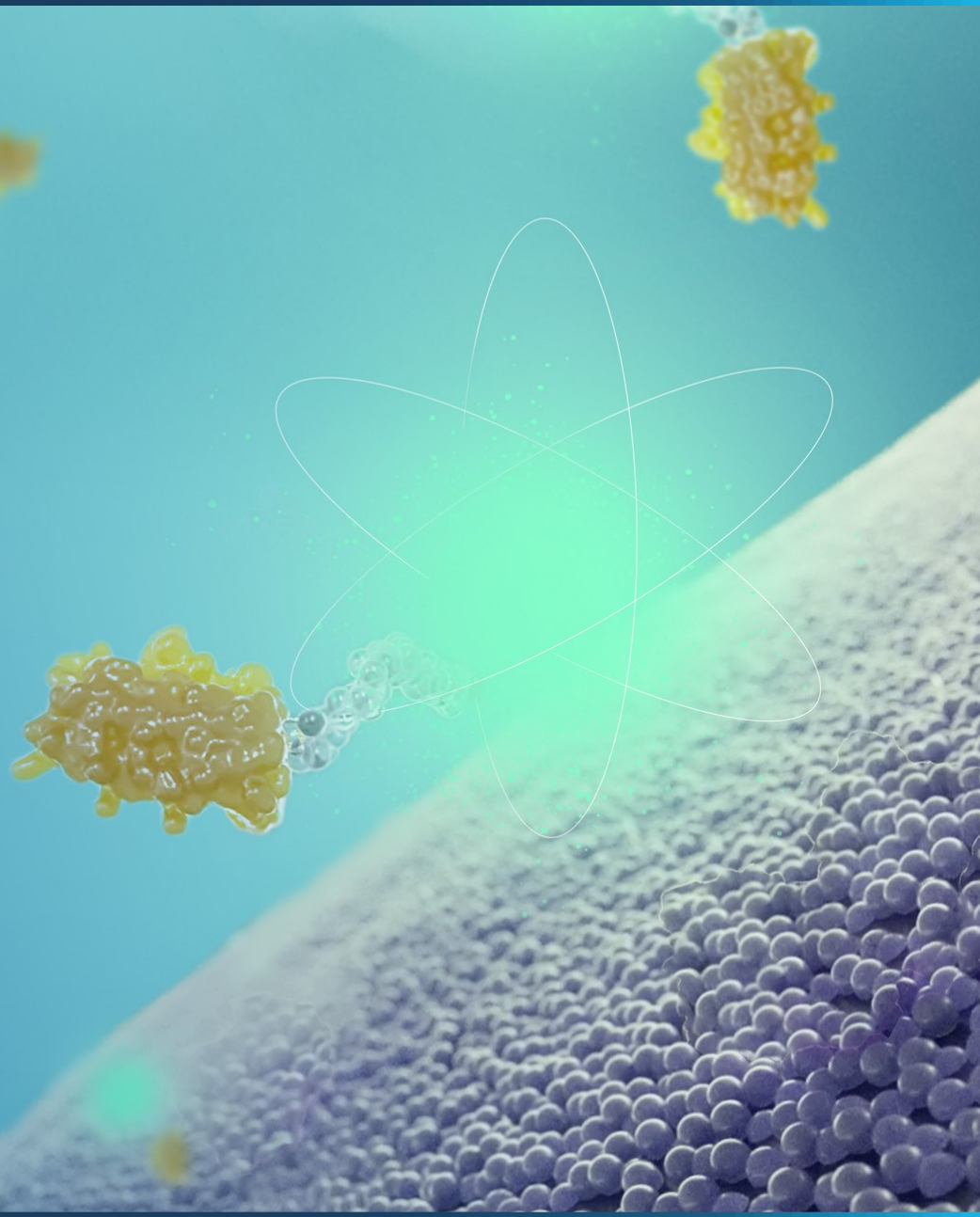
MOLECULAR partners

Extending the Boundaries of Targeted Cancer Therapies with Radio-DARPins and Next-Gen Immune Cell Engagers



June 24, 2025

Nasdaq, SIX Swiss Exchange: MOLN

Disclaimer

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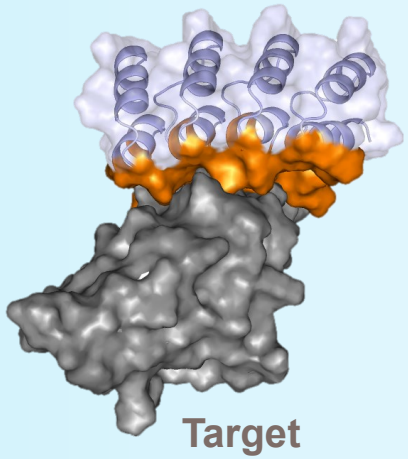
Molecular Partners at a Glance

Extending the Boundaries of Targeted Cancer Therapies

DARPin
Designed Ankyrin Repeat Protein



Our Company: MOLN

- Clinical-stage biotech company **pioneering DARPin therapeutics for patients**
- Operations & listing in Switzerland (SIX, 2014) and US (Nasdaq, 2021), founded 2004
- **Well financed** into 2028 through key value inflection points (CHF ~131 M*)

Our Capabilities: Technology, Team, Collaborations

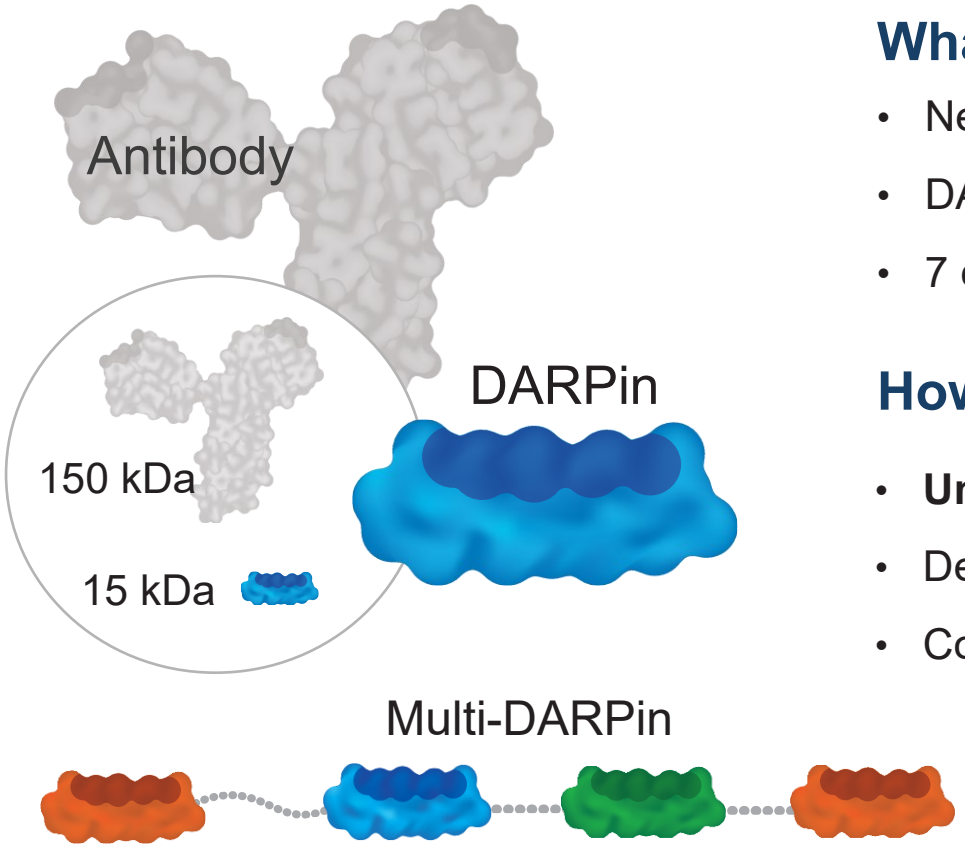
- Proprietary DARPin Platforms, including **Radio-DARPins** and **Switch / T cell engagers**
- Strong international team to execute up to clinical POC
- Global partnerships to access technology & capabilities (Orano Med)

Our Pipeline: Patient Value

- Differentiated **Assets** with focus in **Oncology**,
- **Targeted radiotherapy / MP0712** and **next-gen immune cell engagers / MP0533** for patients across indications with high unmet medical need

*Financials as per March 31, 2025.

