Custom Built Biology for Patients

Corporate Deck

September 2021

Molecular Partners AG, Switzerland
(SIX: MOLN, NASDAQ: MOLN)

Disclaimer

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Pioneering DARPin® Therapeutics

COVID19 – Ensovibep (Novartis)

- Phase 1 & small trial in patients completed
- 2 pivotal trials ongoing, recruiting well
  - **EMPATHY** – ambulatory
  - **ACTIV-3** – hospitalized
- Activity on **all viral variants of concern**

Local immune agonists

- **AMG 506 / MP0310** – (FAP x 4-1BB, Amgen) weekly dosing; on track to initial read-out in H2/2021
- **MP0317** – (FAP x CD40) on track to FIH in H2/2021

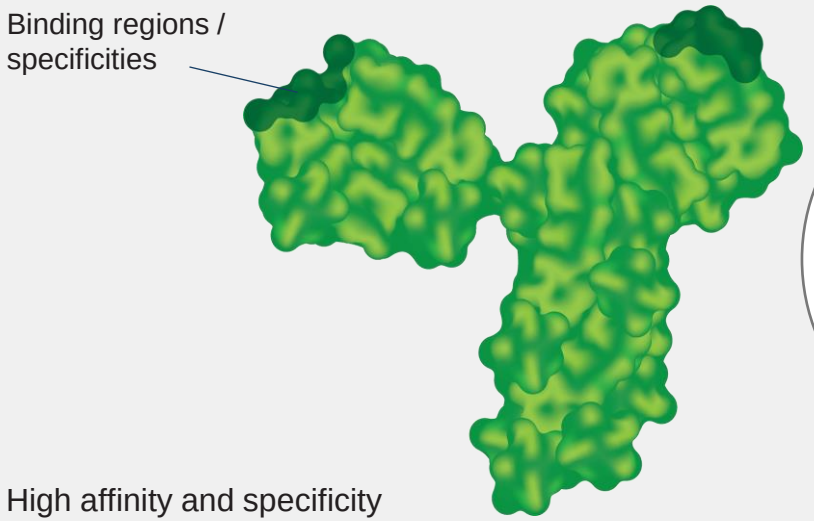
AML (CD33+CD70+CD123 x CD3)

- **Triple-TAA-targeting TCE** on track for candidate selection in H2/2021
- First in human 2022

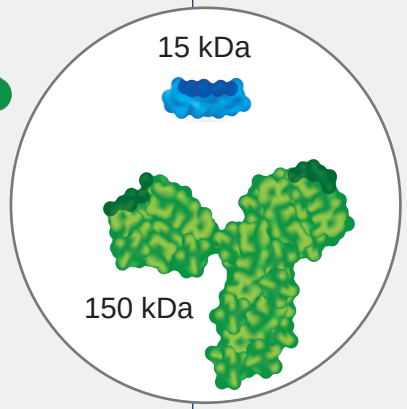
- **Financials**
  - Listed on **NASDAQ**
  - Raised **CHF 58 million** gross proceeds
  - Strong balance sheet, funded into **H2 2023**
- **Infectious disease**
  - Announcing new programs at R&D day Dec. 2021
- **Abicipar**
  - Molecular Partners will regain rights from AbbVie; transition and evaluation of data initiated

