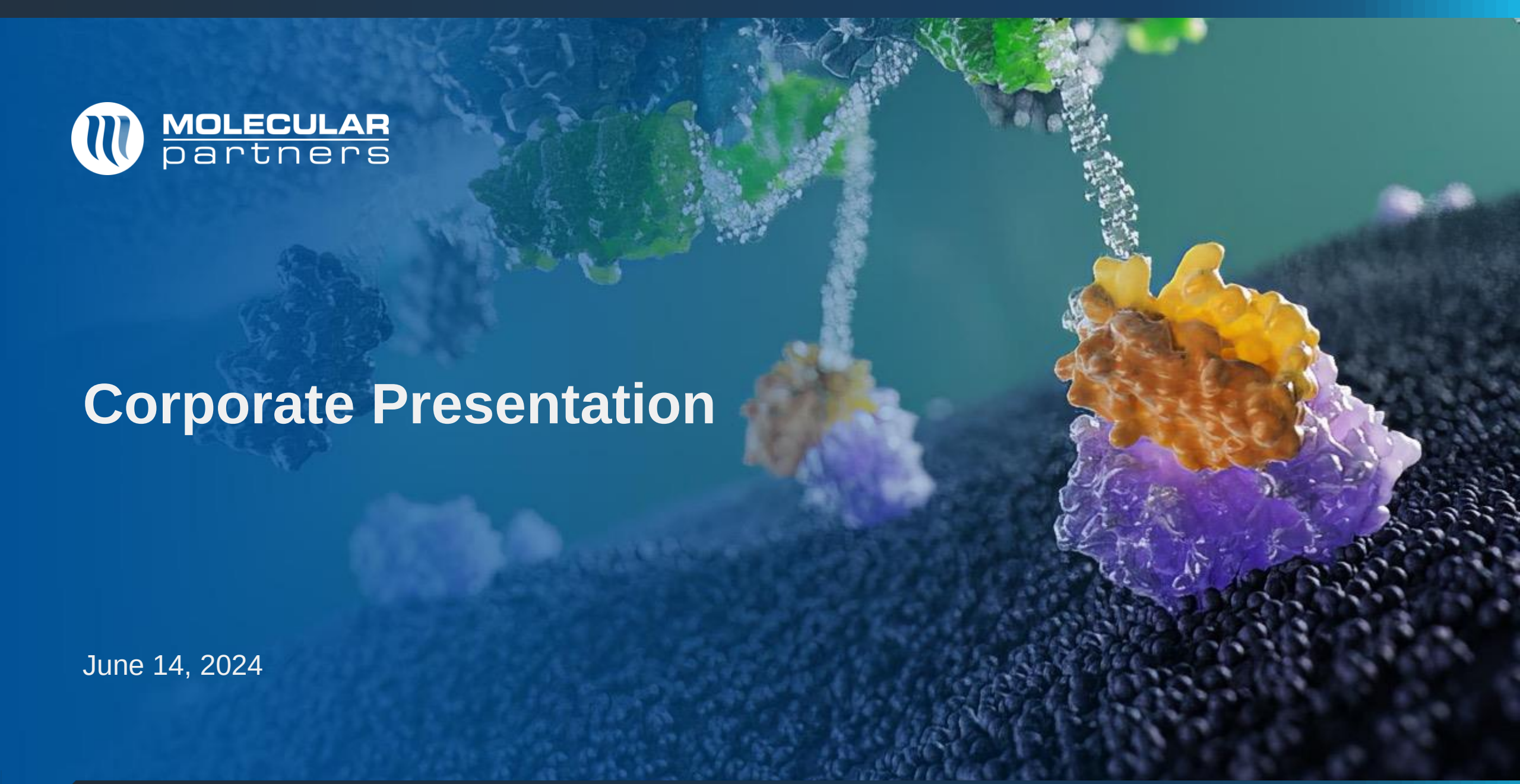

Corporate Presentation

June 14, 2024

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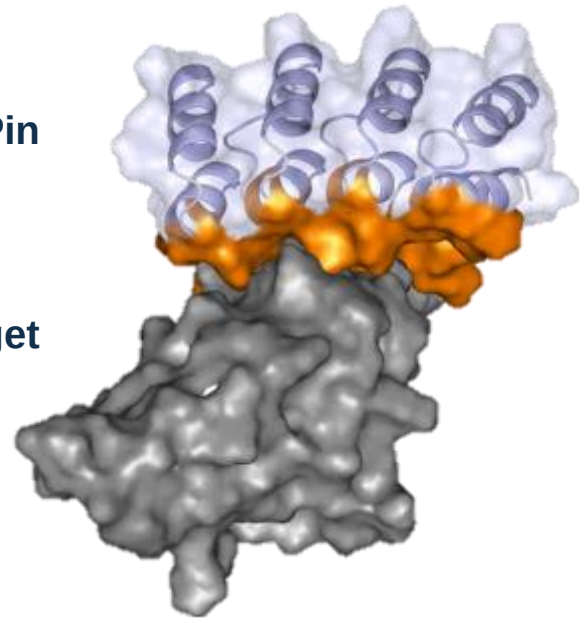
Any forward-looking statements speak only as of the date of this presentation and are based on information available to Molecular Partners as of the date of this release, and Molecular Partners assumes no obligation to, and does not intend to, update any forward-looking statements, whether as a result of new information, future events or otherwise.

The DARPin Modality and Molecular Partners' Strategy



What we invented

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

How we apply it

- **Unique DARPin solutions** for a defined medical problems not addressable by antibody designs
- Demonstrate **true patient value** with **early clinical readouts**
- Combine our **capabilities with world-class partners** to deliver innovative therapeutics

Corporate Highlights

MP0533	• Novel **tetra-specific T cell engager** for R/R AML and high-risk MDS/AML patients • **ASH 2023: encouraging initial clinical data** with acceptable safety and initial antitumor activity • Phase 1/2a study with dose-escalation well on track; **dosing patients in DR 7** ongoing
Radio-DARPin Therapy (RDT) & MP0712	• Successful RDT platform optimization to **reduce kidney accumulation** and **increase tumor uptake** • Announced **MP0712 as lead DLL3-targeted ^{212}Pb-labelled RDT** to be co-developed with Orano Med • Preclinical data on MP0712 presented at SNMMI 2024: positive tumor to kidney ratio, efficacy & safety
Switch-DARPin & MP0621	• Demonstrated conditional, target-specific immune activation for **Switch-DARPin platform** • First program: **MP0621**, a **cKit x CD16a x CD47 Switch-DARPin,** as next-gen therapeutic supporting HSCT for AML patients & beyond; MP0621 selected as lead candidate to move into development • Initial preclinical data presented at EHA 2024 indicate encouraging efficacy and safety profile
MP0317	• Bi-specific CD40 agonist targeting FAP for tumor-localized immune activation: **Favorable safety profile** and confirmed tumor-localized CD40 activation leading to **remodeling of TME** in patients
Operations	• Strong financial position with CHF ~174 M in cash as of March 31, 2024 • **Capitalized well into 2026**

AML, acute myeloid leukemia; ASH, American Society of Hematology; DLL3, Delta-like ligand 3; DR, dose-regimen; EANM, European Association of Nuclear Medicine; FAP, fibroblast activation protein; MDS, myelodysplastic syndrome; RDT, Radio-DARPin Therapy; R/R, relapsed/refractory; SITC, Society for Immunotherapy of Cancer; TME, tumor microenvironment.

Pipeline

MODALITY	CANDIDATE	RESEARCH	PRE-CLINICAL	PHASE 1	PHASE 2	RIGHTS
Tetra-specific T cell Engager	**MP0533**	**R/R AML and AML / MDS** *CD33 x CD123 x CD70 x CD3*				MOLECULAR partners
Radio-DARPin Therapy	**MP0712**	**SCLC & NETs** *DLL3*	*Co-development**			MOLECULAR partners, oranomed
	Undisclosed Programs	**Solid Tumors**	*In-house programs*			MOLECULAR partners
	Undisclosed Programs	**Solid Tumors**	*2 partnered programs*			NOVARTIS
Switch-DARPin	**MP0621**	**AML / HSCT** *cKIT x CD16a x CD47*				MOLECULAR partners
	Undisclosed Program	*Immune cell engager*				
Localized Agonist	**MP0317**	**Advanced Solid Tumors** FAP x CD40				MOLECULAR partners

*The co-development agreement with Orano Med includes up to 3 potential oncology targets including DLL3.
AML, acute myeloid leukemia; DLL3, Delta-like ligand 3; HSCT, hematopoietic stem cell transplant;
MDS, myelodysplastic syndrome; NET, neuroendocrine tumor; R/R, relapsed/refractory; SCLC, small cell lung cancer.

MP0533

Tetra-specific T-cell Engager for AML

Patients with AML Have a High Unmet Medical Need

69 YEARS OLD

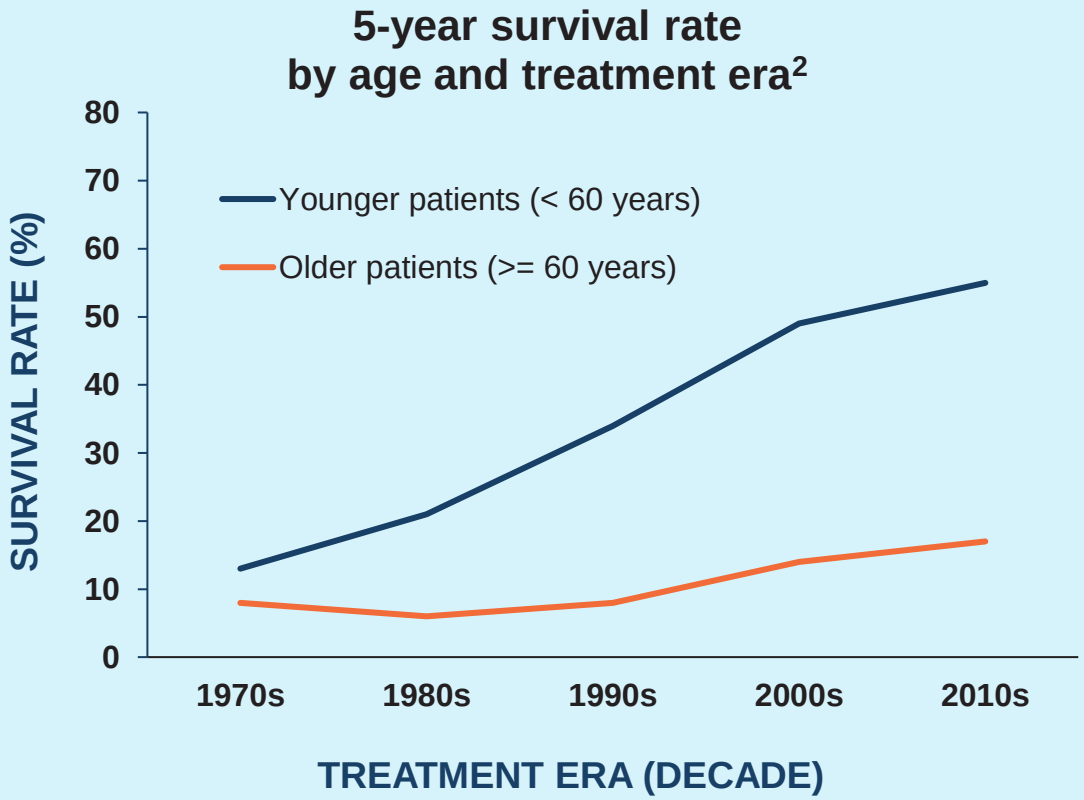
Median age of AML patients at diagnosis[1]

31.7%

Overall 5-year survival rate[1]

Despite 50 years of progress, elderly and frail patients are often not eligible for high-intensity conditioning and HSCT, and thus have limited treatment options and poor survival outcomes[2]

- Lack of broad and clean AML surface targets
- Risk of clonal escape even after high-intensity conditioning/HSCT

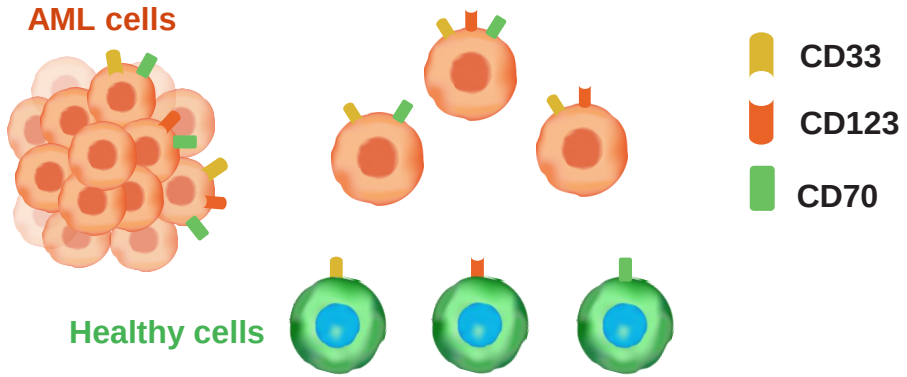


1. https://seer.cancer.gov/statfacts/html/amyl.html (based on data: 2016-2020; accessed 3 Jan 2024)
2. Kantarjian HM, *et al*. *Clin Lymphoma Myeloma Leuk* 2021; **21:**580–597.

AML, acute myeloid leukemia; HSCT, hematopoietic stem cell transplantation.

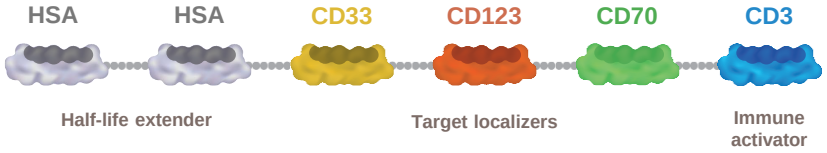
MP0533: Avidity-Driven Selectivity for Cancer Cells in AML

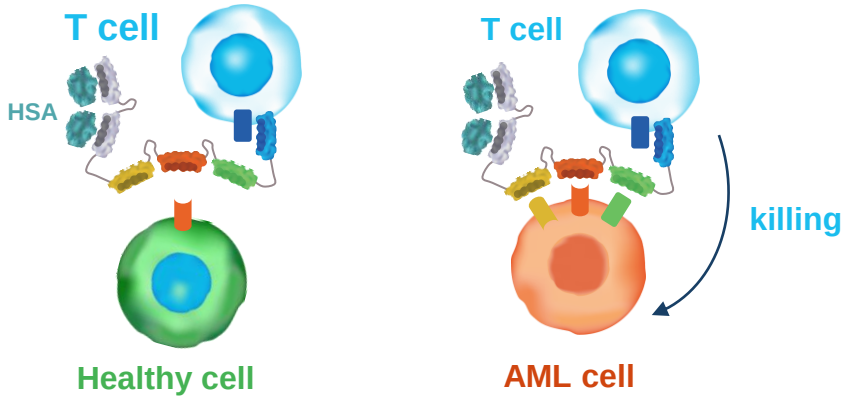
Problem: AML tumor-associated antigens are expressed on healthy cells



- **AML remains a deadly disease** and persistence of **leukemic stem cells (LSCs)** drives relapse
- **AML cell population is heterogeneous**: individual AML blasts and LSCs lack a clean target. AML cells can be differentiated from healthy cells (e.g. HSCs) by their **co-expression of specific targets** (e.g. CD33, CD123, CD70)

Solution: MP0533 – Avidity-driven selectivity and killing by T cells





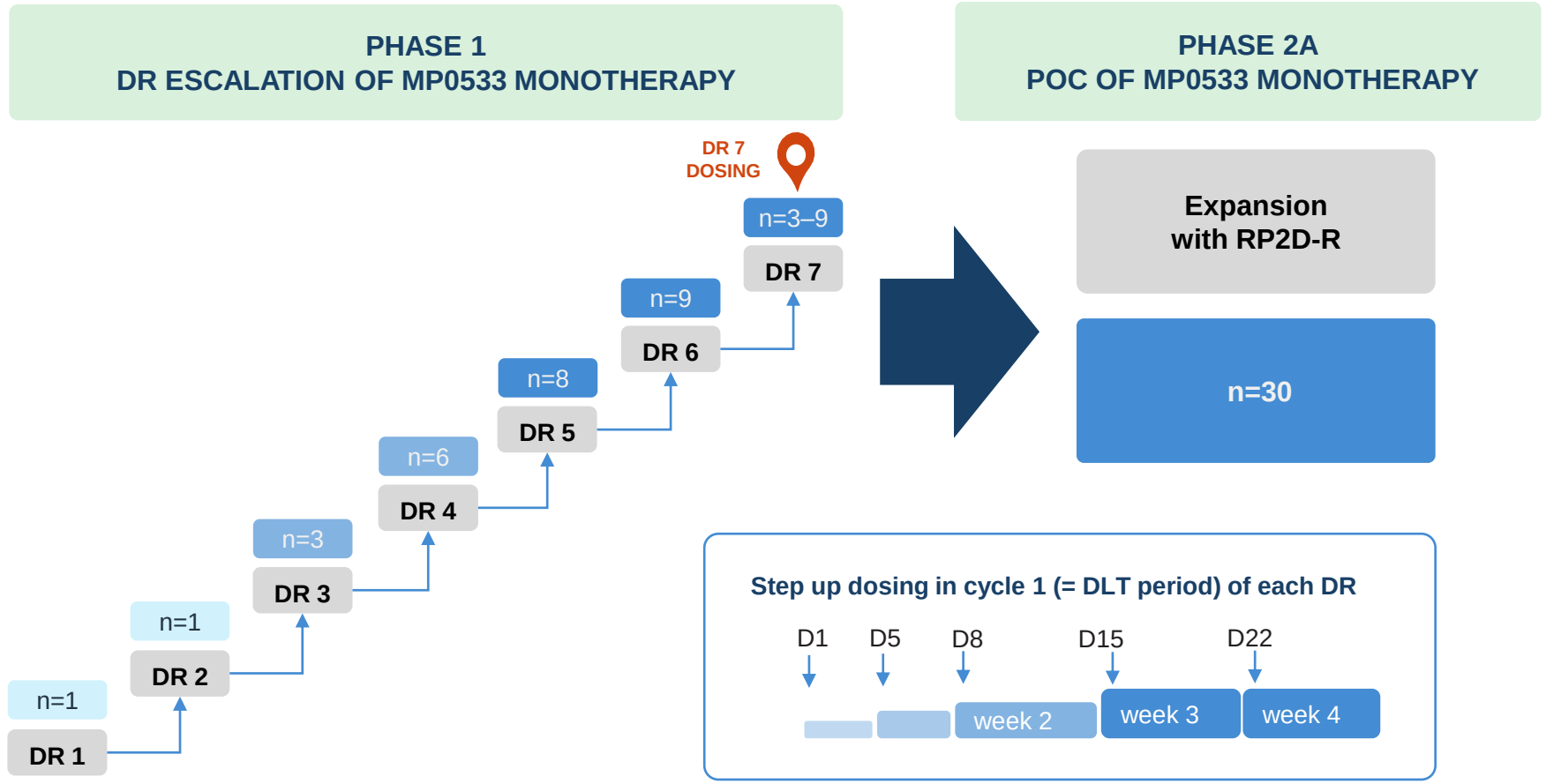
- MP0533 is designed to induce **T cell-mediated killing preferentially when two or three target antigens (CD33, CD123, CD70) are co-expressed**
- MP0533 is hypothesized to preserve healthy cells hence **opening a therapeutic window**
- MP0533 has the potential to kill all AML cells (blasts and LSCs) despite heterogeneity, ensuring **long term disease control**

AML, acute myeloid leukemia; HSC, hematopoietic stem cell; HSA, human serum albumin.