The DARPin Modality and Molecular Partners' Strategy



What we invented

- New class of therapeutics: Designed Ankyrin Repeat Proteins **(DARPins)**
- DARPins **close the gap between small molecules and antibodies**
- 7 clinical-stage compounds, **>2500 patients treated**

How we apply it

- **Unique DARPin solutions**, not addressable by antibody designs
- Demonstrate **true patient value** with **early clinical readouts**
- Combine our **capabilities with world-class partners**

Our Pipeline – Targeted DARPin Therapeutics for Patients

PLATFORM	CANDIDATE	RESEARCH	PRE-CLINICAL	PHASE 1	PHASE 2	PHASE 3
Radio-DARPin Therapy (RDT)	**MP0712**	**SCLC & NECs** *^{212}Pb - DLL3*		oranomed *Co-development**		
	MP0726	**Ovarian Cancer** *^{212}Pb - MSLN*	oranomed *Co-development**			
	Undisclosed Programs	**Solid Tumors**	*Up to 8 programs**			
Next-Gen Immune Cell Engagers	**MP0533**	**r/r AML and AML/MDS** *CD33 x CD123 x CD70 x CD3*				
	Switch-DARPin T Cell Engager	*CD3 x costim x TAAs*				
	MP0621 (Switch-DARPin)	**HSCT** *cKit x CD16a x CD47*				
	MP0317	**Advanced Solid Tumors** *FAP x CD40*				

*The co-development agreement with Orano Med includes up to 10 RDT programs, including MP0712 and MP0726.
AML, acute myeloid leukemia; DLL3, Delta-like ligand 3; HSCT, hematopoietic stem cell transplant; MDS, myelodysplastic syndrome; MSLN, mesothelin; NEC, neuroendocrine cancer; r/r, relapsed/refractory; SCLC, small cell lung cancer; TAA, tumor-associated antigen.

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MP0533

Tetra-specific T-cell Engager for AML

MP0533 enables T-cell-mediated killing of AML blasts and stem cells

r/r AML: critical unmet need, quick relapse despite new treatments

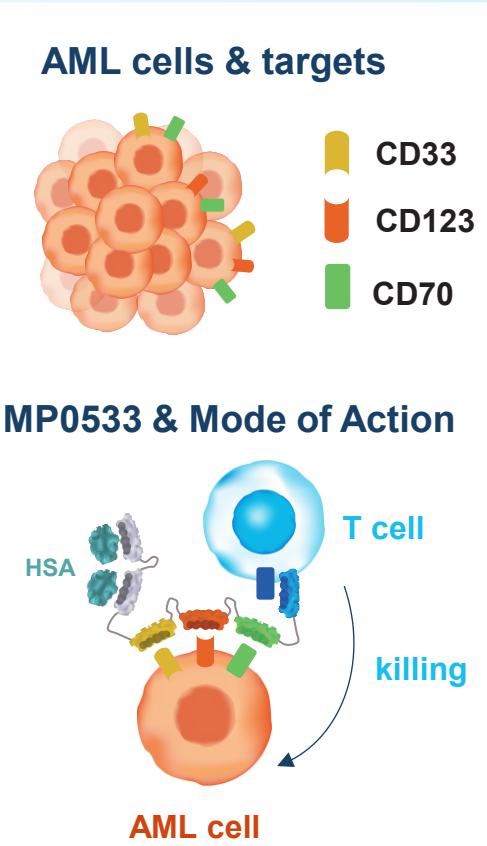
- 5y overall survival (OS) ~30%; fast-progressing disease
- Leukemic stem cells drive relapse

CD123, CD33, CD70: broadly expressed targets on AML cells

- Co-expressed on blasts and leukemic stem cells across patients
- Single or no expression on healthy cells
- Clinically validated targets with mono targeting treatments (ADCs, mAbs)

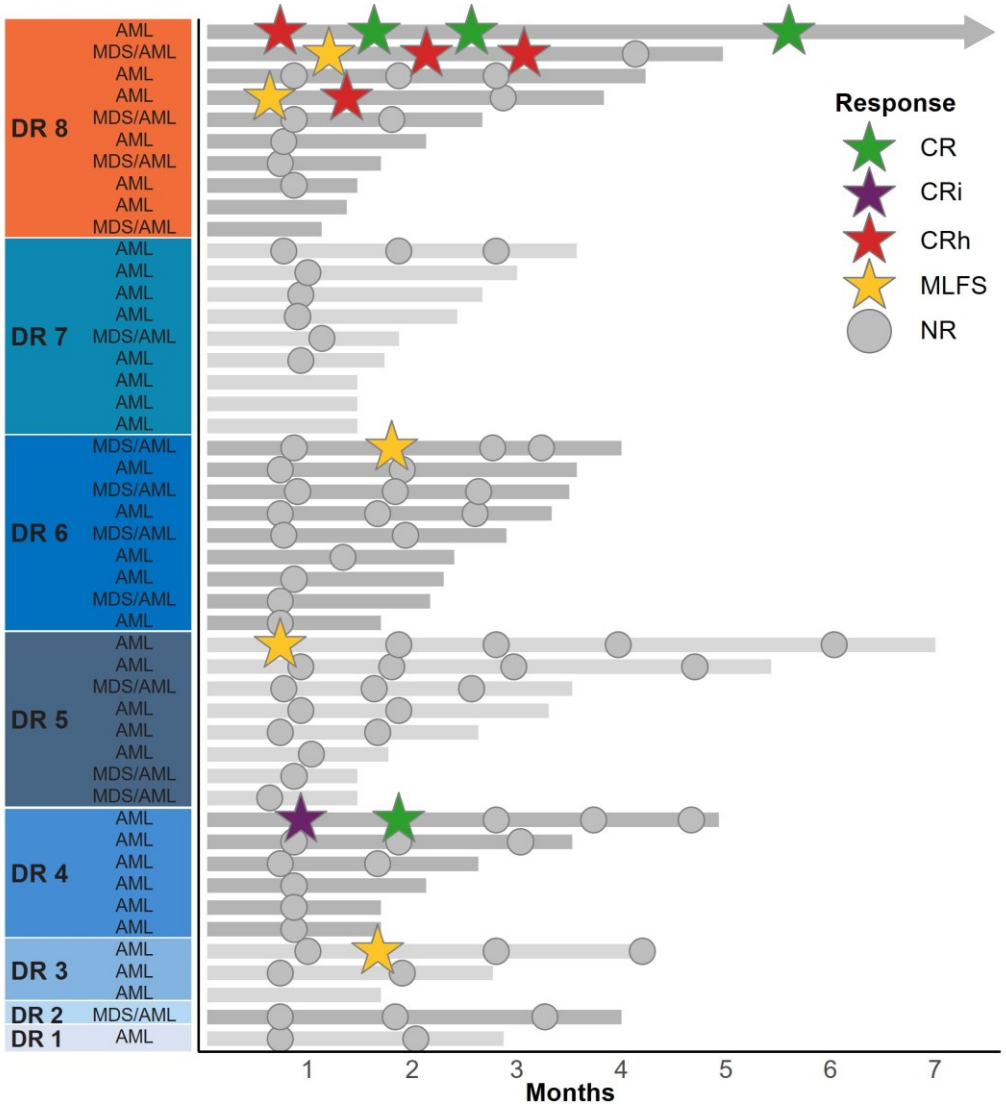
MP0533: avidity-driven, tetraspecific T-cell engager

- Preferential killing of AML blasts and leukemic stem cells, while sparing healthy cells
- Broad patient population: amenable to chemo-resistant patients, mutation-agnostic
- Attractive therapeutic index with acceptable safety and demonstrated efficacy



ADC, antibody drug conjugate; r/r AML, refractory / relapsing acute myeloid leukemia; HSA, human serum albumin; mAb, monoclonal antibody.