What are DARPin® Proteins

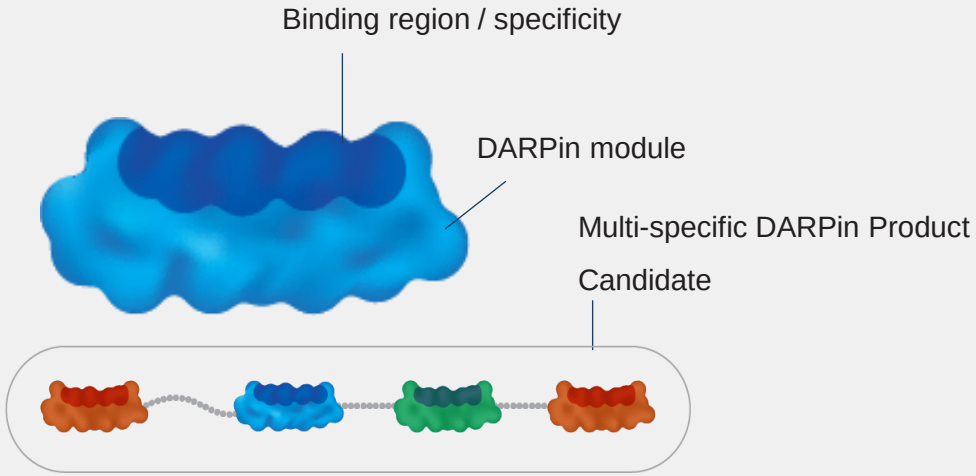
MONOCLONAL ANTIBODIES



- High affinity and specificity
- Large size: 150 kDa
- Complex architecture; 4 proteins with 12 domains
- Long half-life
- Mammalian expression
- Good safety & low immunogenic potential



MONO-DARPin PROTEINS



- High affinity and specificity
- Small size: 15 kDa (1/10 of a monoclonal antibody)
- Simple architecture 1 protein with 1 domain
- Tunable half-life
- High-yield microbial expression; High stability
- Good safety & low immunogenic potential

Multi-DARPin® Versatility Allows Screening for Function Sweet Spot

 # molecules

10^{12}

Super Large Libraries with DARPin Binders to any given target

10s

Simple selection of specific DARPin binders (functional, well behaved, highly potent)