MP0533 Phase 1 Dose-escalation Trial in R/R AML patients

STUDY DESIGN

- FIH, multicenter, single-arm, open-label, Phase 1/2a study of MP0533 monotherapy (NCT05673057)
- Objectives: Safety/tolerability, PK/PD, and preliminary activity
- Eligible patients: Adults with R/R AML or MDS/AML
- Centers: 9 sites initiated across Europe



Study currently dosing patients in DR 7, plans to update in H2 2024

AML, acute myeloid leukemia; D, treatment cycle day; DLT, dose-limiting toxicity; DR, dose regimen; FIH, first-in-human; MDS, myelodysplastic syndrome; n, number of patients; PD, pharmacodynamic; PK, pharmacokinetics; POC, proof of concept; RP2D-R, recommended phase 2 DR; R/R, relapsed/refractory.

MP0533 - Patient Characteristics and Safety Profile

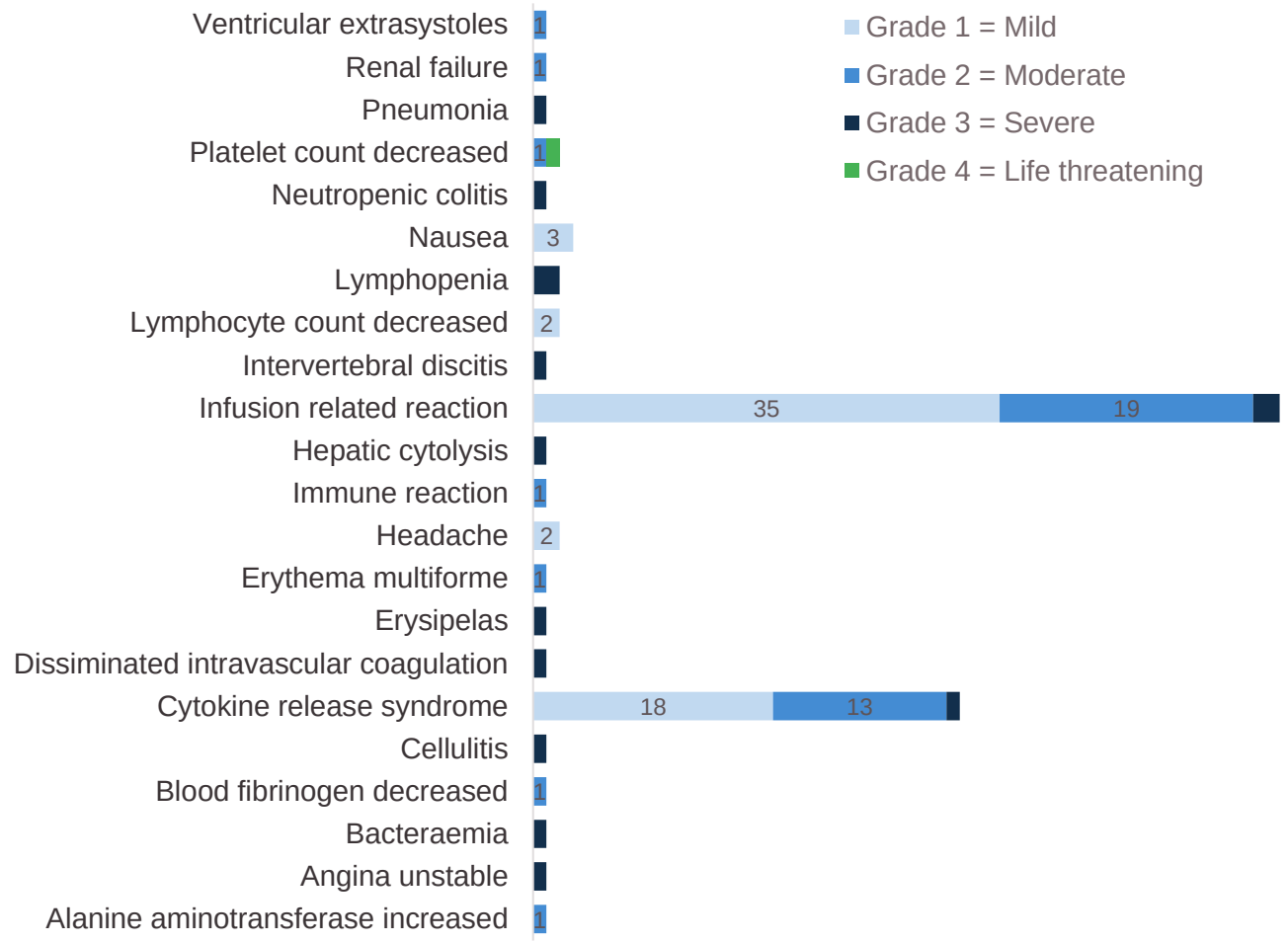
PATIENT CHARACTERISTICS	DR COHORTS 1–6 (n=28)
Sex, n (%)	
Female / male	14 (50) / 14 (50)
Age	
Mean / Median (range)	68 / 74 (22–82)
ECOG PS, n (%)	
0 / 1 / 2	11 (39) / 14 (50) / 3 (11)
Hematologic malignancy, n (%)	
AML / MDS/AML	19 (68) / 9 (32)
ELN risk category, n (%)	
Intermediate / adverse	4 (14) / 24 (86)*
No. of prior systemic treatment lines, n (%)	12 (43) / 9 (32) / 7 (25)
1 / 2 / ≥3	

*TP53 mutated: 7 (25%)

Acceptable safety profile for MP0533 reported for DR 1-6‡:

- IRR and CRS are the most frequent MP0533-related TEAEs (mostly Grade 1-2, occasional Grade 3)
- No DLTs up to DR 6

MP0533-RELATED TEAEs‡



Data cut-off: 12 March 2024

Preliminary data as study is ongoing, subject to final data validation.

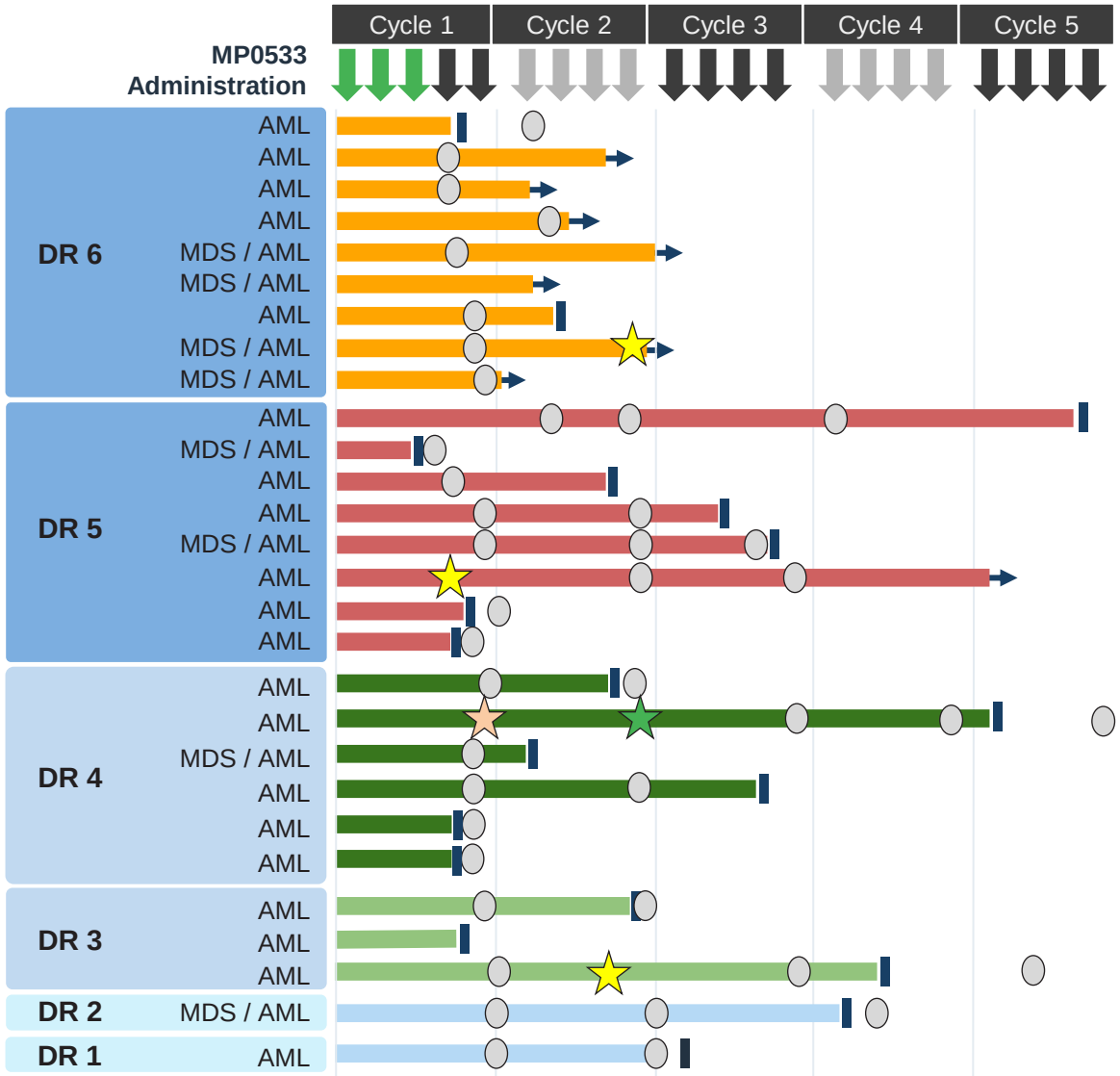
‡ TEAEs of n=1 of grade 1 were removed from the graph for display purposes.
AE, adverse event; CRS, cytokine release syndrome; ELN, European LeukemiaNet; IRR, infusion-related reaction; TEAE, treatment-emerging AE.

MP0533 Treatment & Clinical Response

Four responders reported in DR 3-6:

- CR in 1 patient at DR 4
- MLFS in 3 patients, 1 each at DR 3, DR 5 and DR 6

Currently dosing patients in DR 7



LEGEND

- CR
- CRi
- MLFS
- No ELN response

Response (2022 ELN[1]) was assessed every 4 weeks until disease progression and results are presented as indicated

- MP0533 treatment
- Treatment continuation at data cut-off
- Treatment discontinuation

Arrows at the top indicate MP0533 administration at D1, D5, D8, D15 and weekly thereafter

- Step-up dosing is presented in green arrows
- Color changes in blue arrows indicate start of a new 28-day cycle

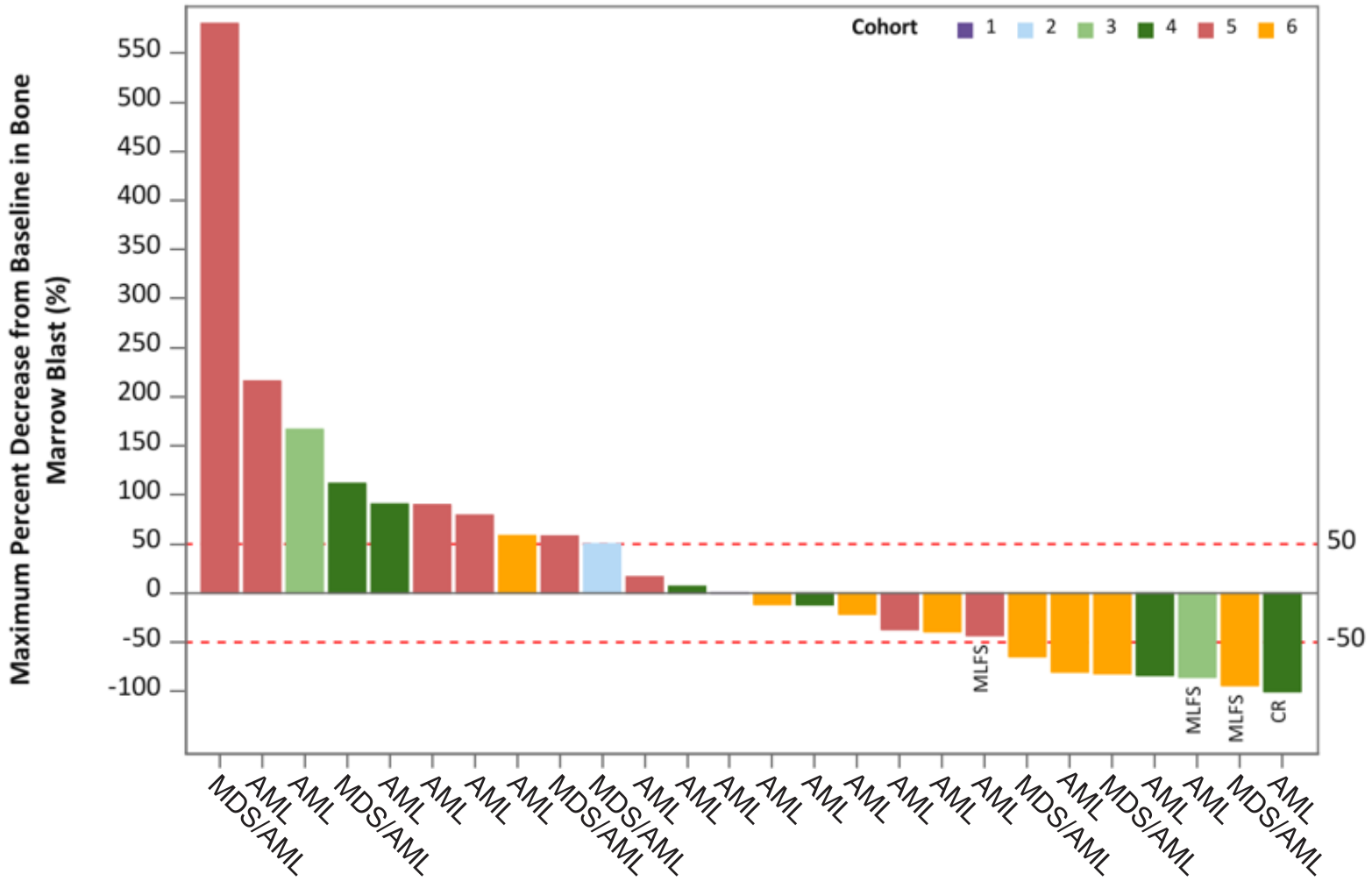
Data cut-off: 12 March 2024

Preliminary data as study is ongoing, subject to final data validation.

1. Döhner et al. Blood 2022;140(12)1345-77.

CR, complete response; CRi, CR with incomplete hematologic recovery; ELN, European LeukemiaNet; MLFS, morphologic leukemia-free state.