Encouraging clinical responses observed with intermediate densification

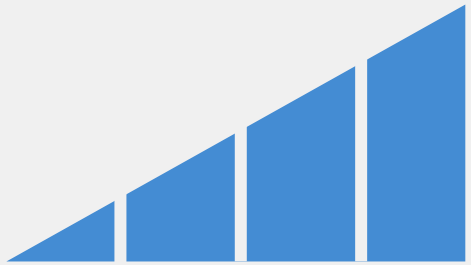


Improved response rate and depth observed to-date in Cohort 8:

- **DR 1–7 –** 4 patients (of 33 evaluable) achieved a response: 1 CR (DR 4) and 3 MLFS (1 each DR 3, 5, 6)
- **DR 8 –** with the accelerated step-up dosing, 3 / 8 evaluable patients responded after cycle 1: 1 CR and 2 CRh as best overall response
- One patient in DR 8 is still on treatment and shows a response duration of at least 6 months.

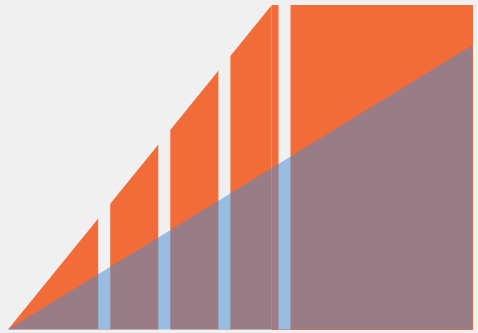
Dose escalation (DR 1–7)

- Limited clinical activity
- Loss of exposure driven by TMDD and ADAs in some patients



Intermediate densification (DR 8)

- **Additional Day 12 dose** for **steeper & faster dose escalation,** addressing TMDD



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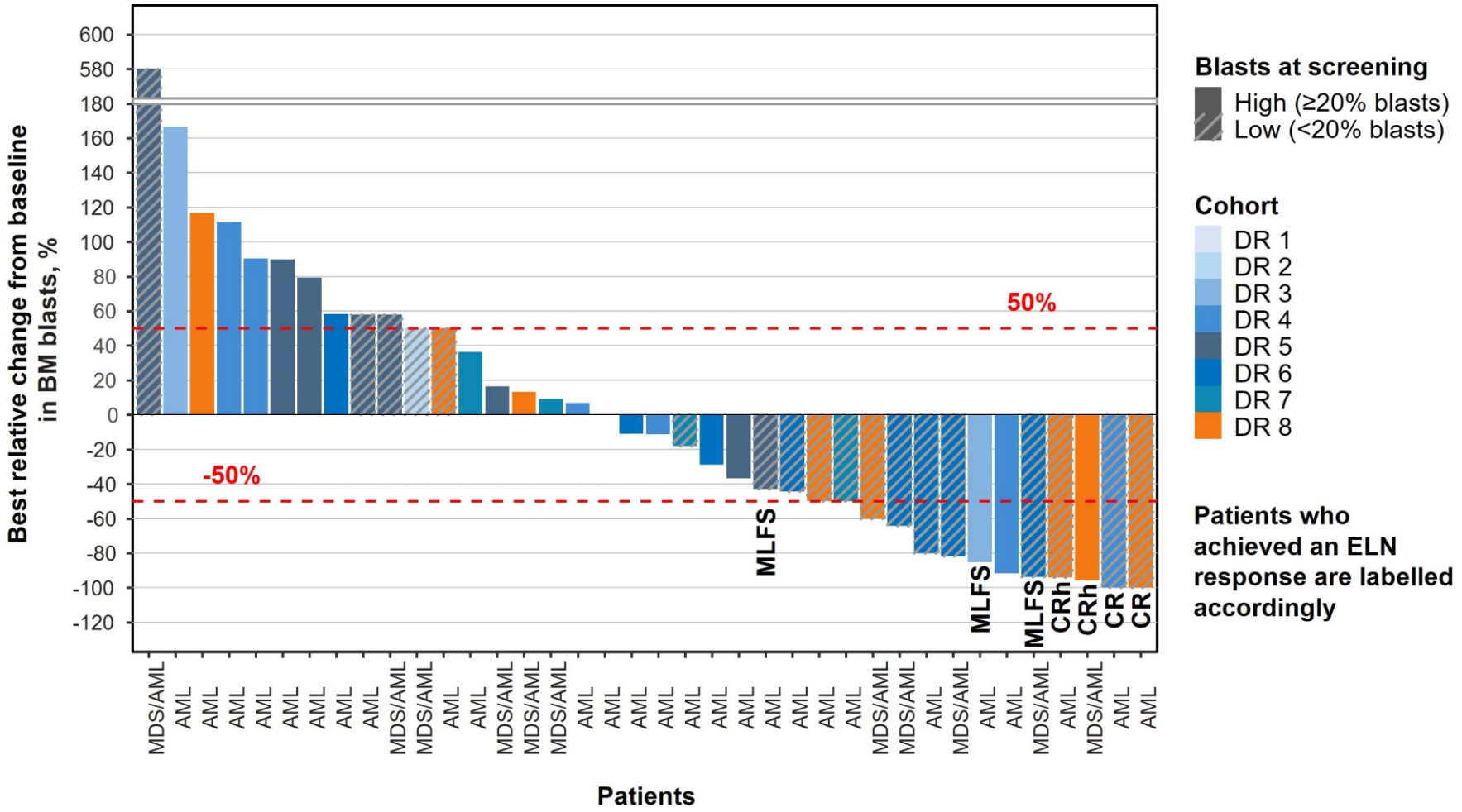
Bories et al, EHA 2025
Data cut-off: 14 April 2025
Preliminary data as study is ongoing, subject to final data validation.

Response was assessed according to ELN 2022 criteria: Döhner et al. Blood 2022;140(12)1345-77.
Ag, antigen; ADA, anti-drug antibody; CR, complete response; CRh, CR with partial hematologic recovery; CRi, CR with incomplete hematologic recovery; ELN, European LeukemiaNet; MLFS, morphologic leukemia-free state; TMDD, target-mediated drug disposition.

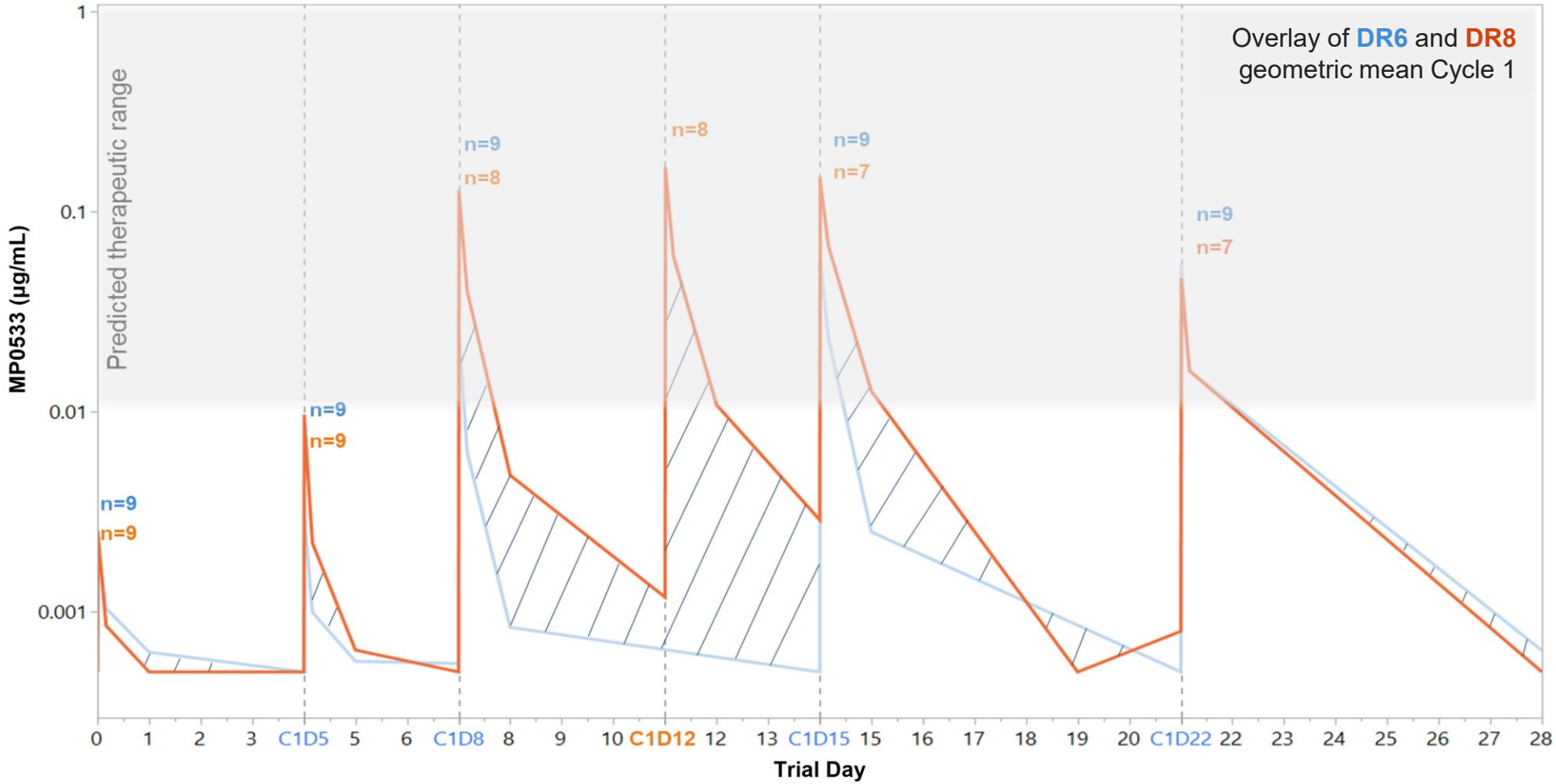
Encouraging Blast Reduction Observed, Particularly in Patients with Lower Disease Burden at Baseline*