Assembly of up to 6 DARPin® modules: **Fast & high throughput process: 2 weeks**

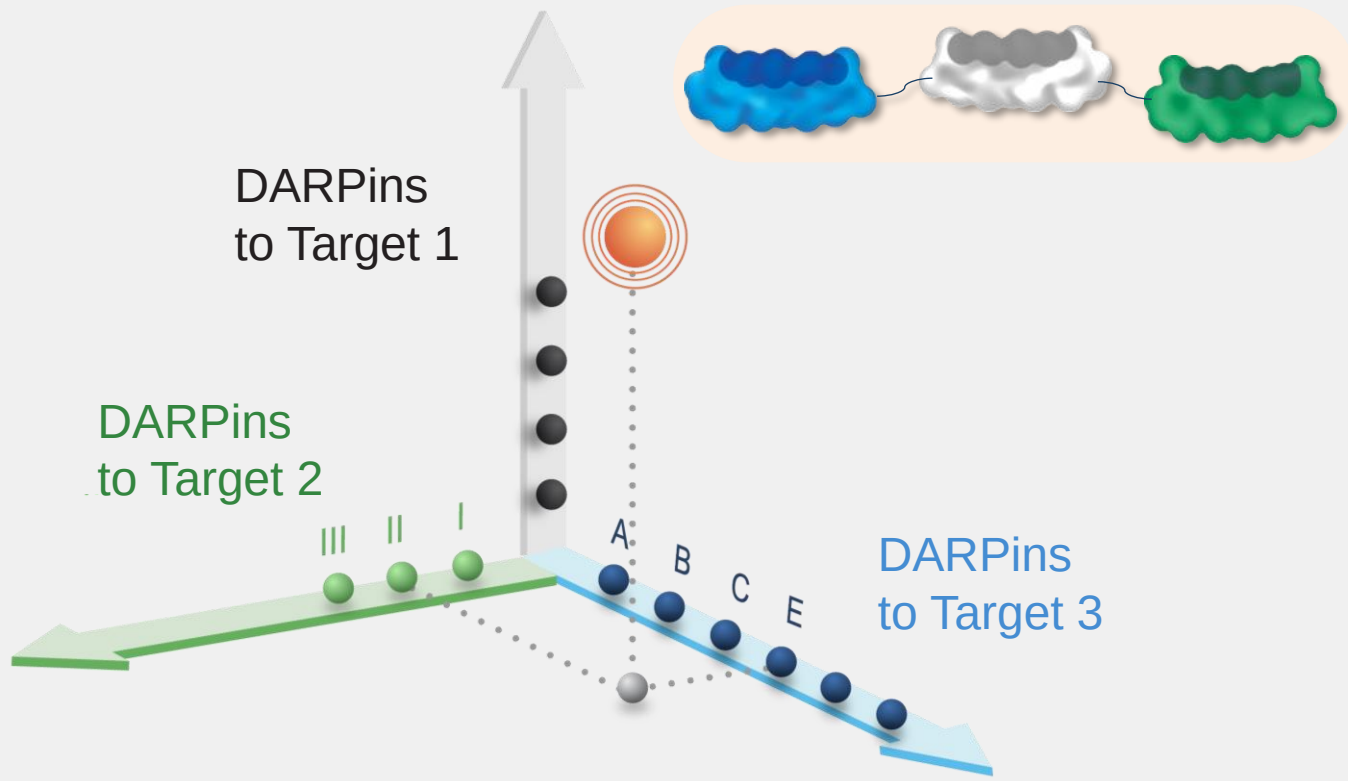
1000s

Screening of multi-domain DARPin® space for the SOLUTION

2-5

Specific Multi-DARPin® product candidate with desired function

Multi-domain DARPin® space

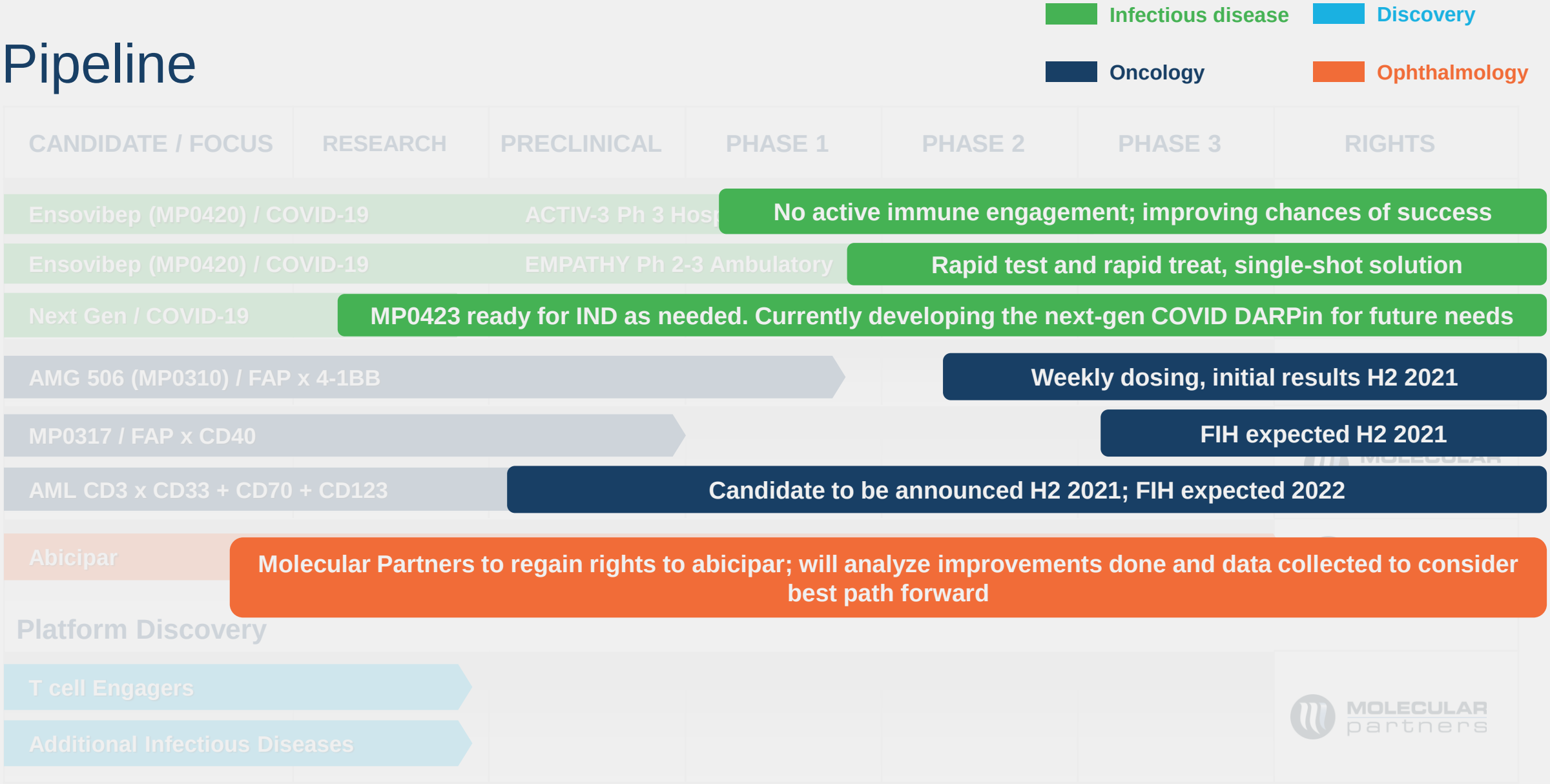


Pipeline

Infectious disease | Discovery | Oncology | Ophthalmology

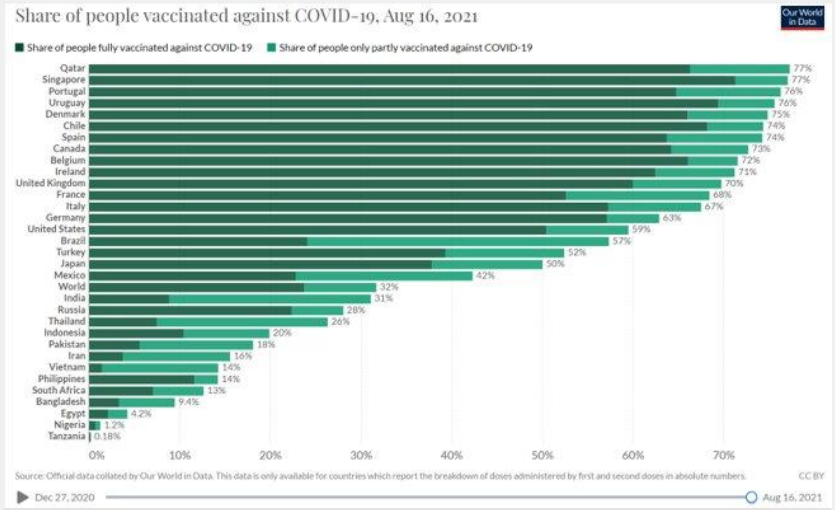
CANDIDATE / FOCUS	RESEARCH	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3	RIGHTS
Ensovibep (MP0420) / COVID-19		ACTIV-3 Ph 3 Hospitalized				NOVARTIS
Ensovibep (MP0420) / COVID-19		EMPATHY Ph 2-3 Ambulatory				
Next Gen / COVID-19						
AMG 506 (MP0310) / FAP x 4-1BB						AMGEN
MP0317 / FAP x CD40						MOLECULAR partners
AML CD3 x CD33 + CD70 + CD123						
Abicipar						MOLECULAR partners
Platform Discovery						
T cell Engagers						MOLECULAR partners
Additional Infectious Diseases						