MP0533 – AML blast decrease from baseline in BM aspirates



- **Encouraging reduction of blasts in bone marrow aspirates** observed (most within 1st or 2nd cycle)

Best response reported as % change from baseline

Data cut-off: 11 March 2024

Preliminary data as study is ongoing, subject to final data validation.

AML, acute myeloid leukemia; BM, bone marrow; CR, complete response; MDS, myelodysplastic syndrome; MLFS, morphologic leukemia-free state

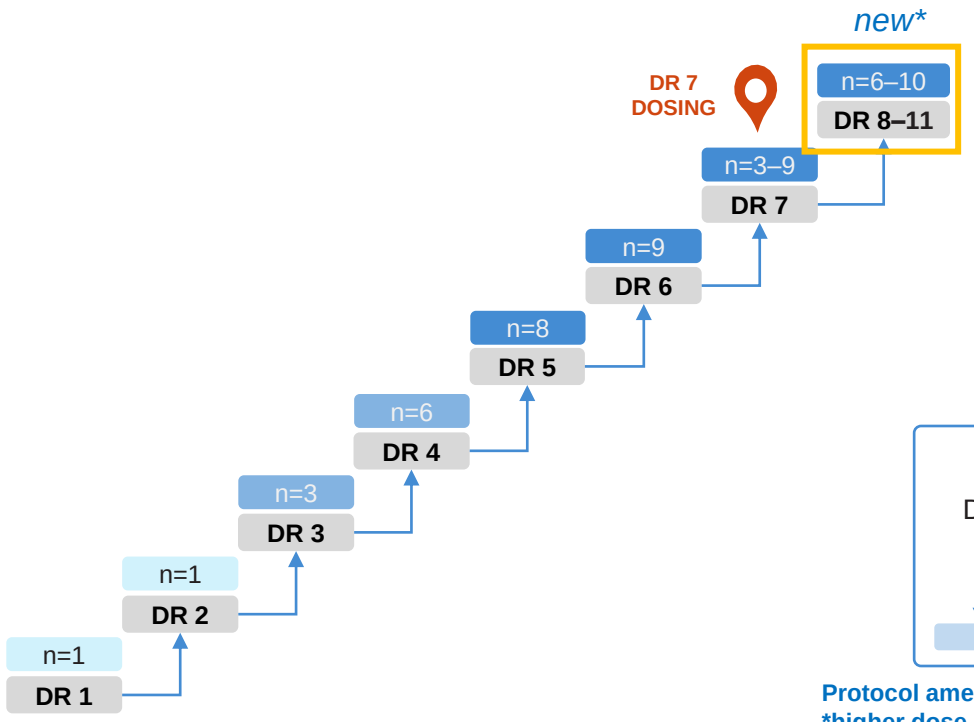
MP0533 Phase 1 Dose-escalation Trial in R/R AML patients

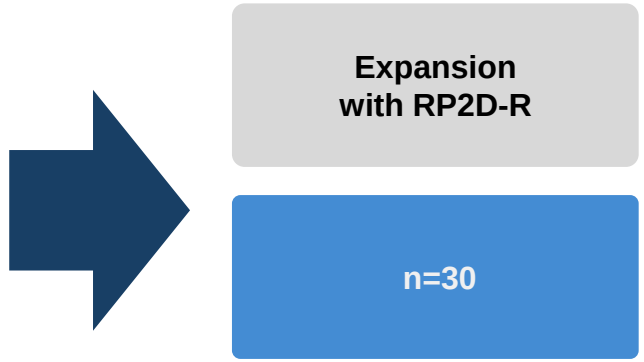
STUDY OBJECTIVES

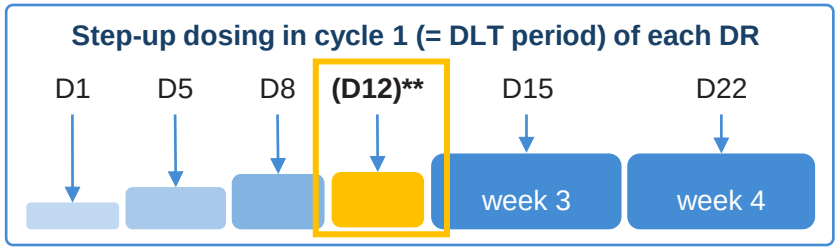
- Safety / tolerability,
- PK / exposure,
- Preliminary activity / PD
  - Clinical response as per ELN (incl. MRD status)
  - Blasts and LSCs counts
  - Effector T cell activity and tumor:effector cell ratio
  - MP0533 presence in BM
  - Target (co-)expression
  - Evolution of disease clonality

PHASE 1
DR ESCALATION OF MP0533 MONOTHERAPY

PHASE 2A
POC OF MP0533 MONOTHERAPY







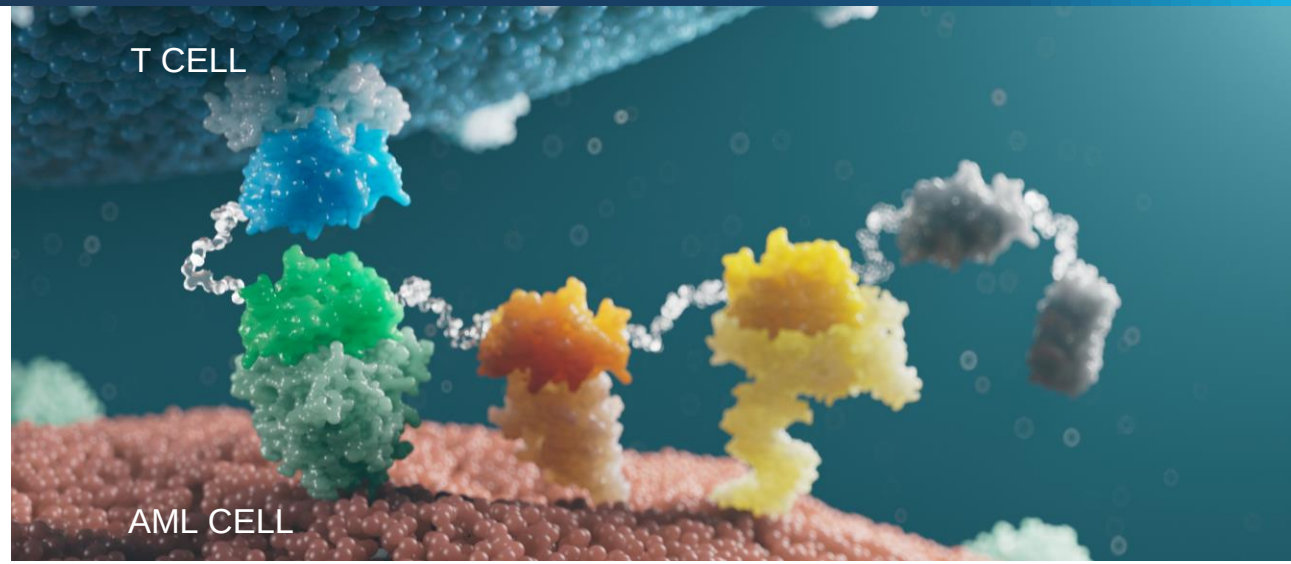
Protocol amendment to include:
***higher dose cohorts**
****optional D12* if DR 6–7 transition from step-up dose to target dose is not tolerated**

Study currently dosing patients in DR 7, next update in H2 2024

AML, acute myeloid leukemia; D, treatment cycle day; DLT, dose-limiting toxicity; DR, dose regimen; MDS, myelodysplastic syndrome; n, number of patients; PD, pharmacodynamic; PK, pharmacokinetics; POC, proof of concept; RP2D-R, recommended phase 2 DR; R/R, relapsed/refractory.

MP0533 Outlook

- **28 AML patients** treated (across cohorts 1–6) passed DLT period
- **Acceptable safety** with IRRs & CRS as most frequent MP0533-related TEAEs
- **Clinical response rate (1 responder per cohort, DR 3-6,** as per ELN**)** reflects disease heterogeneity & on-going dose escalation
- **Encouraging reduction in BM blasts** observed
- **9 clinical sites** (across 4 countries in Europe) actively recruiting patients up to cohort 7



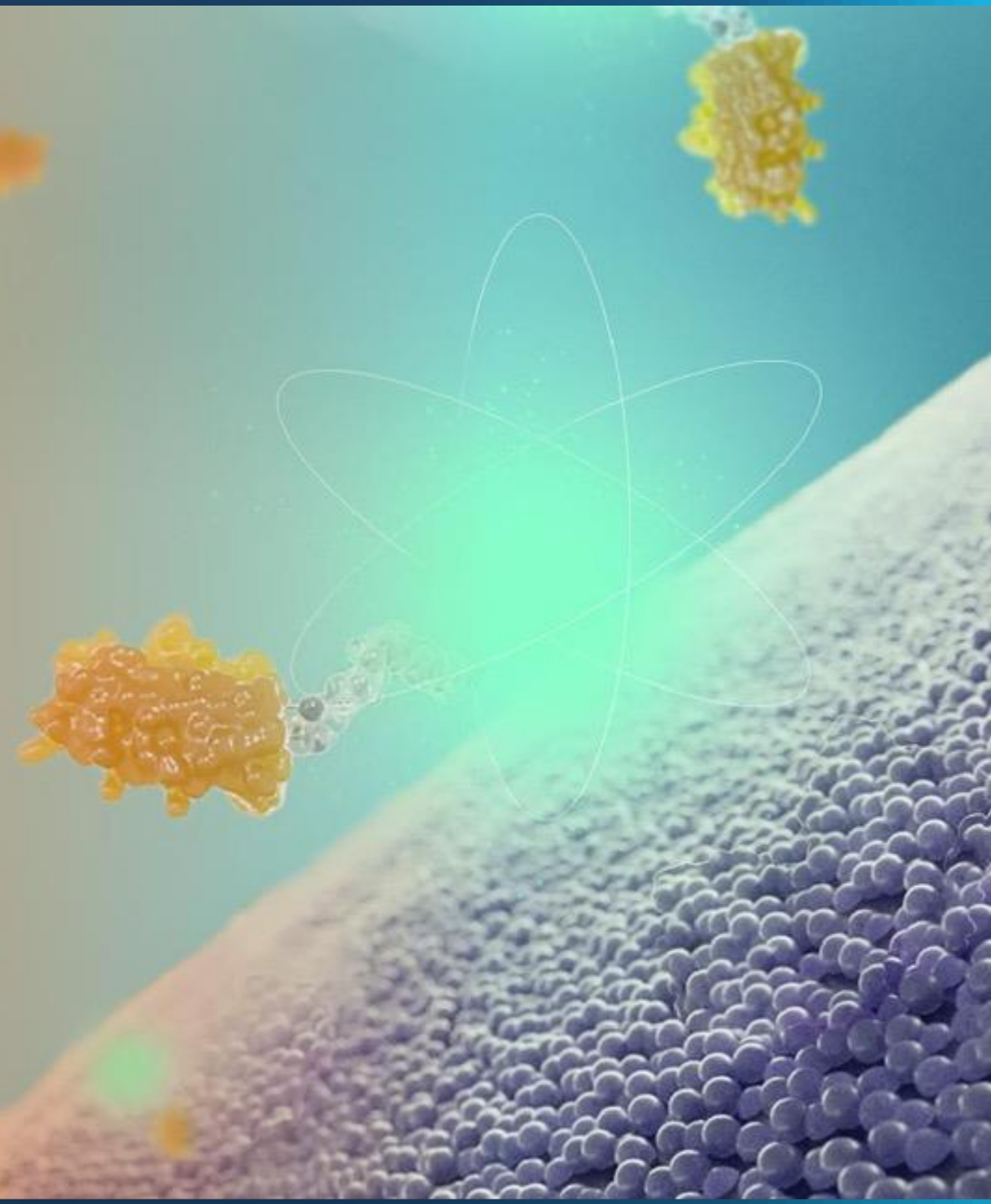
- Protocol amended to **allow for higher doses** – beyond DR7 in r/r AML or MDS/AML
- Further clinical & translational analysis on-going, to support defining optimal development path
- In addition to r/r AML population, evaluating development opportunities in 1st line in fit and unfit patient populations
- Clinical update on the program in H2 2024

MOLECULAR partners

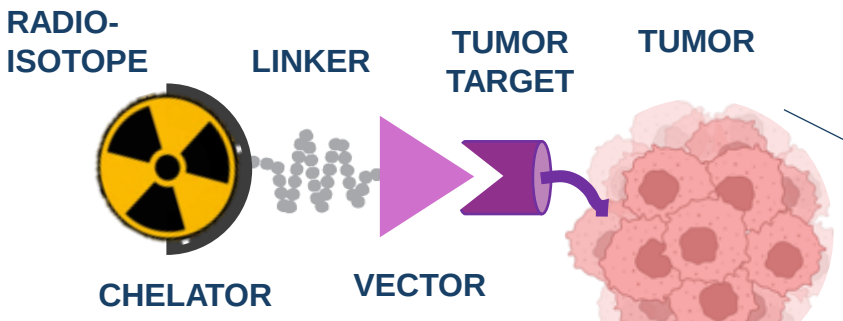
AML, acute myeloid leukemia; BM, bone marrow; CRS, cytokine release syndrome; DLT, dose-limiting toxicity; DR, dose regimen, ELN, European leukemia network; IRR, infusion-related reaction; PD, pharmacodynamics; PK, pharmacokinetics; R/R, relapsed / refractory; TEAE, treatment-emerging adverse event

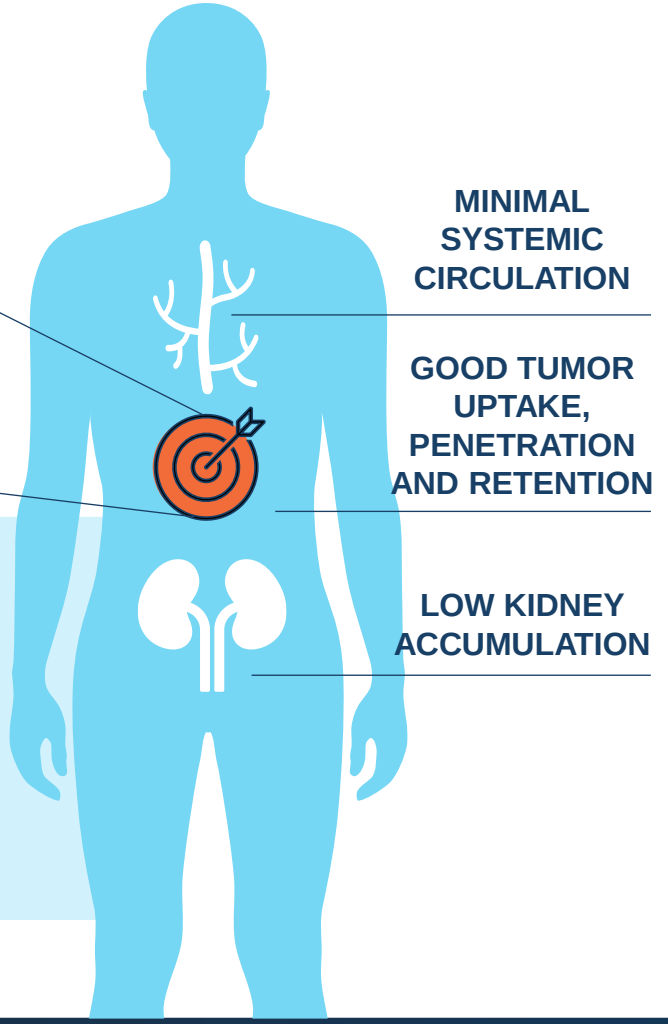
Radio-DARPin Therapy & MP0712 as first program

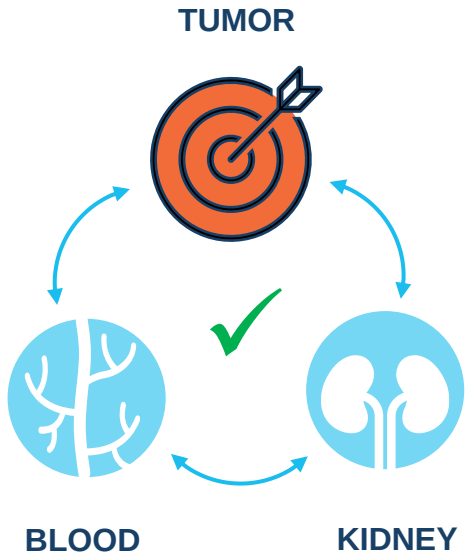
Platform & Pipeline



Ideal Properties of Radiotherapy Product Candidate







Deliver radioisotope selectively to the tumor while sparing healthy tissues

"special focus on kidneys and bone marrow (blood), which are the most frequent dose-limiting organs"

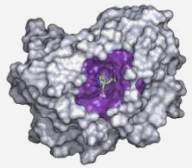
LMW Molecules as Ideal Vectors but Limited Target Space

LMW MOLECULES

Targets with cavity where a Low Molecular Weight (LMW) targeting moiety with high affinity and specificity can be identified