Bories et al, EHA 2025
Data cut-off: 14 April 2025
Preliminary data as study is ongoing, subject to final data validation.

*Lower disease burden defined as patients with baseline blast <20% in bone marrow.
BM, bone marrow.

Improved MP0533 exposure achieved with steeper and denser step-up dosing regimen in DR8



Bories et al, EHA 2025
Data cut-off: January 2025
Preliminary data as study is ongoing, subject to final data validation.

n, number of evaluable patients at data cut-off.

Further dose densification to demonstrate full potential of MP0533

Protocol amendment to optimize MP0533 exposure

Summary of Cohorts DR 1-8 data *(as presented at EHA 2025)*:

	N (evaluable patients)	Days exposed to predicted therapeutic range in cycle 1	Patients with >50% blast reduction	Response rate (number of responders)
Cohorts DR 1-7	33	< 2 days	30%	12 % (4)
Cohort DR 8	**8**	**4 days**	**60%**	**37.5 % (3)**

Outlook: Initial data from DR 9 in H2 2025

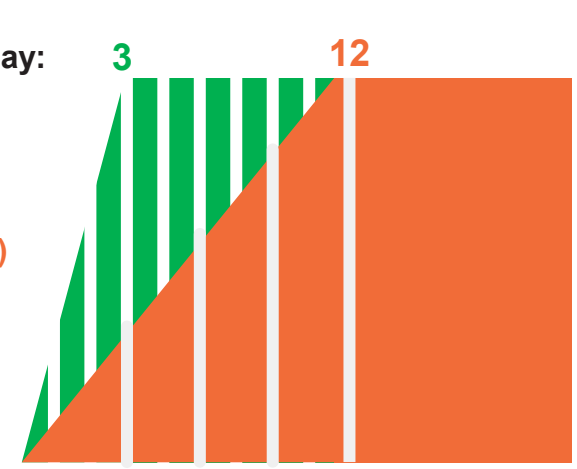
Objectives of protocol amendment (DR 9-10):

- To improve the exposure profile of MP0533 in patients
- To increase the depth and duration of clinical responses

How:

- Dose densification (accelerated step-up dosing & higher dose frequency) to overcome target-mediated drug disposition
- Premedication with B cell depleting agent to mitigate loss of exposure

Amended Dosing Scheme*



*Dosing scheme not to scale. DR, dose regimen.

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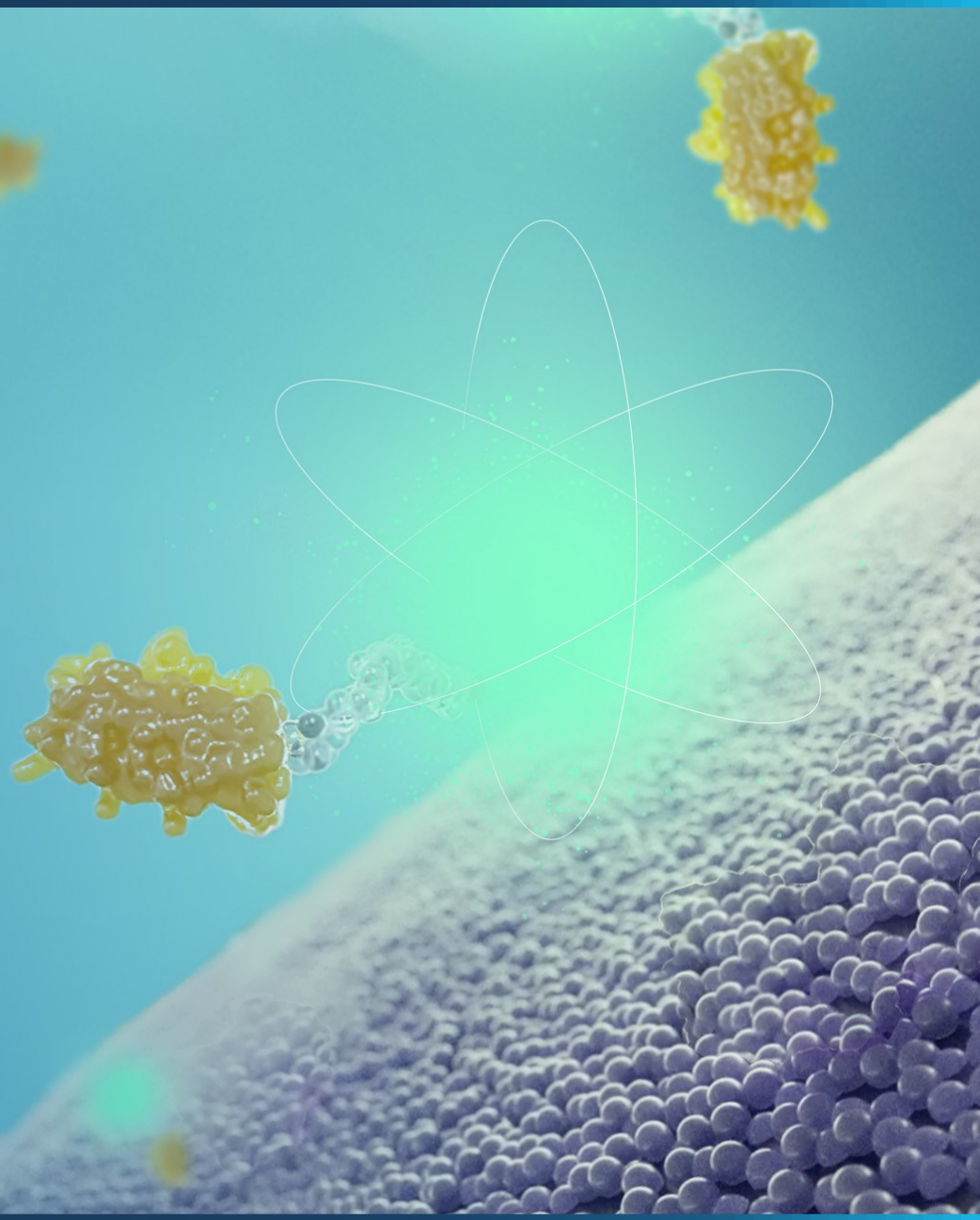
MP0712 & Radio-DARPin Therapy

