumIL2-Fc in article is MDNA109FA-Fc (Long acting "not-alpha" variant)
Quixabeira, D et al., Front. Immuno., 2021	Oncolytic Adenovirus Coding for a Variant Interleukin 2 (vIL-2) Cytokine Re-Programs the Tumor Microenvironment and Confers Enhanced Tumor Control	vIL-2 in article is MDNA109
Sun, Z et. al., Nature 2019	A next-generation tumor-targeting IL-2 preferentially promotes tumor-infiltrating CD8+ T-cell response and effective tumor control	SumIL2-Fc in article is MDNA109FA-Fc (Long acting "not-alpha" variant)
Ardolino, A et al., JCI 2015	Cytokine therapy reverses NK cell anergy in MHC-deficient tumors	H9 in article is MDNA109
Zitvogel, L and Kroemer, G, JCI 2014	Cytokines reinstate NK cell–mediated cancer immunosurveillance	H9 in article is MDNA109
Levin, AM et al., JCI 2012	Exploiting a natural conformational switch to engineer an Interleukin-2 superkine	Super-2 and H9 in article is MDNA109

Bizaxofusp (MDNA55): Publications

Author/Publication	Title
Sampson JD et al, Neuro Oncology 2023	Targeting the IL4 receptor with MDNA55 in patients with recurrent glioblastoma: Results of a phase IIb trial
Bagley SJ, Neuro Oncology, 2023	Editor's Choice Editorial: Phase II trials in the era of glioblastoma immunotherapy: New mechanisms of action, familiar challenges in trial design and tumor response assessment
Majumdar A et al, Statistics in Biosciences, 2022	Building an External Control Arm for Development of a New Molecular Entity: An Application in a Recurrent Glioblastoma Trial for MDNA55
Davi R et al, Neuro Oncology Advances 2021	Incorporating External Control Arm In MDNA55 Recurrent Glioblastoma Registration Trial
Rahman R et al, Lancet, 2021	Leveraging external data in the design and analysis of clinical trials in neuro-oncology
Elligson B et al, Clin. Cancer Res. 2021	Modified RANO (mRANO), Immunotherapy RANO, and Standard RANO Response to Convection-Enhanced Delivery of IL4R-Targeted Immunotoxin MDNA55 in Recurrent Glioblastoma
Mohan, S et al SNI, 2021	Multiparametric MRI assessment of response to convection-enhanced intratumoral delivery of MDNA55, an interleukin-4 receptor targeted immunotherapy, for recurrent glioblastoma
Han J. and Puri R. J Neuro-Oncology , 2018	Analysis of the cancer genome atlas (TCGA) database identifies an inverse relationship between interleukin-13 receptor α1 and α2 gene expression and poor prognosis and drug resistance in subjects with glioblastoma multiforme
Kamran N, et. al.. Mol Ther, 2017	Immunosuppressive Myeloid Cells' Blockade in the Glioma Microenvironment Enhances the Efficacy of Immune-Stimulatory Gene Therapy
Otvos B et. al., Stem Cells , 2016	Cancer Stem Cell-Secreted Macrophage Migration Inhibitory Factor Stimulates Myeloid Derived Suppressor Cell Function and Facilitates Glioblastoma Immune Evasion