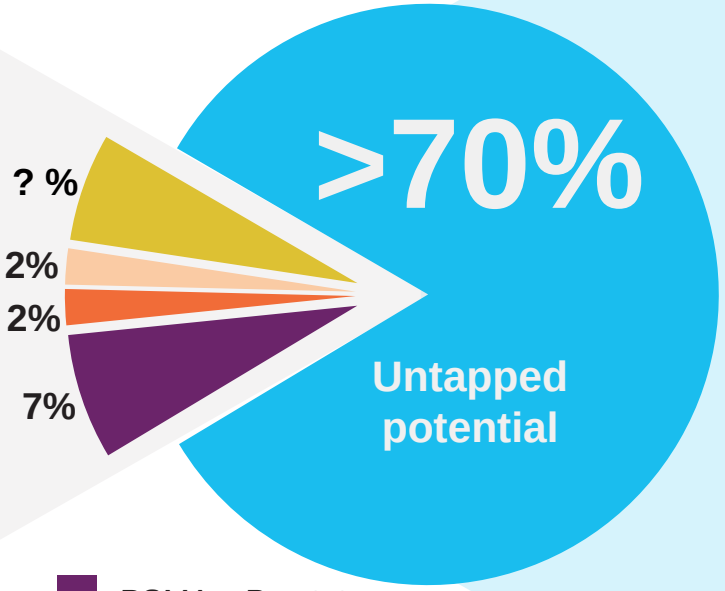
Target Examples:

PSMA
SSTR2



PSMA (1Z8L)

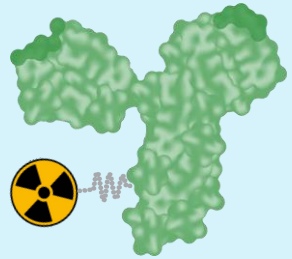
TARGET SPACE*



- PSMA + Prostate
- SSTR2 + NETs
- SSTR2 expansion
- Potential other LMW suitable targets**
- Other tumor targets & cancers

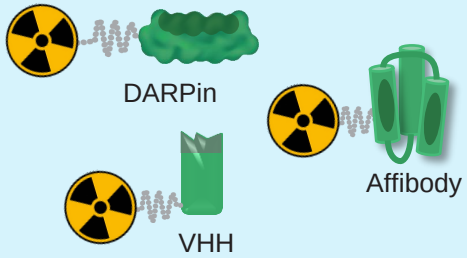
EXPANDING WITH OTHER TARGETING MOIETIES

High affinity & specificity binding of protein surfaces of broad range of tumor targets



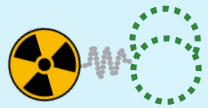
ANTIBODIES

- *Long circulation → risk of bone marrow toxicity*
- *Low tumor penetration*



SMALL PROTEINS

- *High kidney accumulation → risk of renal toxicity*
- *Suboptimal tumor uptake*



CYCLIC-PEPTIDES

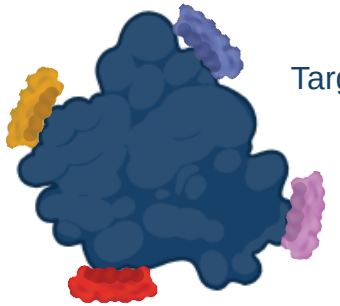
- *High kidney accumulation → risk of renal toxicity*
- *High affinity & selectivity can be challenging → target space?*

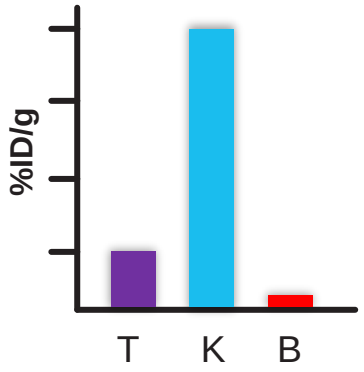
* Source: Guggenheim Securities Report 2023
** e.g. FAP, CAIX, FOLR1, NTSR1, Eph2A, GPC3, MC2R, GRPR, ITGB6
LMW, low molecular weight; NET, neuroendocrine tumor

Our Engineering Strategy for Radio-DARPin Therapy (RDT)

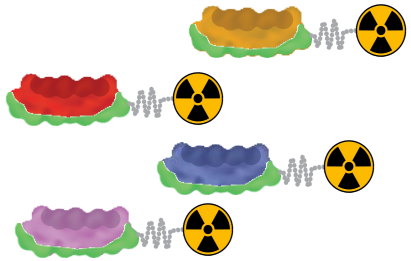
T: Tumor
K: Kidney
B: Blood

1 STARTING POINT
Diverse DARPins with high affinity

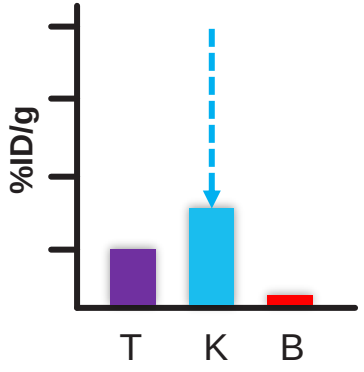




2 STEALTH DESIGN
Reducing uptake in kidney

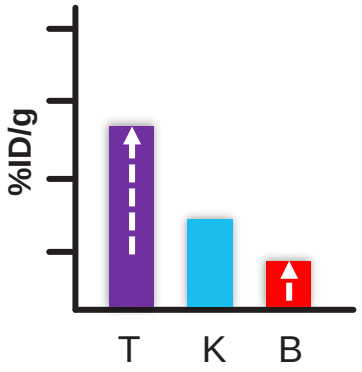


Identify candidates with <25% ID/g in kidney



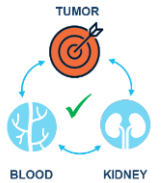
3 TUMOR LOADING
Tuning half-life in circulation

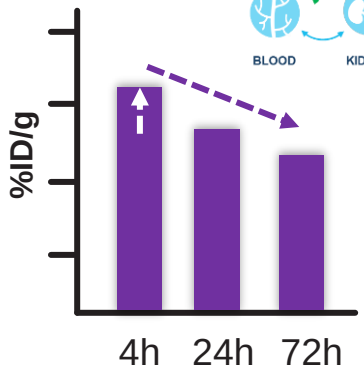
Increase tumor uptake while keeping systemic $t_{1/2}$ low



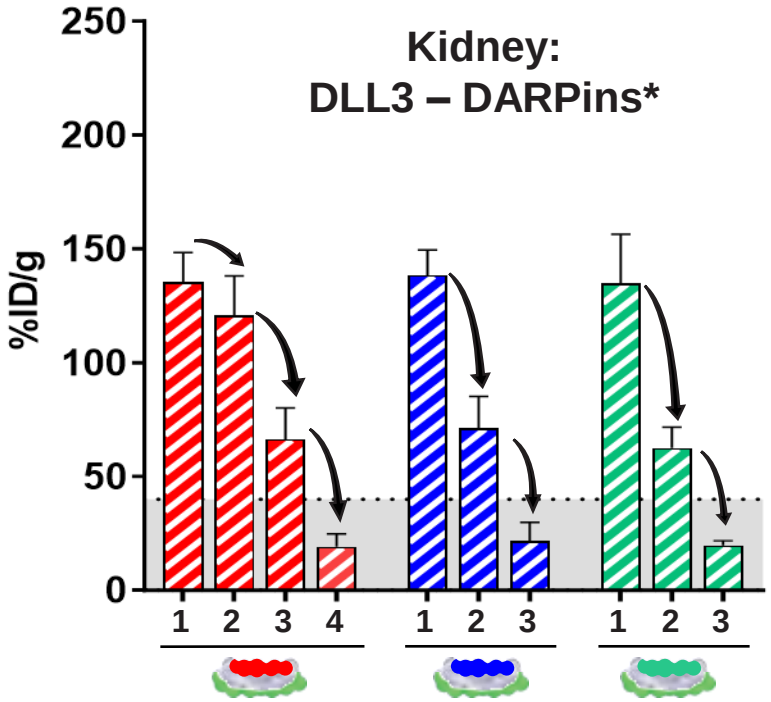
4 TUMOR RETENTION
Affinity maturation

If needed, improve affinity to further increase tumor uptake and optimize tumor retention





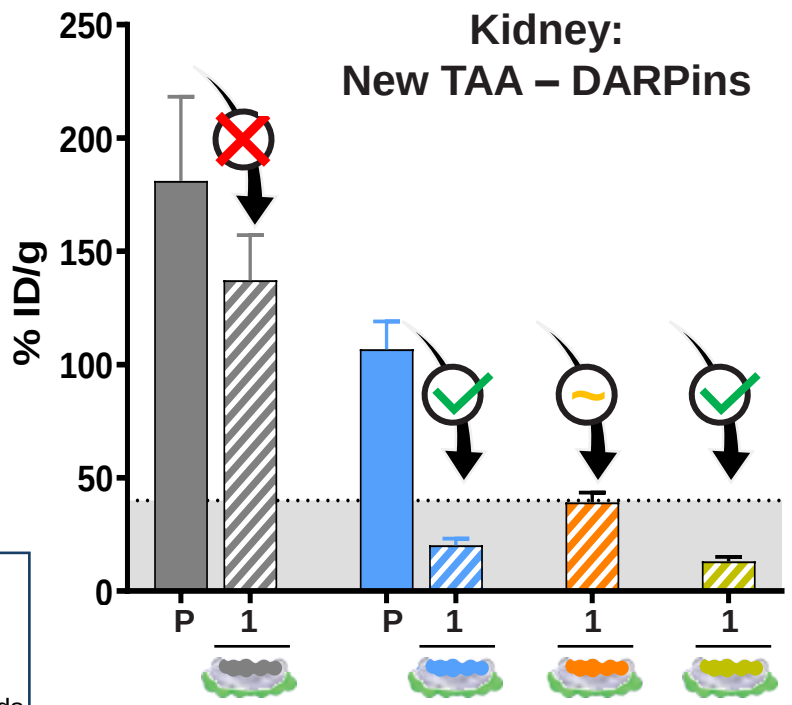
Evolution of Surface Engineering for RDT Engine



Integration of learnings across different TAAs and **>140 engineered DARPins**

P: Parental

1-4: Surface Eng. Rounds



AT PROGRAM START: Iterative rounds of DARPin surface engineering and *in-vivo* testing needed to reach low kidney accumulation

TODAY: A <u>single</u> round of DARPin surface engineering to reach low kidney values for many DARPin binders

** Kidney value of best surface variant per engineering round displayed in graph: 4h timepoint in wt or tumor-bearing mice; DARPins conjugated to different chelators and labelled with different radioisotopes*

Systemic Half-life Extension (HLE) Increases Tumor Uptake

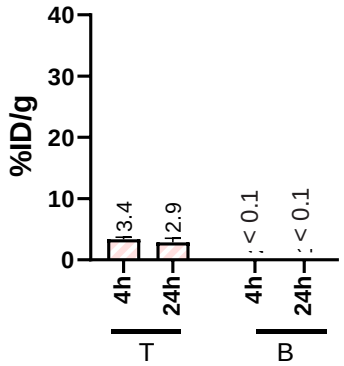
Establishing a HLE toolbox with different “strengths & properties” to tailor to specific needs

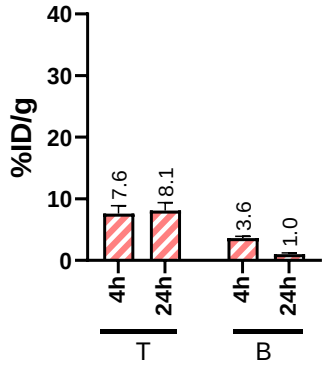
Stealth DARPin (no HLE)
Tumor up to 6% ID/g

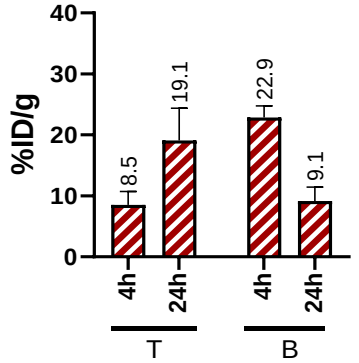
Stealth DARPin + HLEs
Very low blood level increase
Tumor up to 10% ID/g

Stealth DARPin + HLEs
Low to medium blood level increase
Tumor up to 30% ID/g

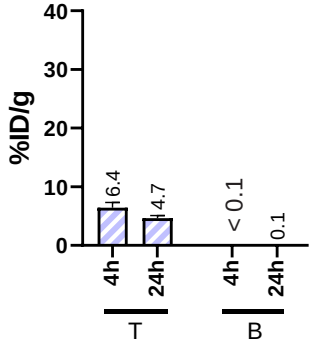
Her2 DARPin

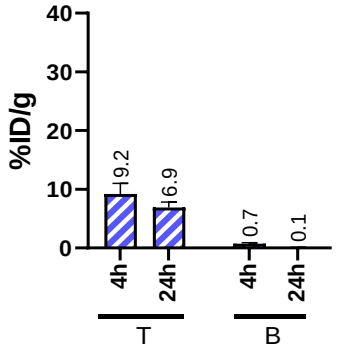


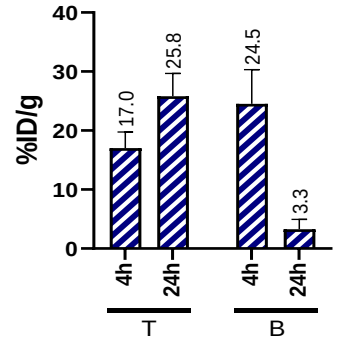


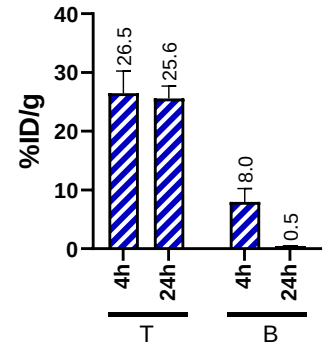


DLL3 DARPin







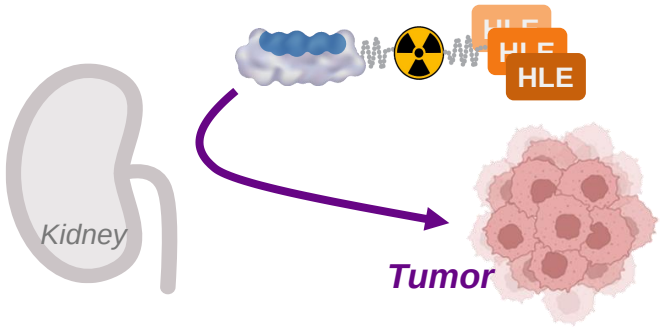


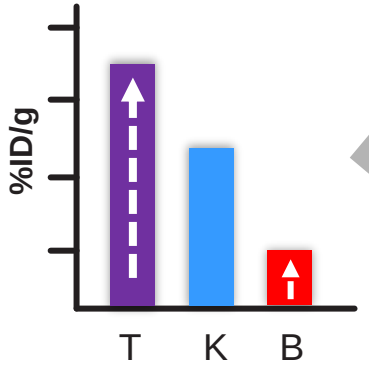
T: Tumor; **B**: Blood

Her2 and DLL3 DARPins conjugated to different chelators, labelled with different radioisotopes; and tested in different mouse tumor models; αSA: HLE moieties binging to serum albumin

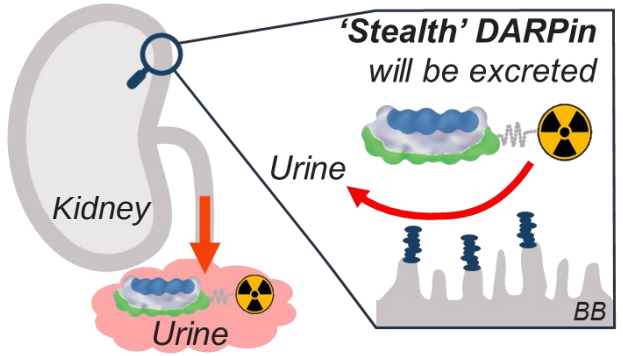
Radio-DARPin Platform Ready to Deliver Product Candidates

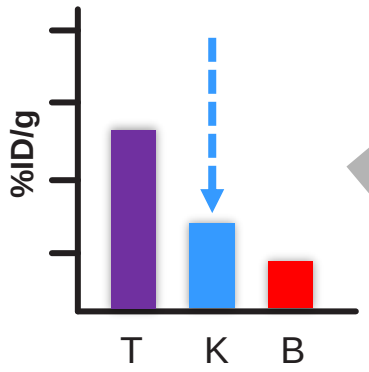
Increased Tumor Uptake
by half-life extension (*HLE*)*