Pipeline

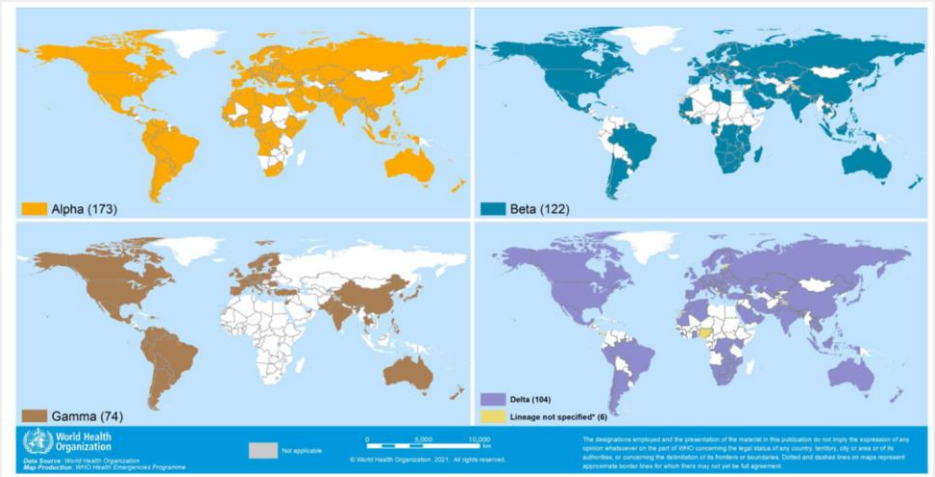

Infectious disease
Discovery
Oncology
Ophthalmology
CANDIDATE / FOCUS
RESEARCH
PRECLINICAL
PHASE 1
PHASE 2
PHASE 3
RIGHTS
Ensovibep (MP0420) / COVID-19
ACTIV-3 Ph 3 Hosp
No active immune engagement; improving chances of success
Ensovibep (MP0420) / COVID-19
EMPATHY Ph 2-3 Ambulatory
Rapid test and rapid treat, single-shot solution
Next Gen / COVID-19
MP0423 ready for IND as needed. Currently developing the next-gen COVID DARPin for future needs
AMG 506 (MP0310) / FAP x 4-1BB
Weekly dosing, initial results H2 2021
MP0317 / FAP x CD40
FIH expected H2 2021
AML CD3 x CD33 + CD70 + CD123
Candidate to be announced H2 2021; FIH expected 2022
Abicipar
Molecular Partners to regain rights to abicipar; will analyze improvements done and data collected to consider best path forward
Platform Discovery
T cell Engagers
Additional Infectious Diseases
MOLECULAR partners

COVID-19 Program Success Opens Path for Antiviral Portfolio

Therapeutics Are Needed Now, More Than Ever

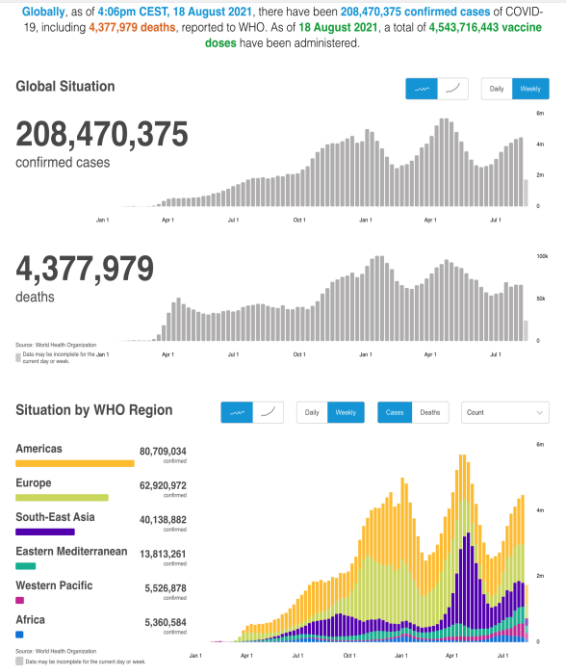


Vaccinations faster and better than anyone could have hoped



Source: WHO | COVID-19 variants Alpha, Beta, Gamma and Delta.