Custom-engineered to create vectors ideal for radiopharmaceuticals



Radio-DARPins as Versatile Therapeutic Candidates

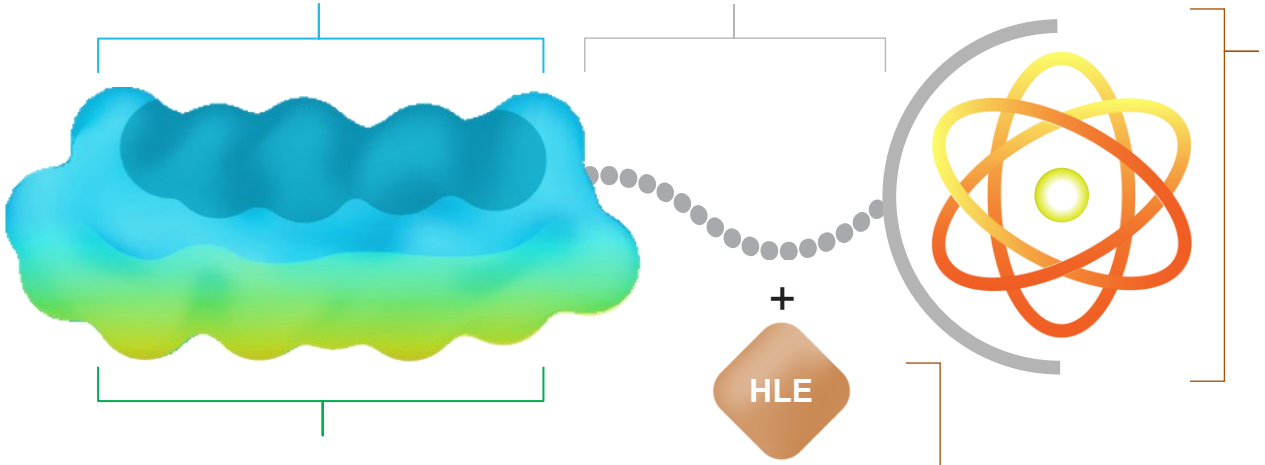
Combining versatile DARPin features with the power of ^{212}Pb for next-gen Targeted Alpha Therapy

DARPin: IDEAL VECTOR FOR RADIOPHARMACEUTICALS

- Proven selective targeting
- High affinity, tumor retention
- Broad target space
- Small size

LINKER & CHELATOR

- Established DOTAM



^{212}Pb: ALPHA-EMITTING THERAPEUTIC ISOTOPE

- Proven clinical efficacy
- Fast & high energy deposition
- Safe profile
- Ideal waste management

SURFACE ENGINEERING

- High stability
- Reduce kidney accumulation

HALF-LIFE EXTENDER

- Half-life tuning
- Promote tumor uptake

MP0712, the first ^{212}Pb-DLL3 Targeted Radiotherapeutic for SCLC

SCLC: critical unmet need, limited treatment options

- Median progression free survival (mPFS) ~3 months[1,2]
- 5y overall survival (OS) ~3%[1,2]

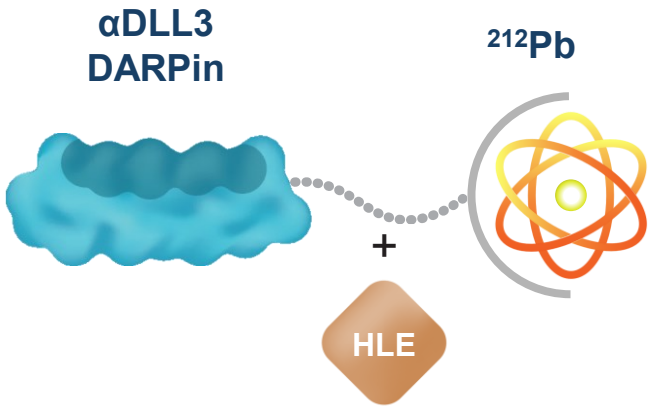
DLL3: a validated target for SCLC

- Expressed in >85% of SCLC patients[3] and in neuroendocrine cancers
- No expression in healthy tissues
- Tarlatamab[4], approved DLL3 targeting drug (T cell engager)
  - ORR ~40%, DOR 9.7 months, PFS 4.3 months

MP0712: targeted delivery of alpha radiation with ^{212}Pb

- DLL3 DARPin optimized for selective delivery of payload to tumor
- ^{212}Pb payload: high energy alpha emissions in short time frame
- Potential for combinations with immunotherapy

MP0712 product composition

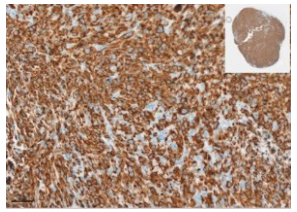


1.Treatment of refractory and relapsed small cell lung cancer, UpToDate; 2. SEER;
3. Rojo et al., Lung Cancer 2020; 4. Phase 2 DeLLphi-301 study (NCT05060016).
DOR, duration of response; HLE, half-life extension; ORR, overall response rate; SCLC, small cell lung cancer.

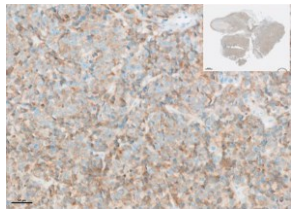
MP0712: Potent Efficacy at Clinically-Relevant Dose