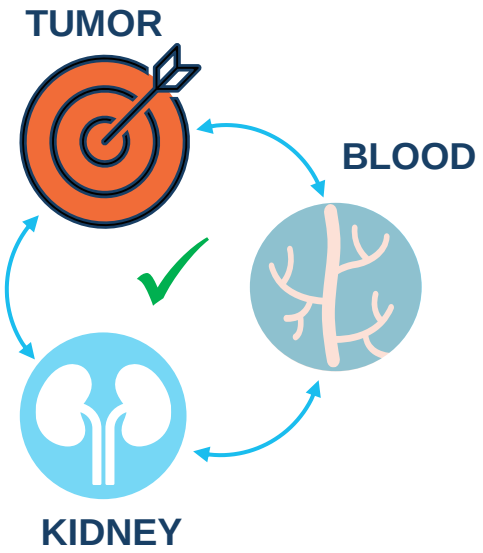


Reduced Kidney Accumulation
by surface engineering (*Stealth DARPin*)*





Optimized Biodistribution Properties



Intrinsic DARPin Properties

- ✓ **Small Size** (~15 kDa)
  - → *Deep tumor penetration*
  - → *Short systemic half-life*
- ✓ **High Affinity** (pM range)
  - → *Long tumor retention*
- ✓ **High Selectivity**
  - → *Low accumulation in other tissues*
- ✓ **High Stability**
  - → *Surface Engineering*

MOLECULAR partners

BB: Brush border of proximal tubular cells in the kidney with megalin/cubilin receptor complex

* Data presented at various scientific conferences, including AACR 2023 (Bosshart et al.), SNMMI 2023 (Lizak et al.), EANM 2023 (Lizak et al.), and others

MP0712: The first ^{212}Pb-DLL3 Targeted Radiotherapy

Combining distinctive DARPin features with the power of ^{212}Pb for efficacious cancer therapy

SCLC as Indication

- **Aggressive cancer** with high **unmet medical need**
  - 2L: mPFS ~3m; 5y OS ~3%[1,2]
- **DLL3 is expressed in >85% of pts**[3]

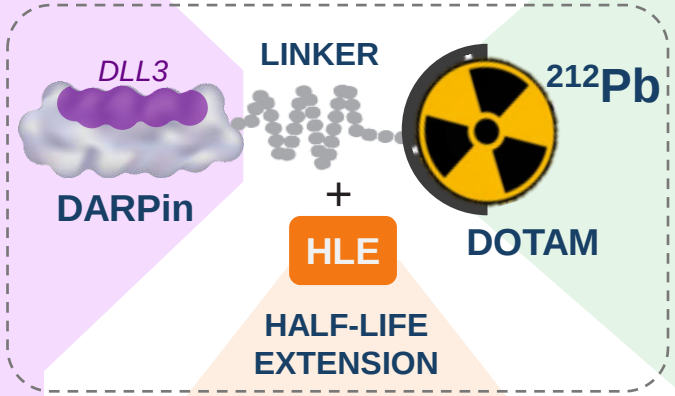
DLL3: A promising Target

- **Homogeneous tumor expression**, but low expression level in pts
- No expression in healthy tissues
- **New treatments** with **room for improvement**: Tarlatamab (AMGEN) for 2L+; ORR ~40%

Diverse set of DARPins against DLL3

- **Good developability**
- Specific binding with **high affinity**

PRODUCT COMPOSITION



Tunable albumin binding

^{212}Pb for Targeted Alpha Therapy

- **Strong cytotoxicity** (dsDNA breaks)
- **Single alpha decay** (limited free daughters)
  - → Limited irradiation of healthy tissues
- Relatively **short half-life** (10.6 h)
  - → **Fast energy deposition** (efficacy)
  - → **Easier waste management**

Co-Development with Orano Med

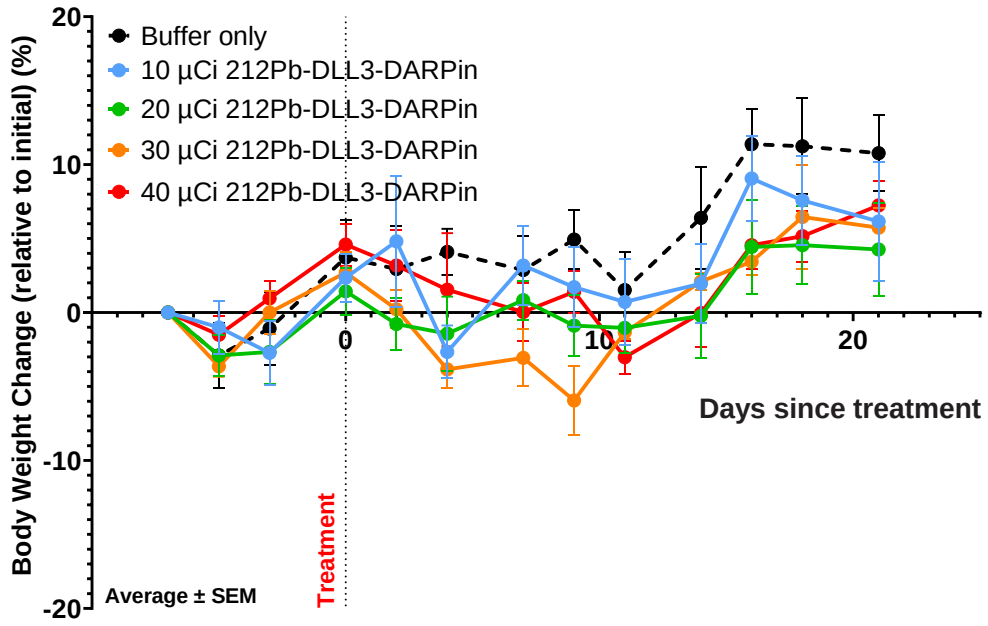
- The **leader for ^{212}Pb** & a committed partner
- **Reliable & scalable ^{212}Pb production**
- **Independent production** capacities (substantial inventory of purified ^{232}Th)

***ASCO**: Ph2 clinical data **^{212}Pb-DOTAMTATE** (AlphaMedix™) showed an **ORR of 55.6%** [4]*

1) Treatment of refractory and relapsed small cell lung cancer, UpToDate
2) SEER
3) Rojo *et al., Lung Cancer*, 2020
4) Strosberg *et al.*, ASCO 2024 presentation

Favorable Safety & Potent Efficacy of ^{212}Pb-DLL3 RDT Candidate

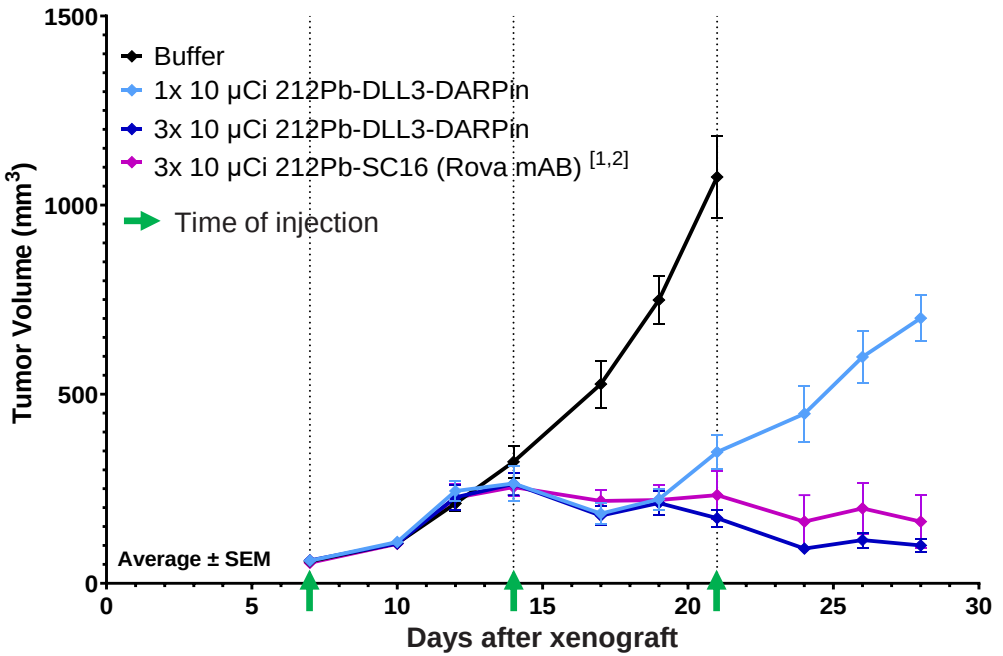
Dose Range Finding in wt Mice



- All treatments up to **40 µCi were well tolerated**

→ **Treatment shows a favorable safety profile suggesting its potential for clinical use**

Efficacy in MC38-hDLL3 Model



- **Significant and durable inhibition of tumor growth** (comparable to benchmark mAb)

→ **Treatment shows profound antitumor activity at clinically relevant dose**

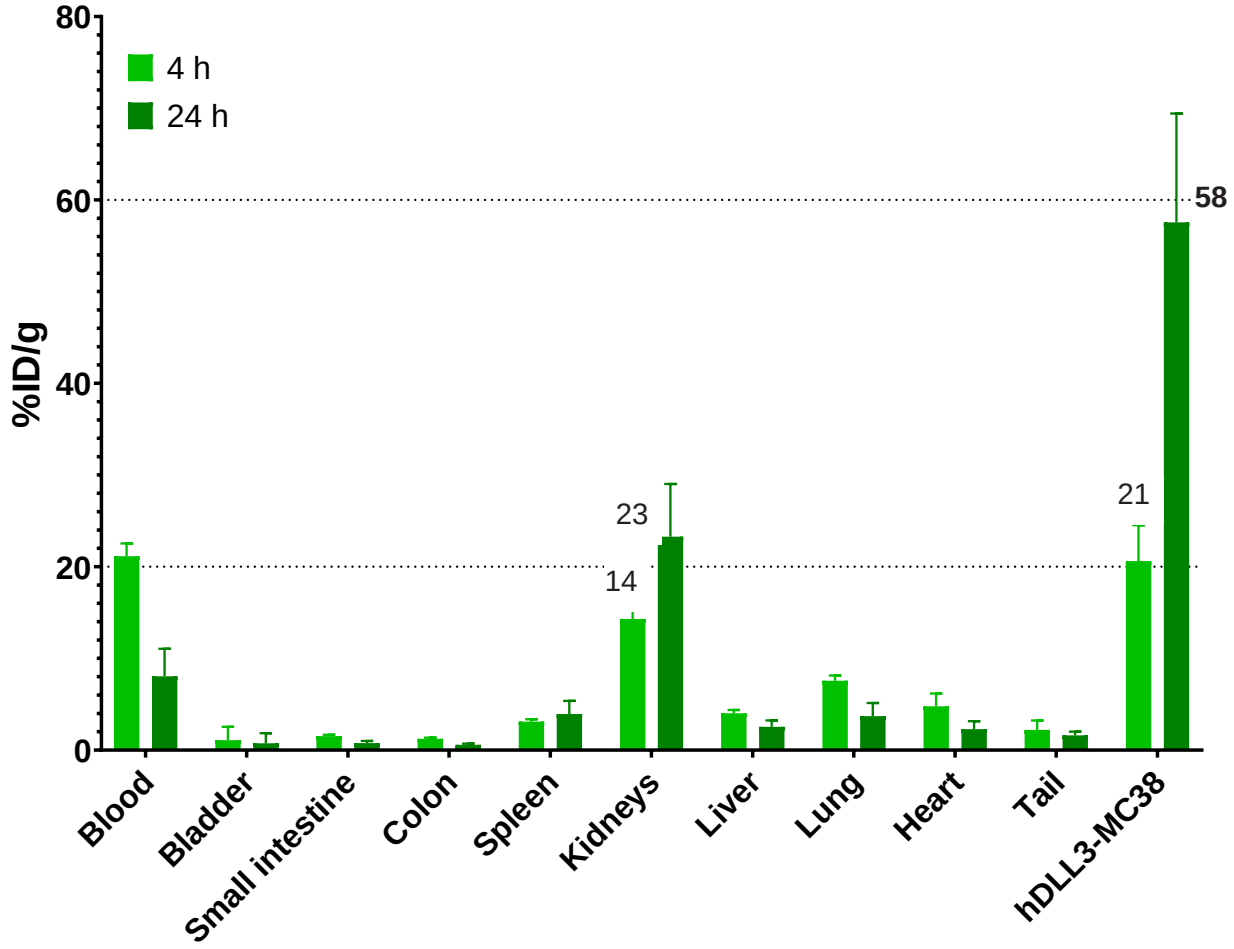
Lizak et al, SNMMI 2024 (oral presentation)

CD1 wt mice
Dose: 10 to 40 µCi of ^{212}Pb at 0.01 mg/kg of DLL3 DARPin

Mice xenografted s.c. with hDLL3-MC38 (Biocytogen)
Dose: 10 µCi of ^{212}Pb at 0.01 mg/kg of DLL3 DARPin
[1] Sharma *et al., Cancer Res*, 2017; [2] Korsen *et al., PNAS*, 2022

MP0712: ^{212}Pb-DLL3 Lead Candidate with Attractive BioD Profile

Biodistribution Profile of DLL3 x RDT Lead Candidate



Time Point	Tumor : Kidney
4 h	1.4 : 1
24 h	2.5 : 1
AUC	2.1 : 1

- **MP0712 selected as Lead Candidate** for ^{212}Pb-DLL3 Radio-DARPin Therapy
- Encouraging biodistribution profile with **T:K Ratio >2** in MC38 model
- Similar profile in NCI-H82 model (patient relevant DLL3 expression) with T:K Ratio >1 *(data not shown)*

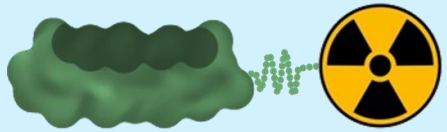
Mice xenografted s.c. with hDLL3-MC38 (Biocytogen)
Dose: 10 µCi of ^{212}Pb at 0.01 mg/kg of DLL3 DARPin
BioD, biodistribution; AUC, area under the curve.

Lizak et al, SNMMI 2024 (oral presentation)

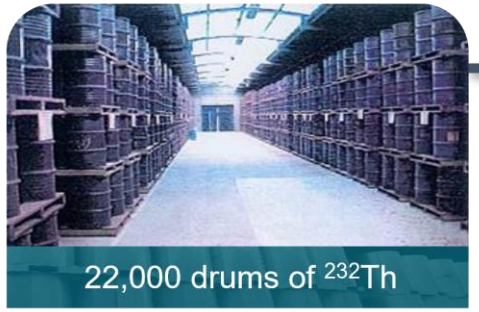
Co-development of Radio-DARPin Therapeutics with Orano Med

MOLECULAR partners

oranomed
^{212}Pb for Targeted Alpha Therapy



- Co-development collaboration*, 50:50 cost and profit share
- Access to future manufacturing applying ^{212}Pb
- Up to three tumor antigens incl. DLL3
- Molecular Partners commercialization rights for DLL3



^{232}Th
14 Bn years

^{228}Ra
5,7 years

^{228}Th
1,9 years

^{224}Ra
3,6 days

^{212}Pb
10,6 hours

^{208}Pb
stable

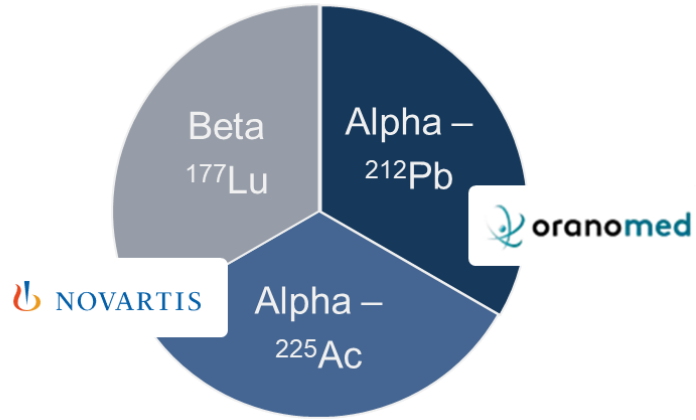
Lead-212 is obtained **chemically** by **successive extractions and purifications** of the descendants of thorium-232

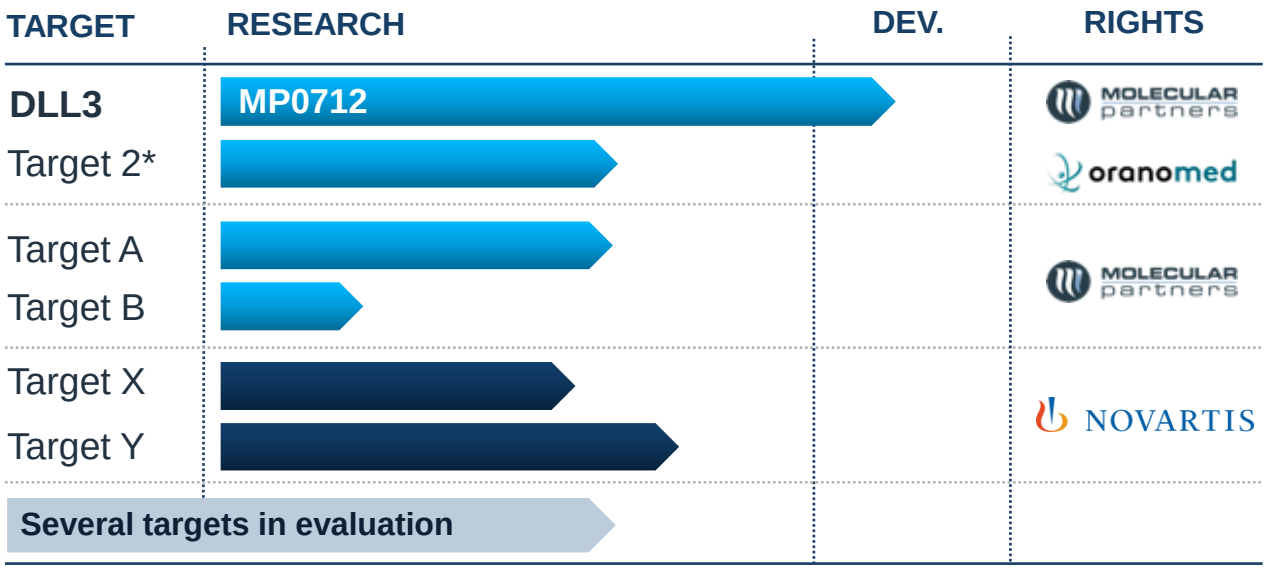
Orano Med owns more than 20,000 drums of highly purified thorium-232 offering virtually illimited supply