Variants continue to rise globally, challenging effectivity of vaccines



Source: WHO

Hospitalizations are up again, mostly in the unvaccinated

Targeting the Ambulatory and Mild to Moderate Hospitalized

Ensovibep

Prophylaxis

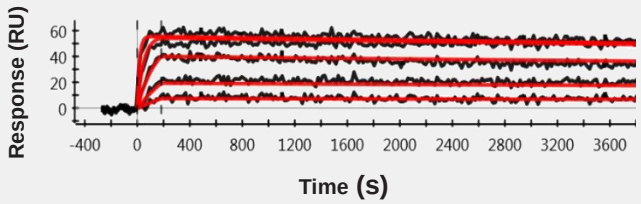
Outpatients

Hospitalized

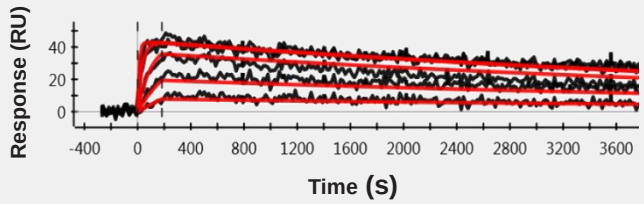
Intensive care

Cooperative Target Engagement Leads To Super Affinity

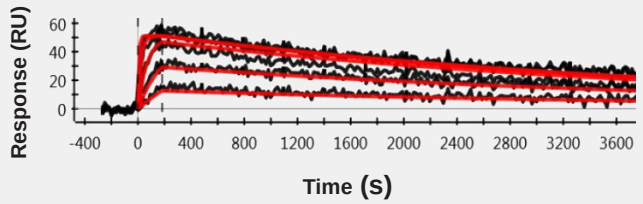
DARPin #1; 1 hour off-rate