DLL3 expression & distribution by IHC

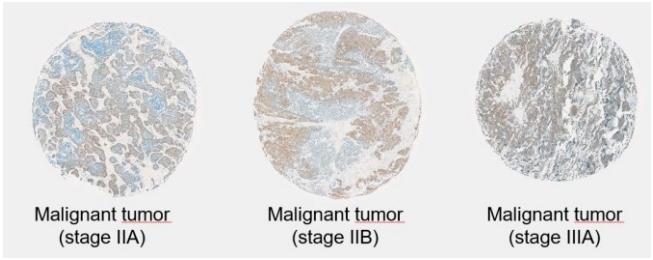
hDLL3-MC38 tumors



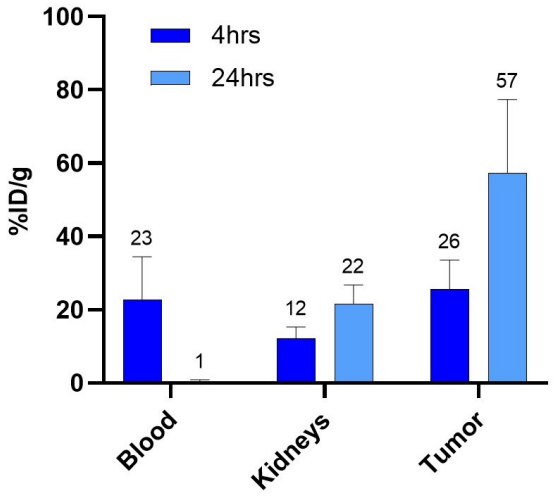
NCI-H82 tumors



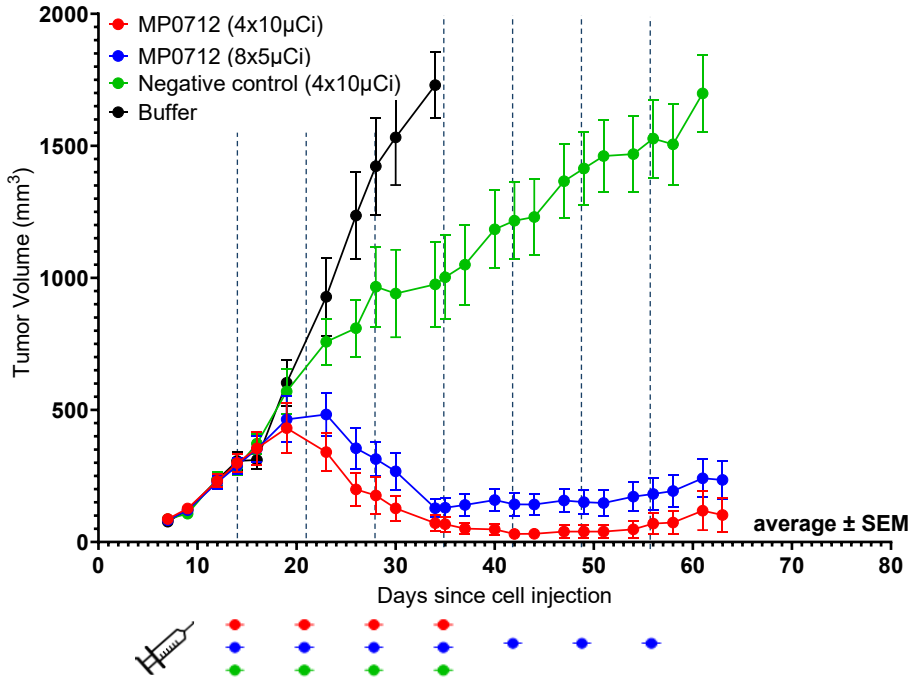
Human SCLC tumors



*Mice xenografted **i.v.** with*
NCI-H82 tumor cells



*R2G2 mice xenografted **s.c.** with*
NCI-H82



- **MP0712 reached T:K ratios > 2 in mouse model matching clinically relevant DLL3 expression levels**
- **MP0712 induces complete and durable tumor regression in NCI-H82 tumor model at 10µCi injected every week**

Steiner et al, TRP 2024 (oral presentation)
Croset et al, EANM 2024 (oral presentation)
Lizak et al, SNMMI 2024 (oral presentation)

Efficacy study in NCI-H82 s.c. tumor model / MP0712 and negative control injected 4 x 10µCi at 0.01mg/kg or 8 x 5µCi at 0.01mg/kg every 1; 10 µCi = 370 kBq
NCI-H82 i.v. mouse model:
^{212}Pb-DOTAM-DARPin - single injection - dose : 10 µCi (0.01 mg/kg)

Outline of MP0712 Clinical Development Strategy

- Patients: Focus on Small Cell Lung Cancer (SCLC), secondly on Neuro Endocrine Cancers (NECs)
- Imaging and dosimetry on-going, initial data* expected by YE 2025
- **Phase 1 study to start in H2 2025, initial safety and efficacy data in 2026**

PHASE 1/2a STUDY

Phase 1: ^{212}Pb Dose Escalation,
Main objective: Safety, RP2D; *N = 15–27 patients*
Phase 1 includes an imaging and dosimetry step with ^{203}Pb
Phase 2a – Dose Expansion and PoC – SCLC+NEC;
Main objective: Efficacy signals, confirm RP2D; *N = 30 patients*

Registration study
2L+ SCLC patients

Phase 2s
- 1–2L combination with IO SCLC
- Registration in patients with other NECs

**Molecular Partners has received and accepted a request from Nuclear Medicine Research Infrastructure (NuMeRI) in South Africa to provide MP0712 for imaging use under the legal framework in South Africa for compassionate care (also referred to as Section 21 of the Medicines and Related Substances Act). This approach enables the generation of first images applying MP0712 labelled with 203Pb in patients with SCLC. While the decision of where and how to share data from the image work under Section 21 remains at the discretion of NuMeRI, the Company anticipates providing an update on MP0712 in H2 2025.*

^{212}Pb x MSLN Targeted Radio-DARPin for Ovarian Cancer

Combining distinctive DARPin features with the power of ^{212}Pb for next-gen targeted alpha therapy

Ovarian Cancer (OC): high medical need and marginal progress

- > 50% patients die within 5y post-diagnosis (diagnosis often in late stage)
- Poor treatment options: ~80% recurrence rate post 1L chemo, limited 2L options (FR-alpha targeted Tx relevant for only 40% patients)

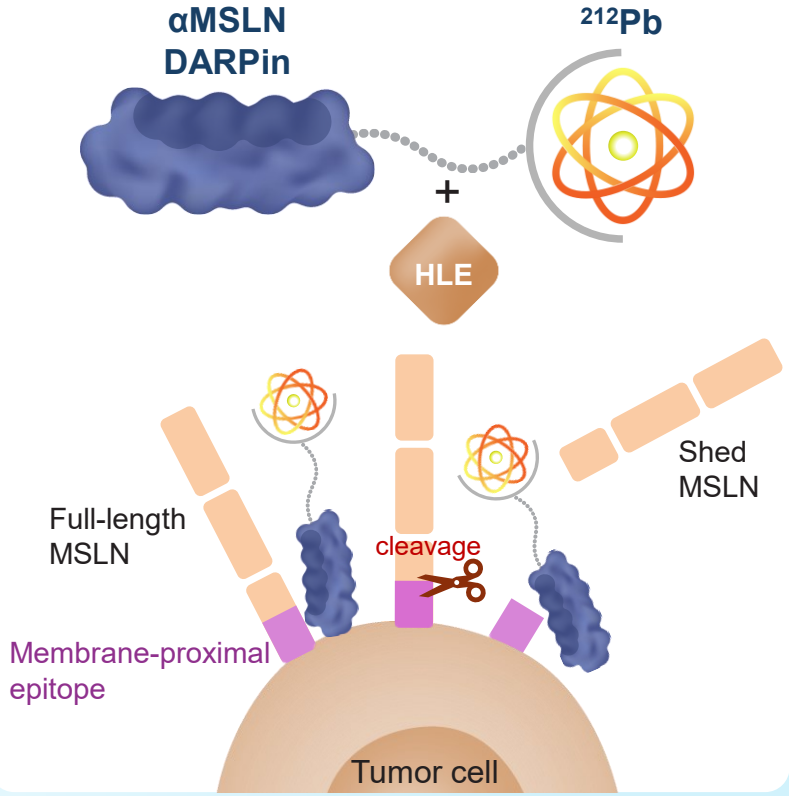
Mesothelin (MSLN): a promising target for OC as 1st indication

- Highly expressed in OC (>80% prevalence), expression maintained in metastases
- Shed MSLN detected in serum of OC patients, might limit efficacy of MSLN-targeted therapies[1,2,3,4] (e.g., CAR T/NK, ADC, TCE in development)

RDT x MSLN: targeted delivery of alpha radiation with ^{212}Pb

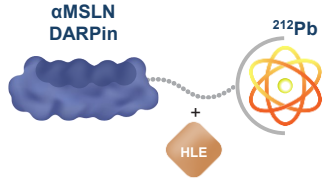
- MSLN DARPin targets **membrane-proximal epitope** (and not shed MSLN)
- ^{212}Pb payload: high energy alpha emissions in short time frame
- Potential for combinations with immunotherapy (incl. next-gen TCEs)