** deal signed January 5, 2024*

Summary – Radio-DARPin Therapy (RDT) & MP0712

- ✓ Successful RDT platform optimization for reduced kidney accumulation and increased tumor uptake
- ✓ **MP0712 selected as Lead Candidate for ^{212}Pb-DLL3** targeted Radio-DARPin Therapy
- ✓ IND-enabling activities initiated with Orano Med; **FIH clinical data expected in 2025**





Outlook:

- ➢ ***Advance MP0712** and additional **pipeline candidates***
- ➢ ***Evolve RDT platform***
- ➢ ***Progress collaboration projects** with Orano Med and Novartis*

* The co-development agreement with Orano Med includes up to 3 potential oncology targets including DLL3 (Delta-like ligand 3)

Switch-DARPin Platform & MP0621 as first program for HSCT in AML

Targeted and conditional activation of immune cells

Next-Generation Conditioning for HSCT in AML and Beyond

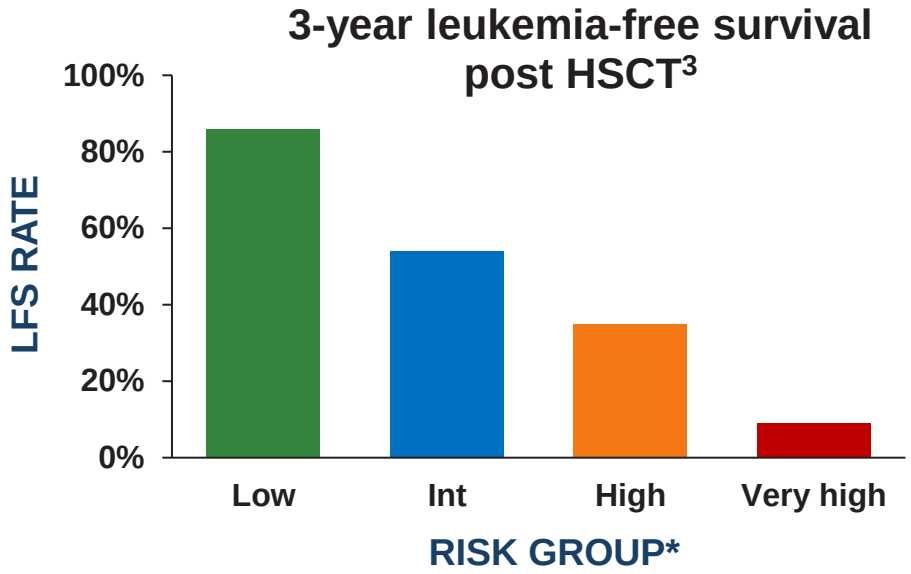
HSCT is potentially curative for AML, however:

Conditioning regimens followed by HSCT do not always kill all AML cells[1,2]

→ Many patients **relapse post HSCT**, especially AML patients with poor cytogenetic risk profile

High-intensity conditioning regimen bears high toxicity[1,2]

→ Many patients receive **reduced intensity conditioning with higher risk of relapse** or do not qualify for HSCT



Opportunity for next-generation conditioning regimen

- Induce deep molecular remission to kill all AML clones, including in patients with poor cytogenetic risk profile
- Limit toxicity to allow access to HSCT for more AML patients, including elderly or frail patients
- Beyond AML: broaden applicability of HSCT for other diseases (e.g., genetic diseases) by improving safety of conditioning regimen

1.Jethava et al. Bone Marrow Transplant 2017;52:1504-11; 2. Döhner et al. Blood 2022;140:1345-77; 3. Moses Murdock et al. Blood 2022;139:3546-57.
*Risk groups defined based on different variables, including age, cytogenetic risk profile, type of and response to conditioning.
AML, acute myeloid leukemia; HSCT, hematopoietic stem cell transplantation; Int, intermediate; LFS, leukemia-free survival.

MP0621: cKit x CD16a x CD47 Switch-DARPin

Our solution for a safe conditioning regimen and long-term disease control

cKit (CD117)

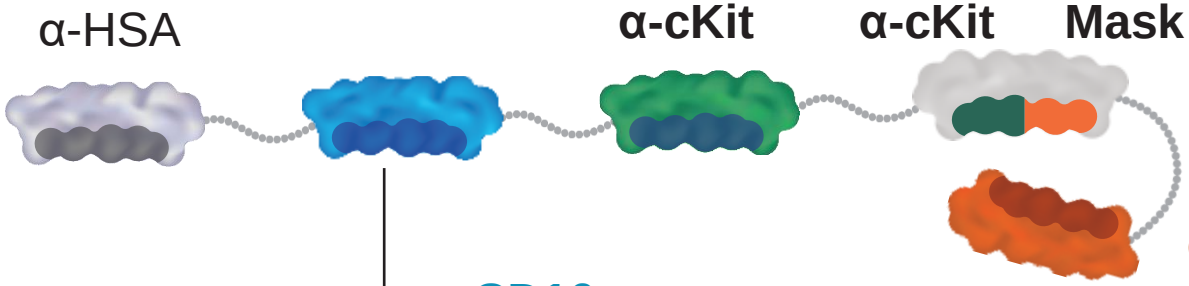
Essential for HSC maintenance and renewal

- **Challenge:** optimal HSC depletion requires both cKit blocking AND potent immune cell mediated killing
- cKit-CD16a-CD47 Switch-DARPin proposed to demonstrate full activity

Switch-DARPin

Prevents peripheral CD47 blockade

- Higher safety
- Expected better biodistribution
- Allows use of Fc-engaging modalities



α-CD16a

Innate immune cell engager

CD16a effector function

- ADCC and ADCP induction
- No impact of inhibitory Fc
- Reduced CRS (compared to TCE)

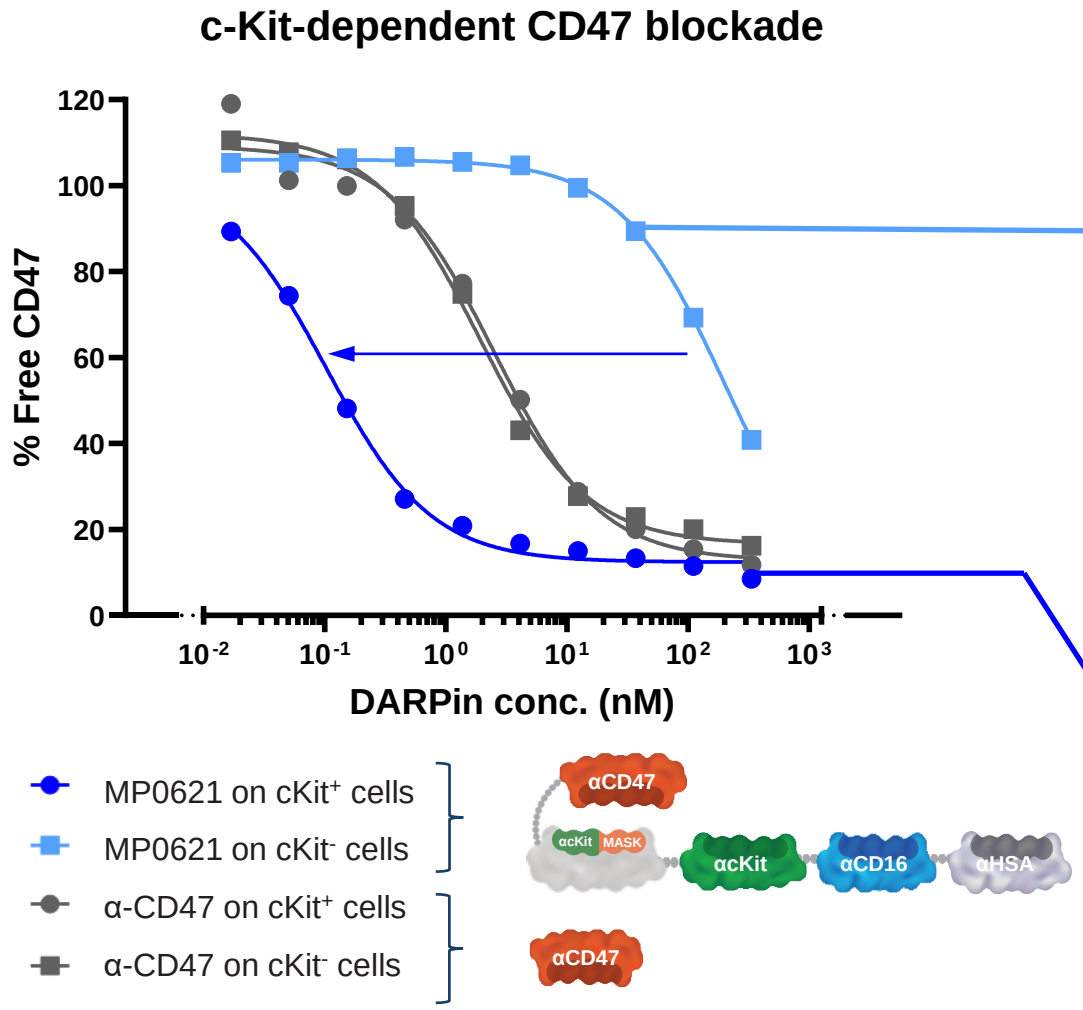
α-CD47

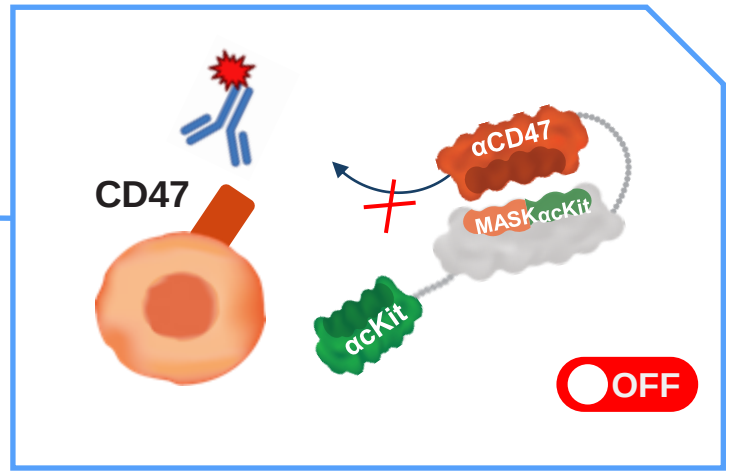
CD47 innate checkpoint blockade

- Block "do-not-eat-me" signal = enhances phagocytosis
- High expression on HSC = target for ADCC and ADCP

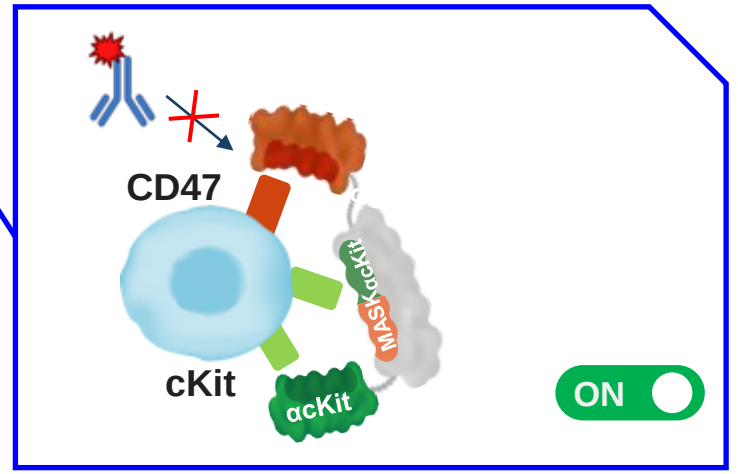
ADCC, antibody-dependent cell-mediated cytotoxicity; ADCP, antibody-dependent cellular phagocytosis; CRS, cytokine release syndrome; TCE, T-cell engager

Switch-DARPin POC - CD47 is Blocked Only on cKit Positive Cells





cKit Negative cells
Switch is OFF
CD47 is NOT blocked



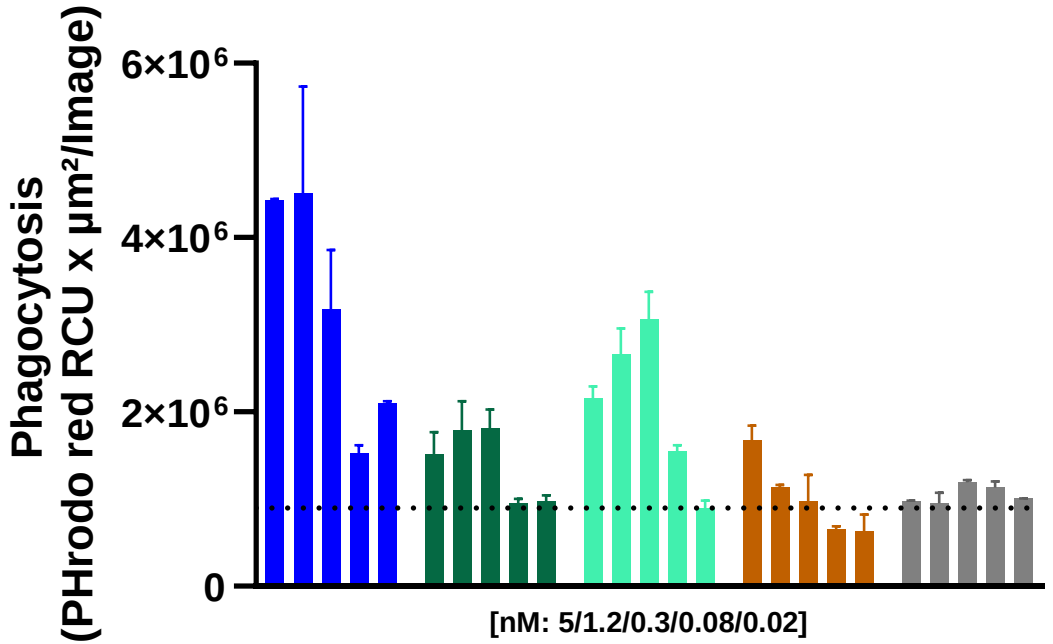
cKit Positive cells
Switch is ON
CD47 is Blocked

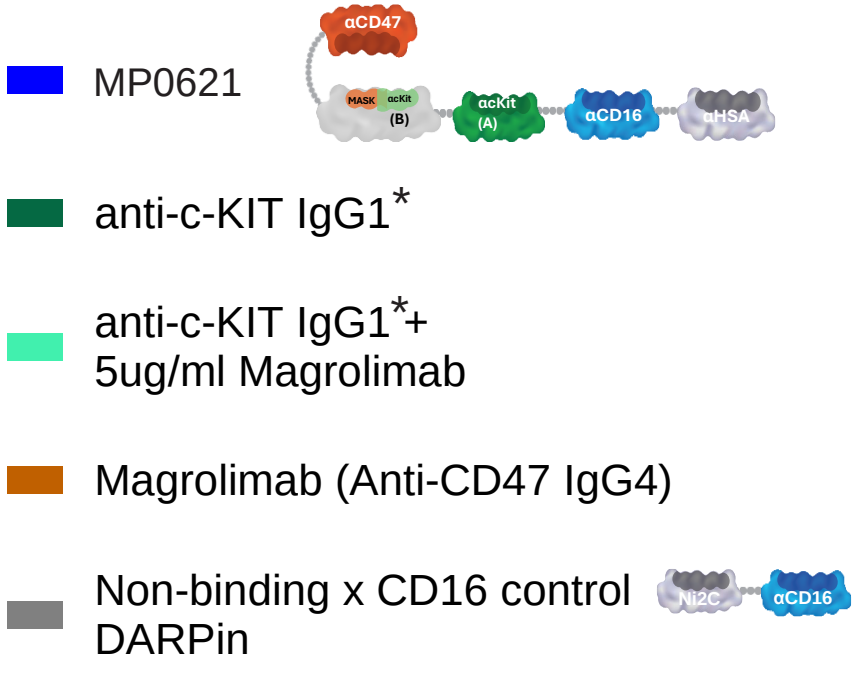
anti-CD47
detection agent

MP0621 shows superior ADCP activity compared to a combo of anti-cKit Ab* + Magrolimab