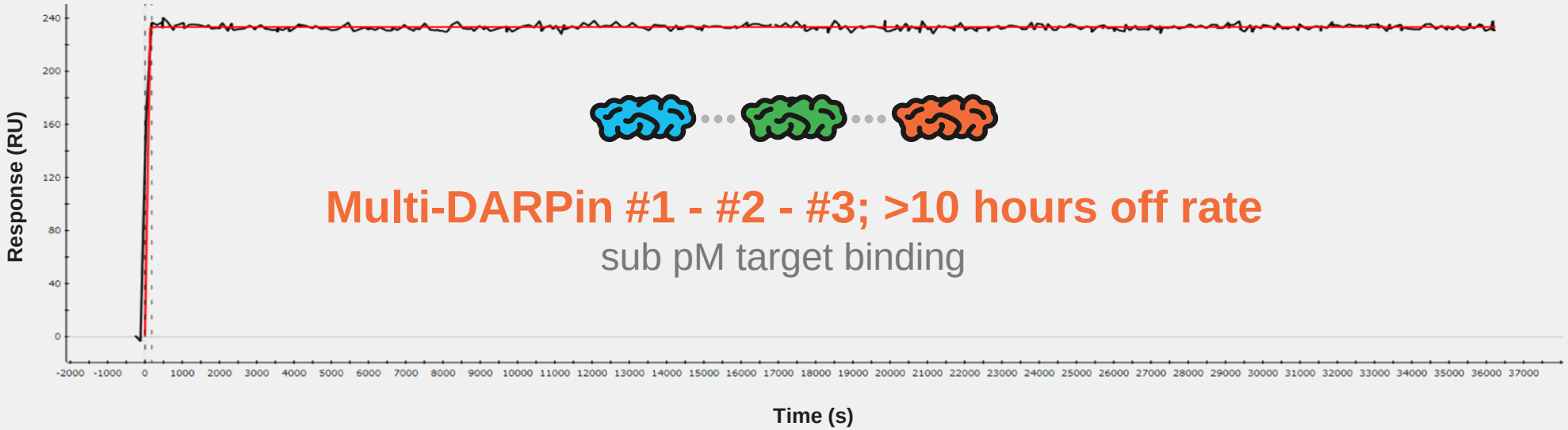


DARPin #2; 1 hour off-rate



DARPin #3; 1 hour off-rate



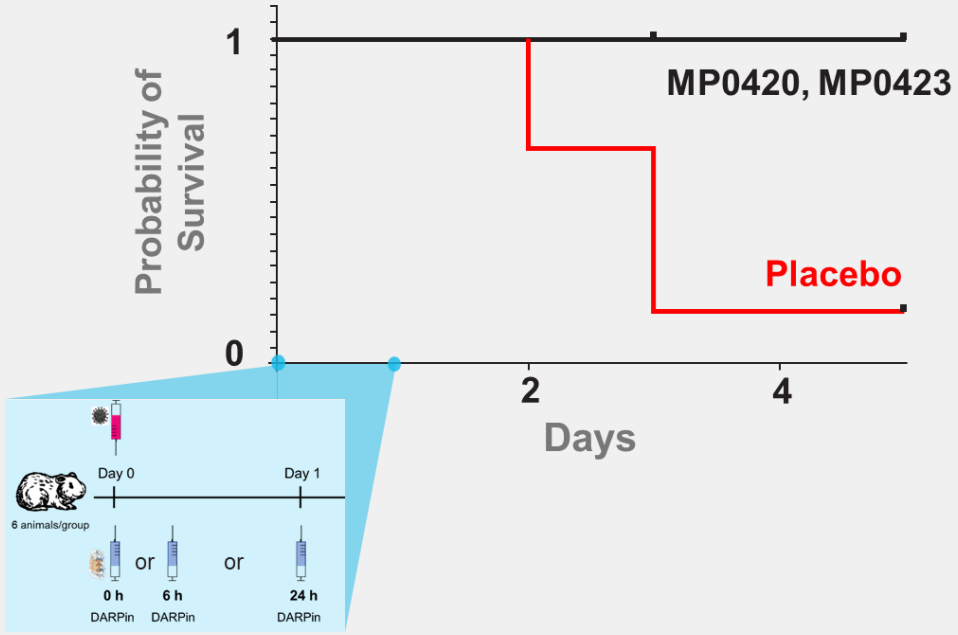


Multi-DARPin #1 - #2 - #3; >10 hours off rate

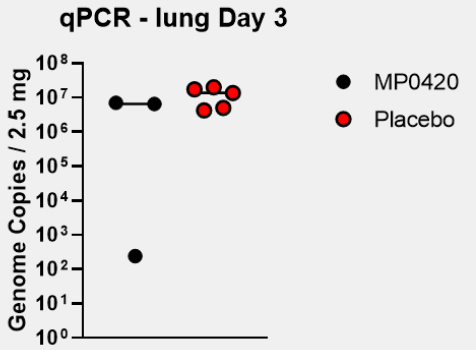
sub pM target binding

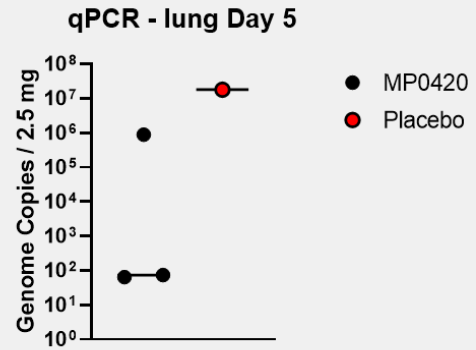
High Potency Inhibition Translates to *in vivo* Therapeutic Properties

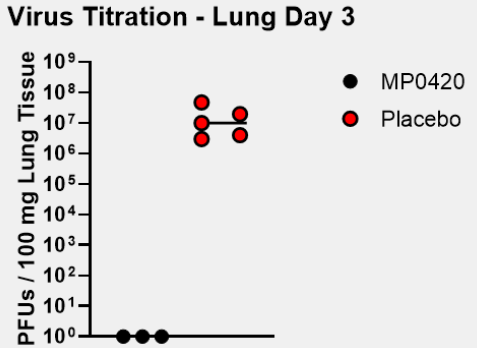
In vivo activity: Rescues test animals from death