Product composition

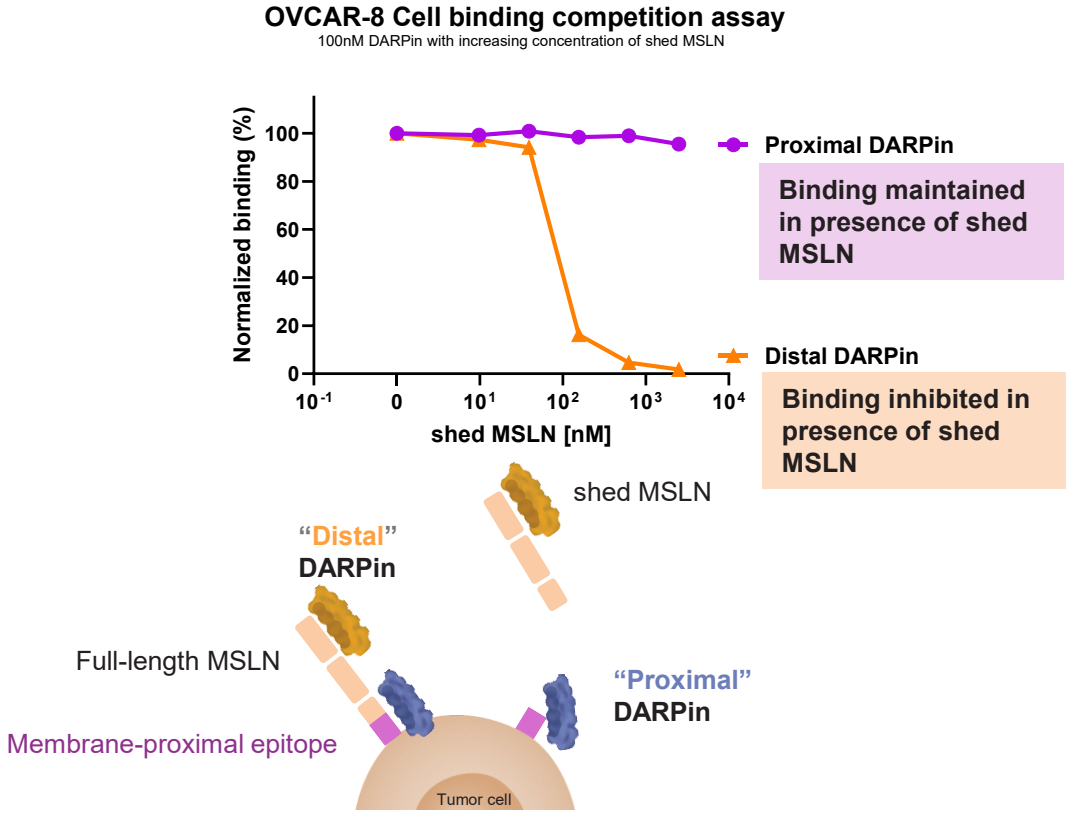


1. Awuah et al. 2016; 2..Zhang et al. 2011; 3.Smith et al. 2024 (ASCO poster); 4.Pastan et al, 2024.

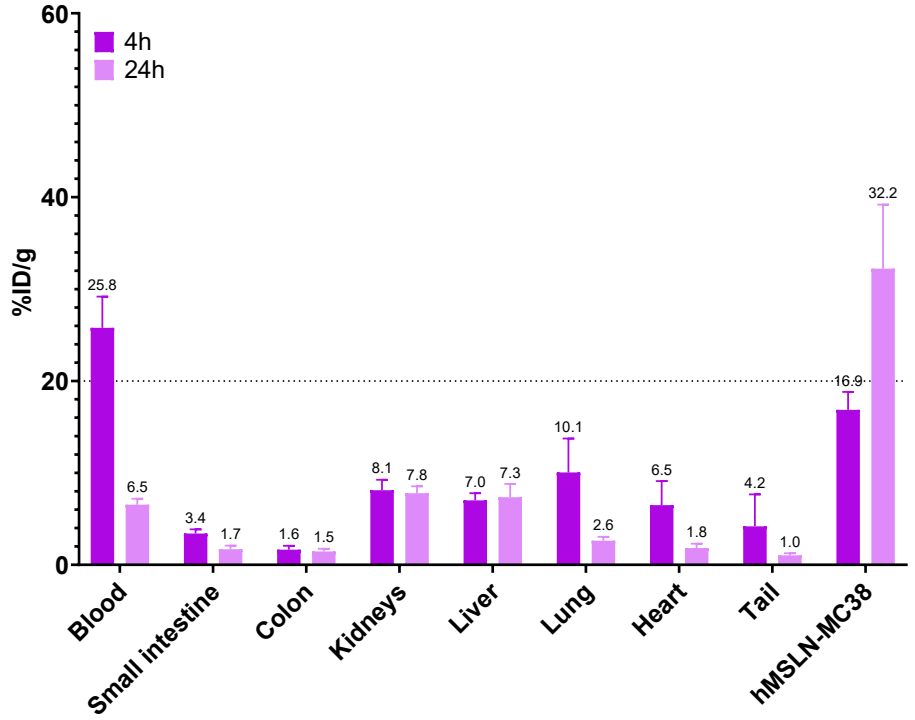
Attractive biodistribution profile of MSLN Radio-DARPin



Cell binding maintained despite shed MSLN



Favorable biodistribution in hMSLN-MC38 tumor model



Wullschleger S, et al., AACR 2025.

Mice xenografted s.c. with hMSLN-MC38 (Biocytogen)
Dose: 10 µCi of ^{212}Pb at 0.01 mg/kg of MSLN DARPin

Global Partnership to Develop ^{212}Pb Radio-DARPin Therapeutics

Combining DARPin versatility with the power of ^{212}Pb for next-gen Targeted Alpha Therapy

MOLECULAR PARTNERS
PIONEERS of DARPIN THERAPEUTICS

ORANO MED
PIONEERS of TARGETED ALPHA THERAPY

FULL VALUE CHAIN PARTNERSHIP

World class technologies & capabilities combined

INDIANA, US:
Industrial scale manufacturing
Global shipping hub
ATLab US

TEXAS, US:
Preclinical development
GMP supply for early clinical phases

SWITZERLAND:
Preclinical assessment
DARPin engine, fast & high throughput

FRANCE:
^{212}Pb starting material
ATLab Europe

Pipeline of Ten ^{212}Pb Radiotherapy products

1	**MP0712** (^{212}Pb x DLL3)	4 Radio-DARPin programs 50:50 cost and share split
2	^{212}Pb x MSLN	
3		
4		
5		2 MP-owned programs with opt-in option for OM for 50:50 cost:share split
6		
7		4 MP-owned programs
8		
9		
10		

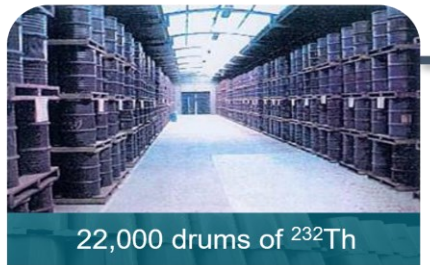
Our Partner Orano Med – Pioneer of Targeted Alpha Therapy

Targeted Alpha Therapy with ^{212}Pb:

- **Alpha therapy**:
  - **High cytotoxicity**: DNA double-strand break, high energy deposition, no need for receptor internalization
  - **Targeted effect**: short range of action with potential to target microlesions, less impact on healthy tissues
- **Lead-212 (^{212}Pb)**:
  - **Short-half life** (~11h): out-patient administration, easy waste management, high-dose rate, flexible dosing
  - **Clean decay** with single alpha emission and effective chelating agent, limiting circulation of free daughter isotopes

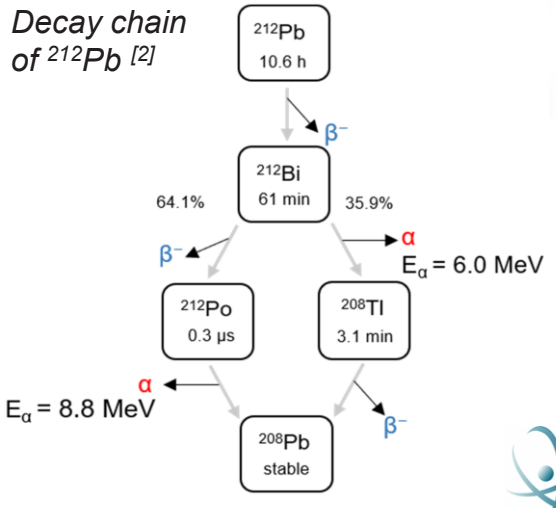
Orano Med as Pioneer of ^{212}Pb Targeted Alpha Therapy:

- Unique, independent **supply of ^{212}Pb** as alpha emitting therapeutic isotope
- **Large scale GMP manufacturing** capabilities
- Fully integrated research and preclinical development platform
- **Clinical capabilities** demonstrated with ^{212}Pb and lead program AlphaMedix™, outlicensed to Sanofi in Sept 2024, in Phase 2
- Strong collaboration partner with MP since early 2023



Lead-212 is obtained **chemically** by **successive extractions and purifications** of the descendants of thorium-232