ADCP assay

M0-like Macrophages + Kasumi-1 AML cell line

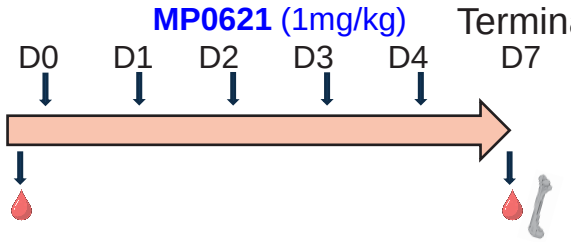




*Fc-active version of JSP-191, reproduced by MP

MP0621 depletes cKit+ cells in the bone marrow without affecting circulating immune cells in humanized mice

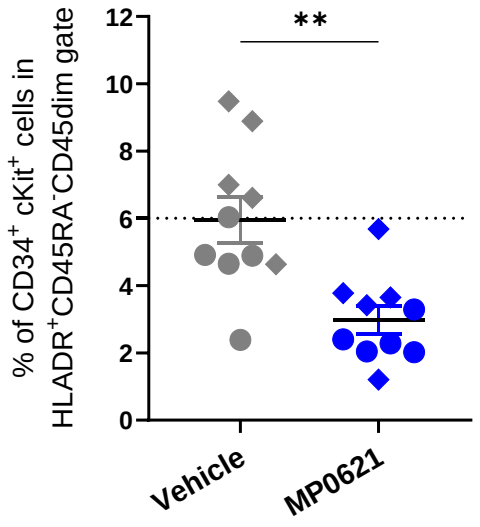
hCD34⁺ NSG mice



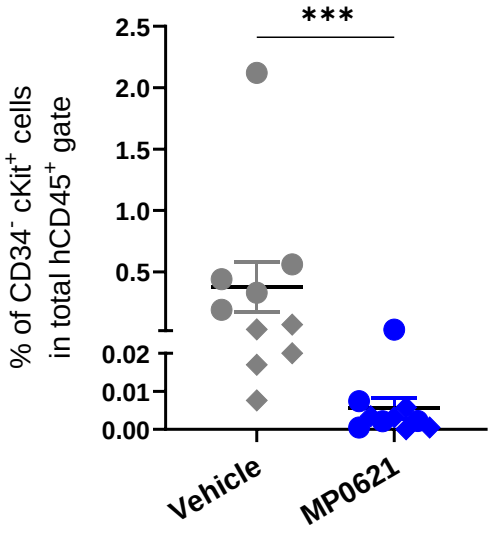
Flow cytometry analysis of blood and BM

Targeted cKit+ cells depleted in bone marrow

hcKit+ hCD34+ cells, incl. HSCs

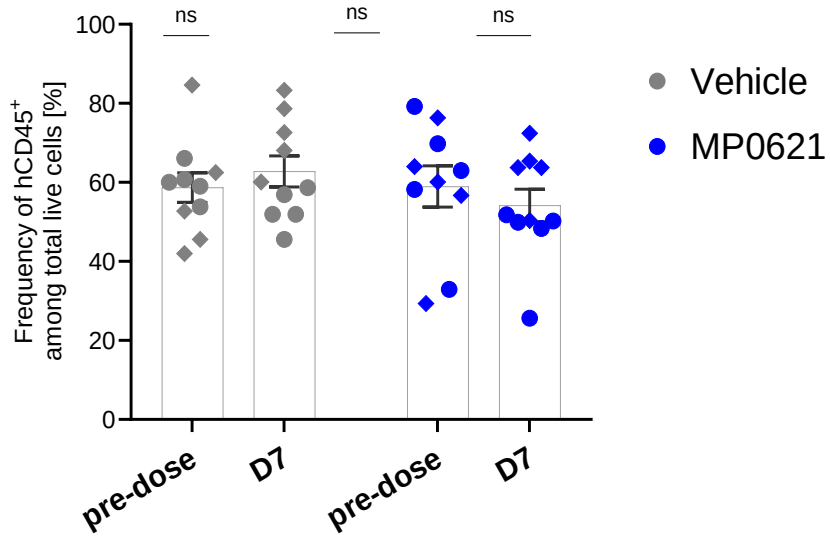


hcKit+ hCD34- cells



Immune cells in blood

hCD45+ immune cells



Link et al, EHA 2024 (poster presentation)

Potential logic-gated Switch-DARPin Concepts

Swiss knives for enhanced immune engagers

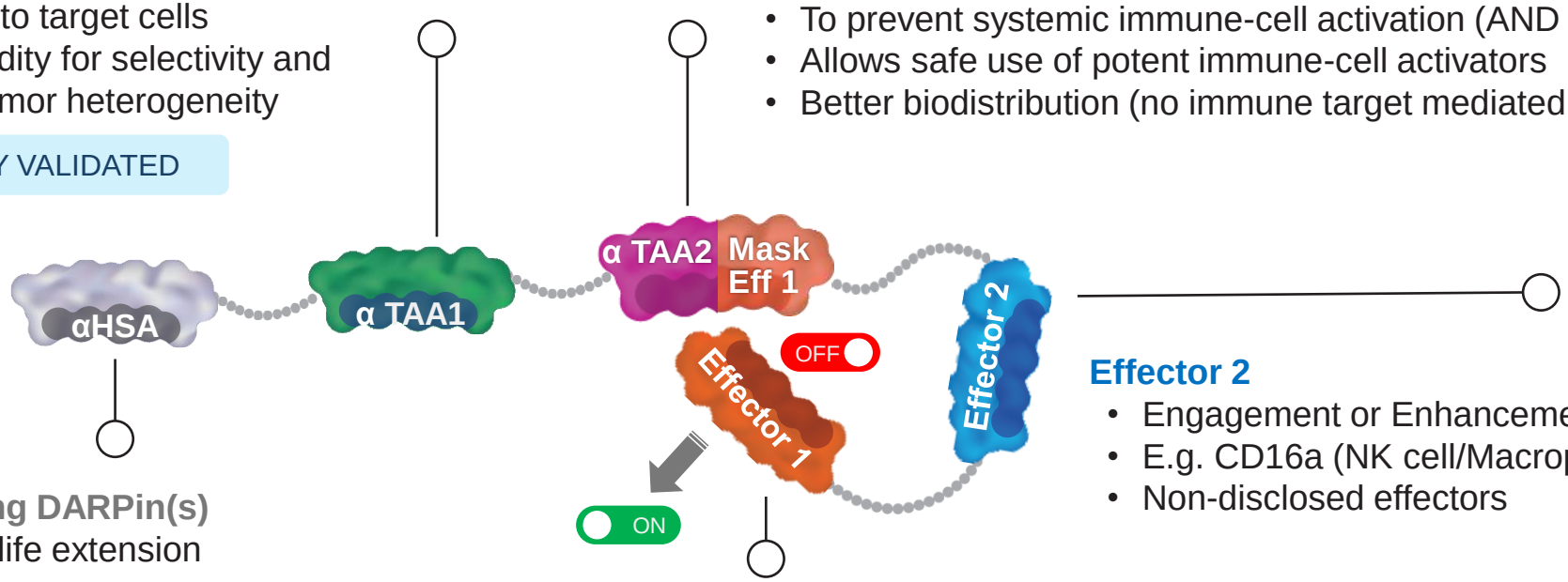
1st Antigen Binder

- Anchoring to target cells
- Adding avidity for selectivity and address tumor heterogeneity

✓ CLINICALLY VALIDATED

2-in-1 DARPin: Exclusive Binding to 2nd Antigen or Masking Effector 1

- To prevent systemic immune-cell activation (AND gate)
- Allows safe use of potent immune-cell activators
- Better biodistribution (no immune target mediated sink)



HSA Binding DARPin(s)

- For half-life extension

✓ CLINICALLY VALIDATED

Effector 2

- Engagement or Enhancement of immune response
- E.g. CD16a (NK cell/Macrophage engagement)
- Non-disclosed effectors

Effector 1 (Switched on/off by Masking DARPin)

- Engagement or enhancement of immune responses
- E.g. CD47 (block don't-eat-me signal)
- E.g. CD3 ("Signal 1" T-cell engagement)

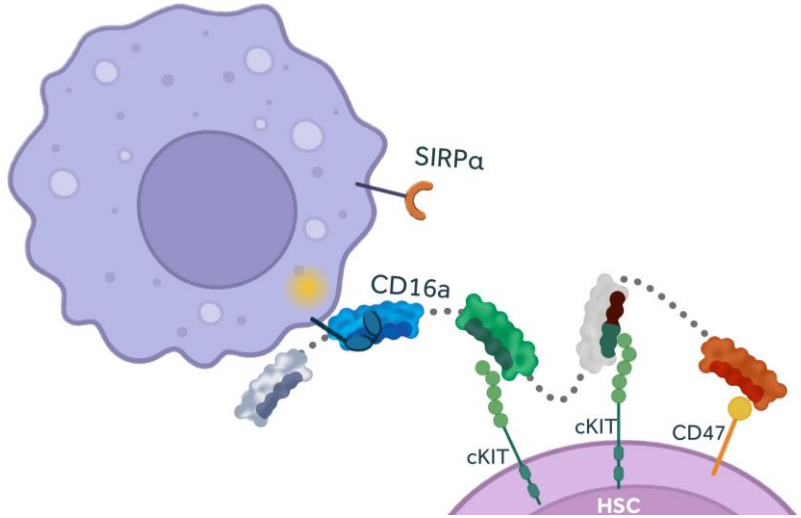
✓ CD3 TCE CLINICALLY VALIDATED

HSA, human serum albumin; NK, natural killer cell; TAA, tumor-associated antigen.

Switch-DARPin & MP0621 – Summary

Summary

- ✓ Dual-binding DARPin (the “Switch”) provides a **logic-gated “on/off” function** to a multi-specific DARPin
- ✓ Conditional, target-specific immune activation demonstrated for **Switch-DARPin platform** *in vitro*
- ✓ MP0621 as first program: a **cKit x CD16a x CD47 Switch-DARPin** as next-gen therapeutic supporting HSCT for AML patients & beyond
- ✓ **Positive preclinical data** presented at EHA 2024: MP0621 effectively depletes targeted cells *in vivo* with a safe profile



Outlook

- Advance MP0621 into IND-enabling studies with FIH in 2025
- Preclinical proof-of-concept data from NHP study in H2 2024, with strong translational value
- Leverage Switch-DARPin platform for next-generation immune cell engagers

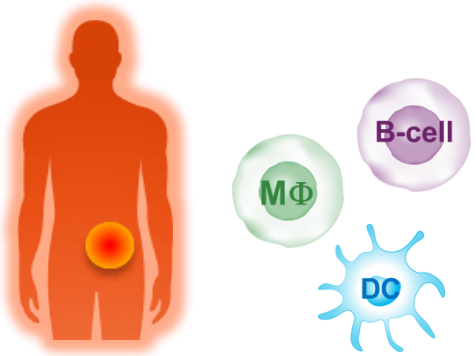
AML, acute myeloid leukemia; HSCT, hematopoietic stem cell; NHP, non-human primate.

MP0317

Tumor-localized Immunotherapy

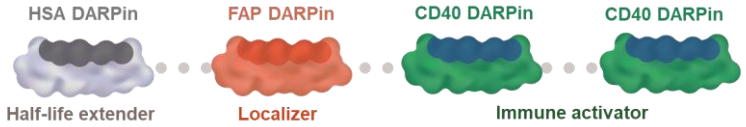
MP0317: Unlocking CD40 Activity Through Local Activation

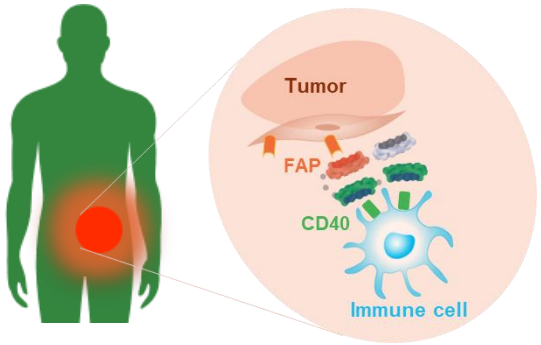
Problem: Toxicity of CD40 Antibodies Has So Far Limited Their Activity



- **CD40 agonists** can activate **B cells, DCs and MΦ** to enhance the efficacy of IO drugs, especially in “cold tumors”
- **Systemic activation of CD40 via mAbs** has been hampered by **significant toxicities,** therefore **limiting their potential of reaching a therapeutically active dose**

Solution: MP0317 – FAP-dependent tumor-localized CD40 activation

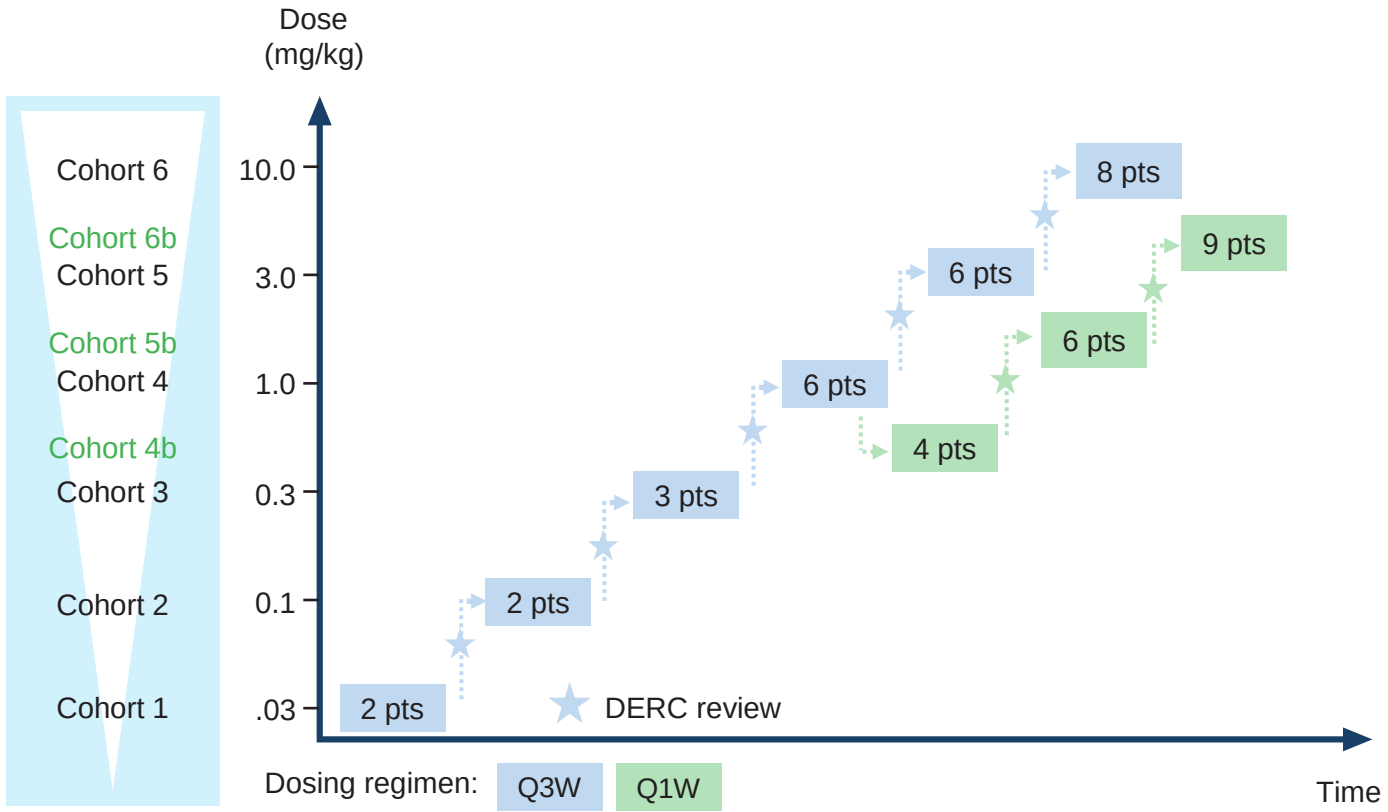




- **FAP is a validated tumor target** overexpressed in at least 28 different cancer types and its expression is not downregulated during disease progression
- **MP0317** is designed to bind tumor-localized FAP and induce CD40-mediated **activation of immune cells in the tumor**, thereby overcoming systemic toxicity and allowing a **wider therapeutic dosing range**

DC, dendritic cell; FAP, fibroblast activation protein; HSA, human serum albumin; MΦ, macrophage; mAb, monoclonal antibody; IO: immuno-oncology.

MP0317 Phase 1 Study Design and Status



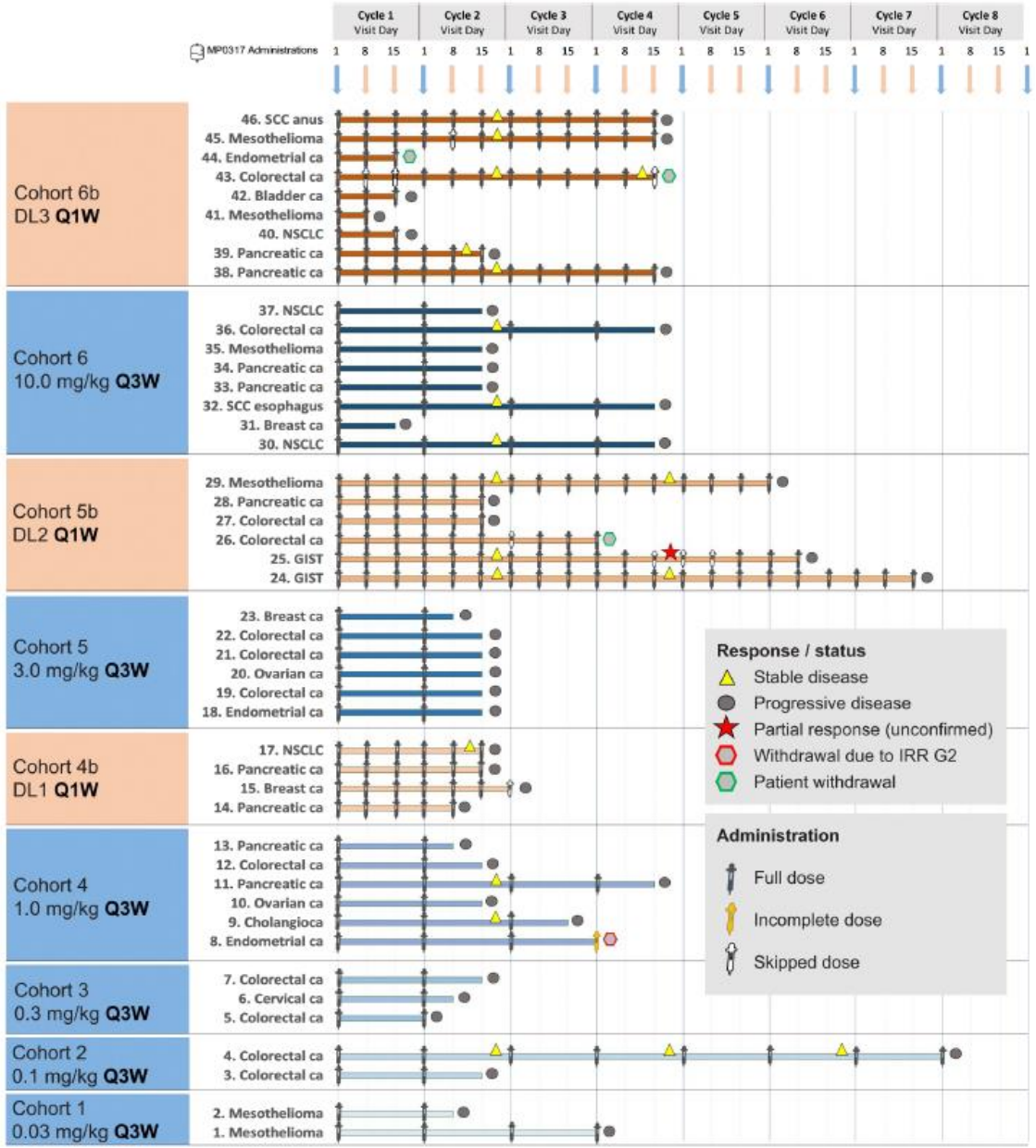
STUDY DESIGN

- **FIH, multi-center, dose-escalation study of MP0317 monotherapy** (9 dose cohorts; Q1W and Q3W dosing; NCT05098405)
- **Eligible patients:** adults with advanced solid tumors
- **Primary objectives:** safety/tolerability, recommended dose for expansion & combination
- **Secondary objectives:** PK, PD, and preliminary antitumor activity
- **Centers:** 4 sites in France and The Netherlands

FIH, first-in-human; PK, pharmacokinetics; PD, pharmacodynamics; Q1W, weekly dosing; Q3W, every-3-weeks dosing.

MP0317 Phase 1 Study Final Data at ASCO 2024

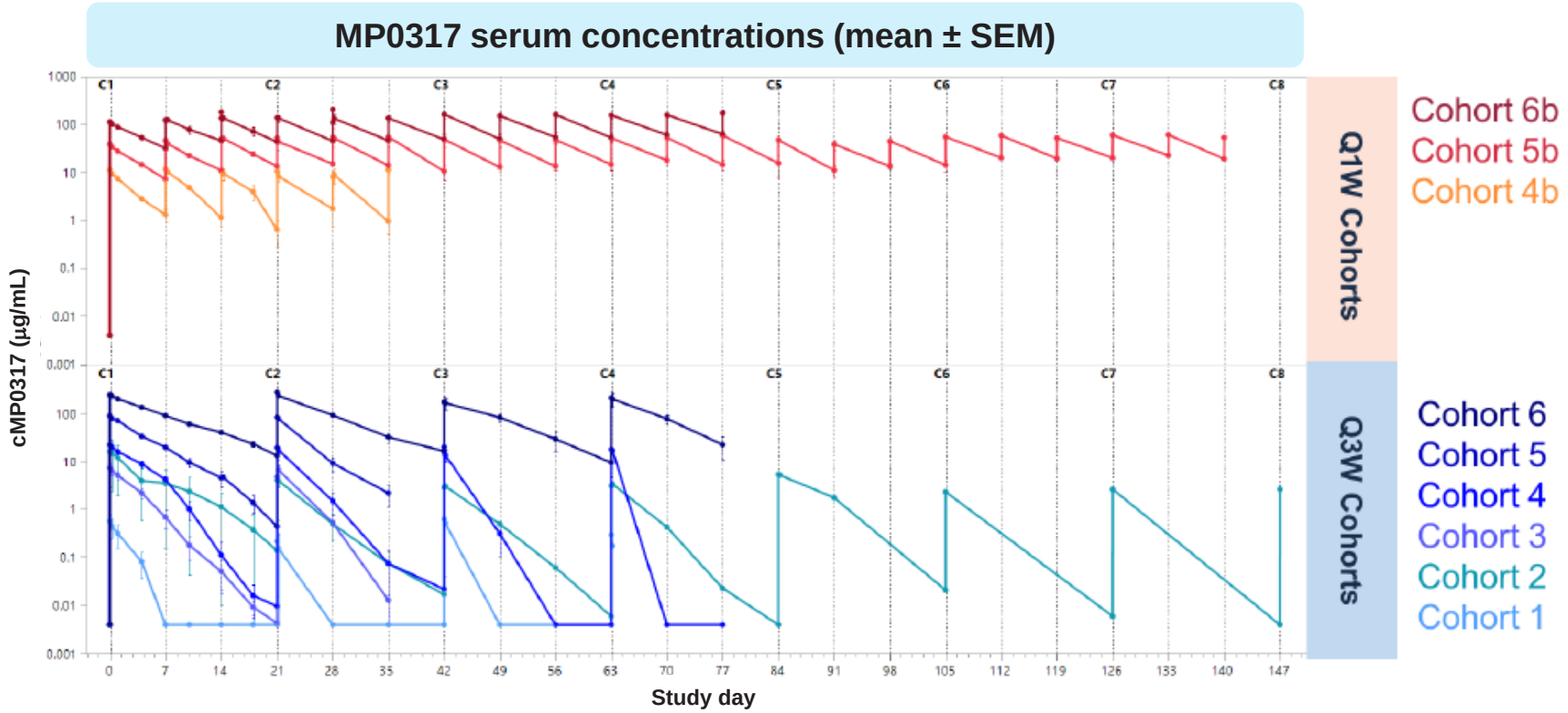
- A total of **46 patients treated** in 9 cohorts
  - Median age (range): 63 years (35–79)
  - ECOG PS 0 / 1, n (%): 22 (48) / 24 (52)
  - Medial prior regimen (range): 4 (1–13)
- **Favorable safety profile** across all tested dose cohorts up to highest planned dose (10 mg/kg)
  - Only 1 patient with a DLT (cohort 6; Grade 3 AST and ALT increase)
  - Most frequent Ars: fatigue and Grade 1–2 IRRs
- **Clinical evidence** of tumor-localized CD40 pathway and immune cell activation, leading to **TME remodeling**



Steeghs et al. ASCO 2024 poster presentation.

ALT, alanine aminotransferase; AR, adverse reaction; AST, aspartate aminotransferase; DLT, dose-limiting toxicity; IRR, infusion-related reaction; PD, pharmacodynamic; TME, tumor microenvironment; Q1W, weekly dosing; Q3W, every-3-weeks dosing.

MP0317 Serum PK is Suitable for Q3 and Q1 dosing



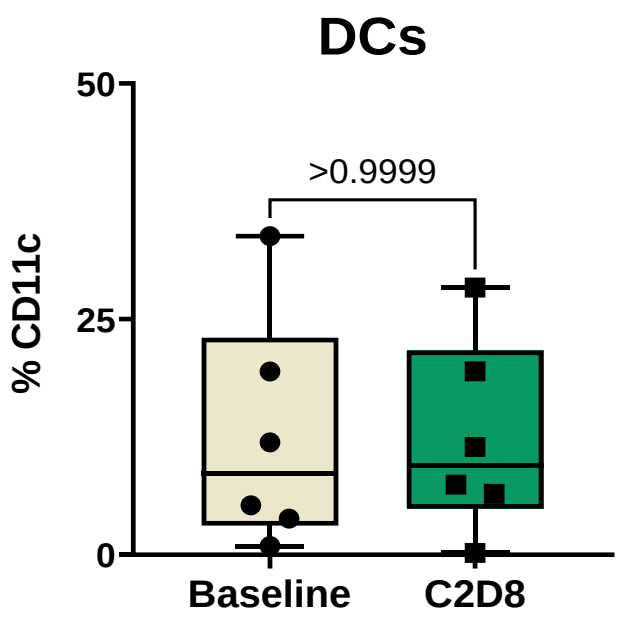
- PK profile is consistent with **half-life extended properties of DARPins**
- **MP0317 exposure shows dose-proportionality** throughout the treatment period analyzed
- **Sustained exposure** is observed at higher doses with both regimens overcoming TMDD and the impact of ADAs

Steeghs et al. ASCO 2024 poster presentation.

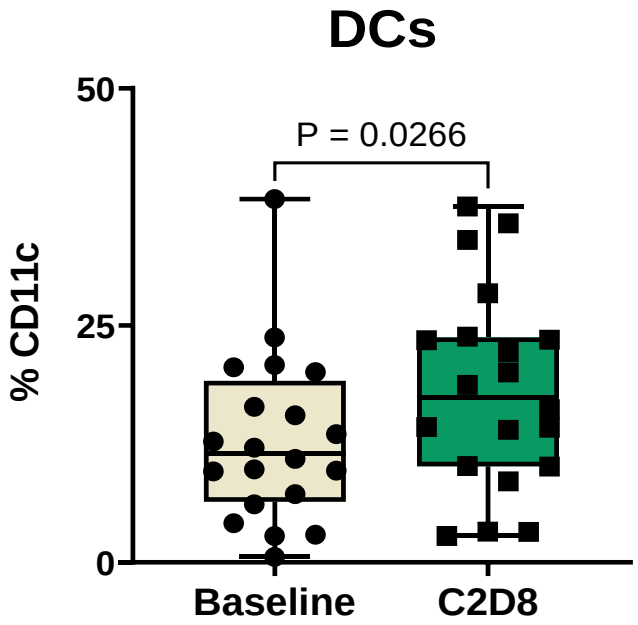
ADA, anti-drug antibodies; PK, pharmacokinetic; Q1W, weekly dosing; Q3W, every-3-weeks dosing; SEM, standard error of mean; TMDD, target-mediated drug disposition.

MP0317 Tumor-localized CD40 Activation and TME Modulation

MP0317 low doses or not detected in tumor (n=6)



MP0317 higher doses and detected in tumor (n=20)

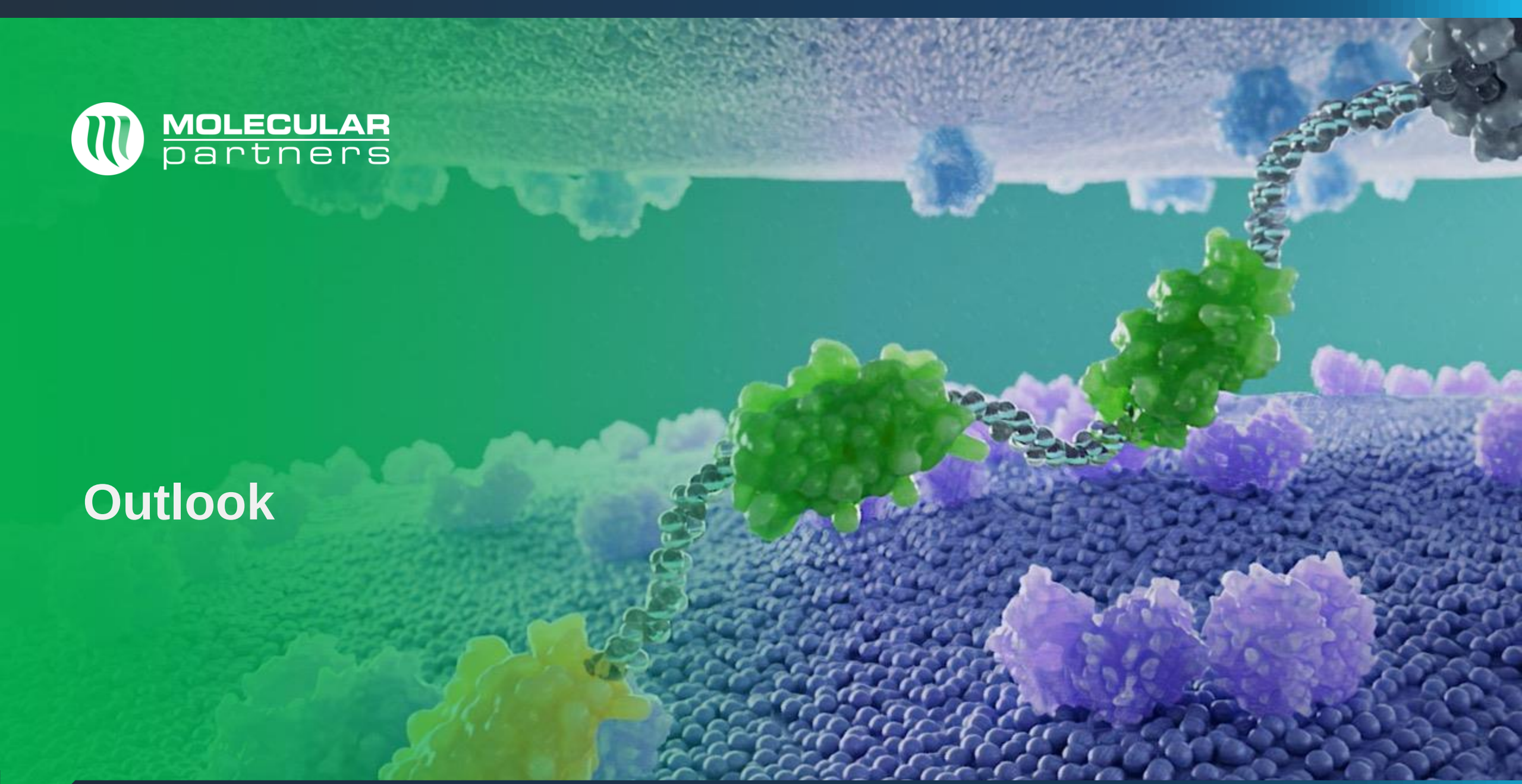


Evaluable paired tumor biopsies from treated patients were analyzed with mIF.
Low doses: ≤0.1mg/kg; higher doses: ≥0.3mg/kg. Upper (75%), median, and lower (25%) percentiles are indicated. P-values are derived from paired ranked sum Wilcoxon test.

- Bulk RNA sequencing in paired tumor biopsies (n=19) shows that MP0317 presence tends to be associated with:
  - Increase in abundance of plasma and T follicular helper cells
  - DC maturation gene signature
  - IFNγ downstream activation gene signature scores
- Increases observed in CXCL10 serum levels corroborate these findings

Steeghs et al. ASCO 2024 poster presentation.

DC, dendritic cell; mIF. multiplex immuno-fluorescence; TME, tumor microenvironment.



Outlook

2024 Outlook and Upcoming Milestones

MP0533	• Update from Phase 1/2a trial to be presented at a scientific congress in H2 2024 • Expansion of enrollment to higher dose cohorts planned in H2 (protocol amendment submitted) • Plans for future clinical development strategy, incl. opportunities in r/r AML and 1L fit and unfit patients
Radio-DARPin Therapy & MP0712	• Advance MP0712 into IND-enabling studies with FIH & clinical data in 2025 • Nominate additional RDT targets and pipeline candidates • Continue to progress RDT collaborations with Orano Med and Novartis
Switch-DARPin & MP0621	• Advance MP0621 into IND-enabling studies with FIH in 2025 • Preclinical proof-of-concept data from NHP study in H2 2024, with strong translational value • Leverage Switch-DARPin platform for next-generation immune cell engagers
MP0317	• Final data from the FIH dose-escalation Phase 1 study to be presented in 2024 • Partnering for clinical development in combination settings

CHF ~174 million cash* (incl. short-term time deposits) ensures **funding well into 2026**

*As of March 31, 2024.
AML, acute myeloid leukemia; IND, investigational new drug; NHP, non-human primate; R/R, relapsed/refractory; ASH, American Society of Hematology.

Thank You