Decay chain of ^{212}Pb [2]



oranomed

1. Zimmermann, *J Nucl Med*, 2023.
2. Li et al., *Materials* 2021.

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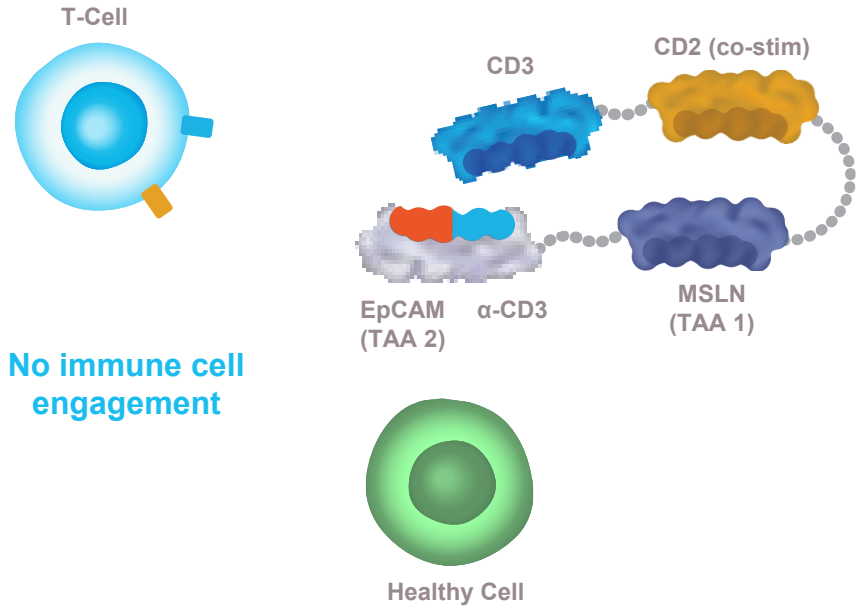
Switch-DARPin Platform

Next-generation T cell engagers

CD3 Switch-DARPin for Next-gen TCEs with Enhanced Function

Tackling current limitations of TCEs in solid tumors

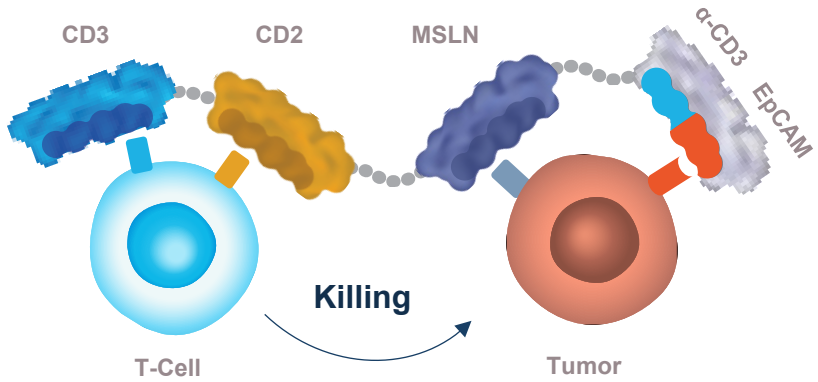
OFF **CD3 DARPin masked by 2-in-1 Switch in absence of TAAs**



No immune cell engagement

- TCE is silent and inactive in circulation

ON **Binding to TAAs releases CD3 Switch-DARPin**

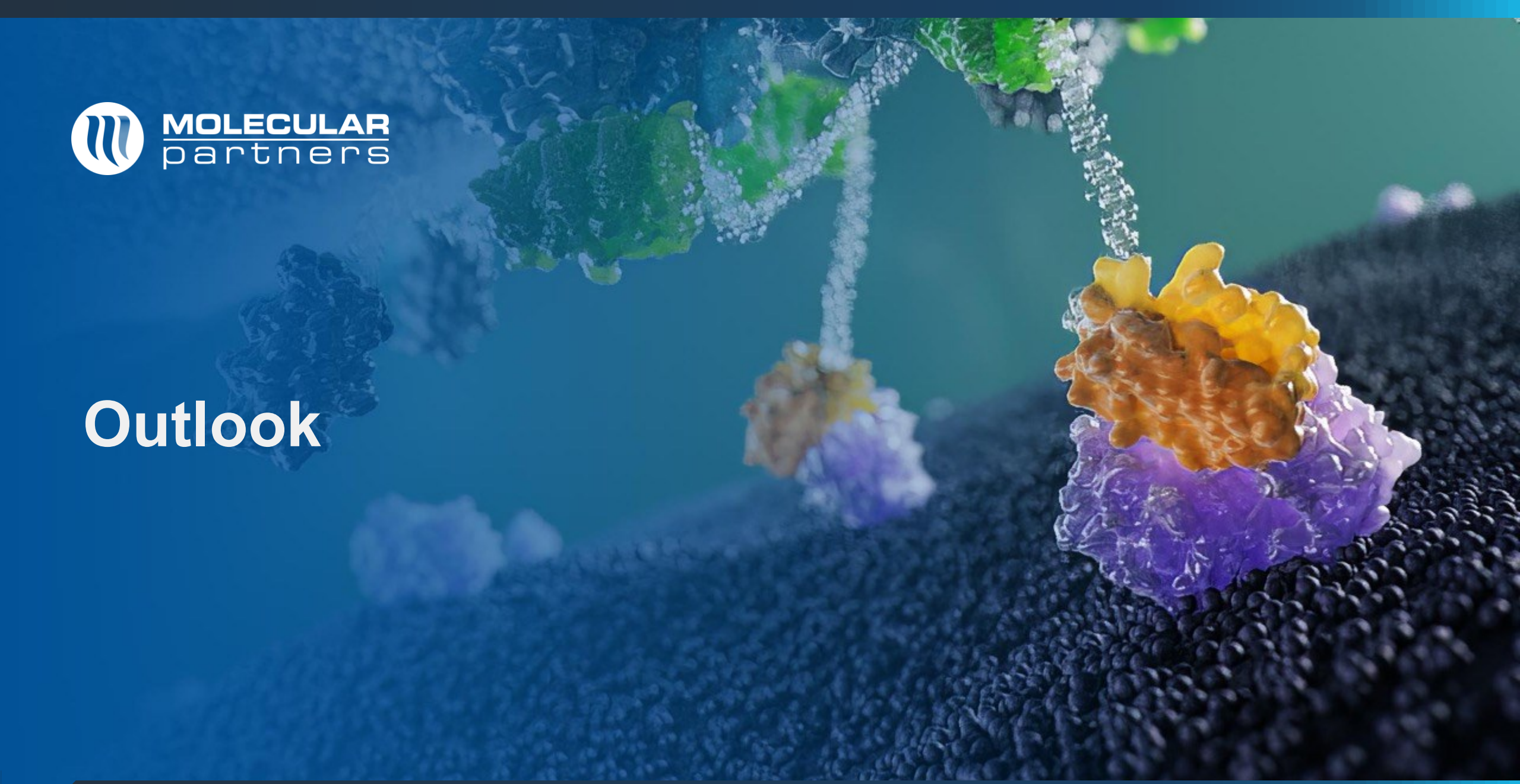


Immune cell-mediated killing

- TCE is activated to kill the tumor cell
- TCE is co-stimulated (no exhaustion)

Preclinical update on CD3 Switch T cell engager at AACR 2025

TAA, tumor associated antigen; TCE, T cell engager.



Outlook

2025 Outlook and Upcoming Milestones

MP0712	• **First-in-Human studies to start in 2025** (Phase 1) • Initial clinical data by end 2025 (imaging & dosimetry) • Initial efficacy and safety data in H1 2026
Radio-DARPin Therapy (RDT)	• MSLN preclinical update at AACR and SNMMI 2025, therapeutic candidate selection • Additional ^{212}Pb x RDT programs nominated, in collaboration with Orano Med
MP0533	• Comprehensive clinical data from Phase 1 cohort 8 at EHA 2025 • Protocol implementation of improved dosing regime, H1 2025 • **Data from additional cohorts on amended dosing scheme in H2 2025**
Switch-DARPin	• Preclinical update on CD3 Switch T cell engager at AACR 2025 • Evaluation of partnering opportunities with Switch platform, including MP0621 (cKit) & T-cells

CHF ~131 million cash* (incl. short-term time deposits) ensures **funding into 2028**

*Financials as per March 31, 2025.
IND, investigational new drug.

MOLECULAR partners

Twenty Years of Pioneering DARPin Therapeutics for Patients

Thank You