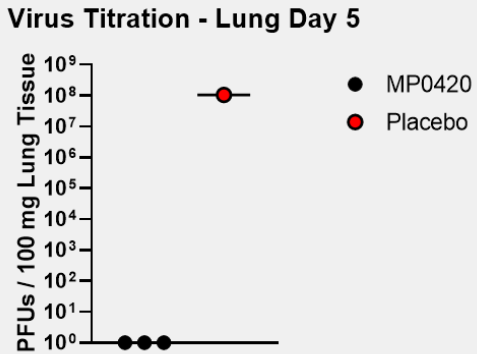


Completely blocks infectivity *in vivo*



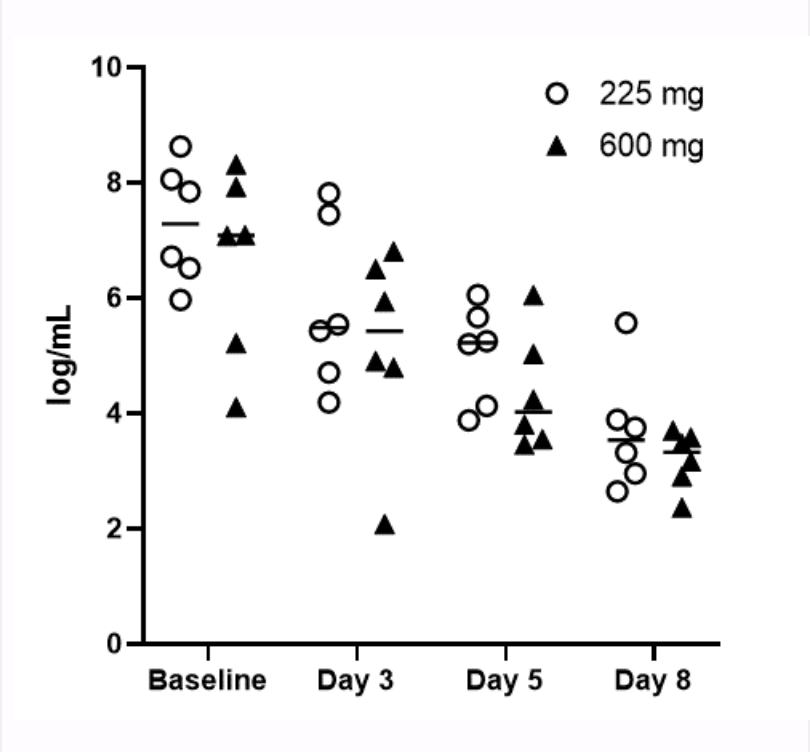






Our COVID-19 Program - Ensovibep

- Tri-specific DARPin® antiviral targeting the viral spike protein
- Designed to reach highest potency
- **Designed to prevent viral escape; Inhibits all known variants of concern to date**
- Phase 1:
  - I.V. administration – safe and well tolerated
  - Bolus administration – completed
  - Subcutaneous – ongoing
  - Half life established at 2-3 weeks
- **Single-arm Phase 2 results confirm safety, half life and validate viral clearance methods for P2/3**



Phase 2 Viral load analysis by qPCR
(Serology under analysis)

Novartis Deal Terms

- **CHF 210m in upfront and near-term potential milestones**
  - CHF 60m upfront
    - CHF 20m as a cash payment
    - CHF 40m in MOLN shares
  - CHF 150m milestone payment upon option exercise to license

- **22% royalty on sales in commercial countries**
  - Molecular Partners has agreed to forgo royalties in lower income countries, and is aligned with Novartis' plans to ensure affordability based on countries' needs and capabilities.

- **Clinical Development:**
  - Novartis pays for all clinical development of ensovibep and MP0423, beyond phase 1

Ensovibep Clinical Development; Registrational Trials

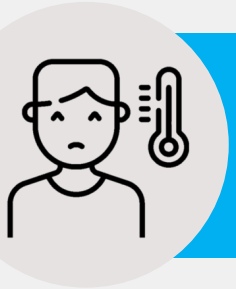
2021	2022

Possible EUA*

Potential BLA submission

EMPATHY — **Rapid Test – Rapid Treat**

NOVARTIS



Interim analysis at 400 ambulatory patients with mild to moderate symptomatic COVID-19; 3 dose levels: **75 mg, 225 mg, 600 mg**

1,700+ ambulatory patients on the selected dose level / placebo

Subcutaneous Phase 2/3 studies

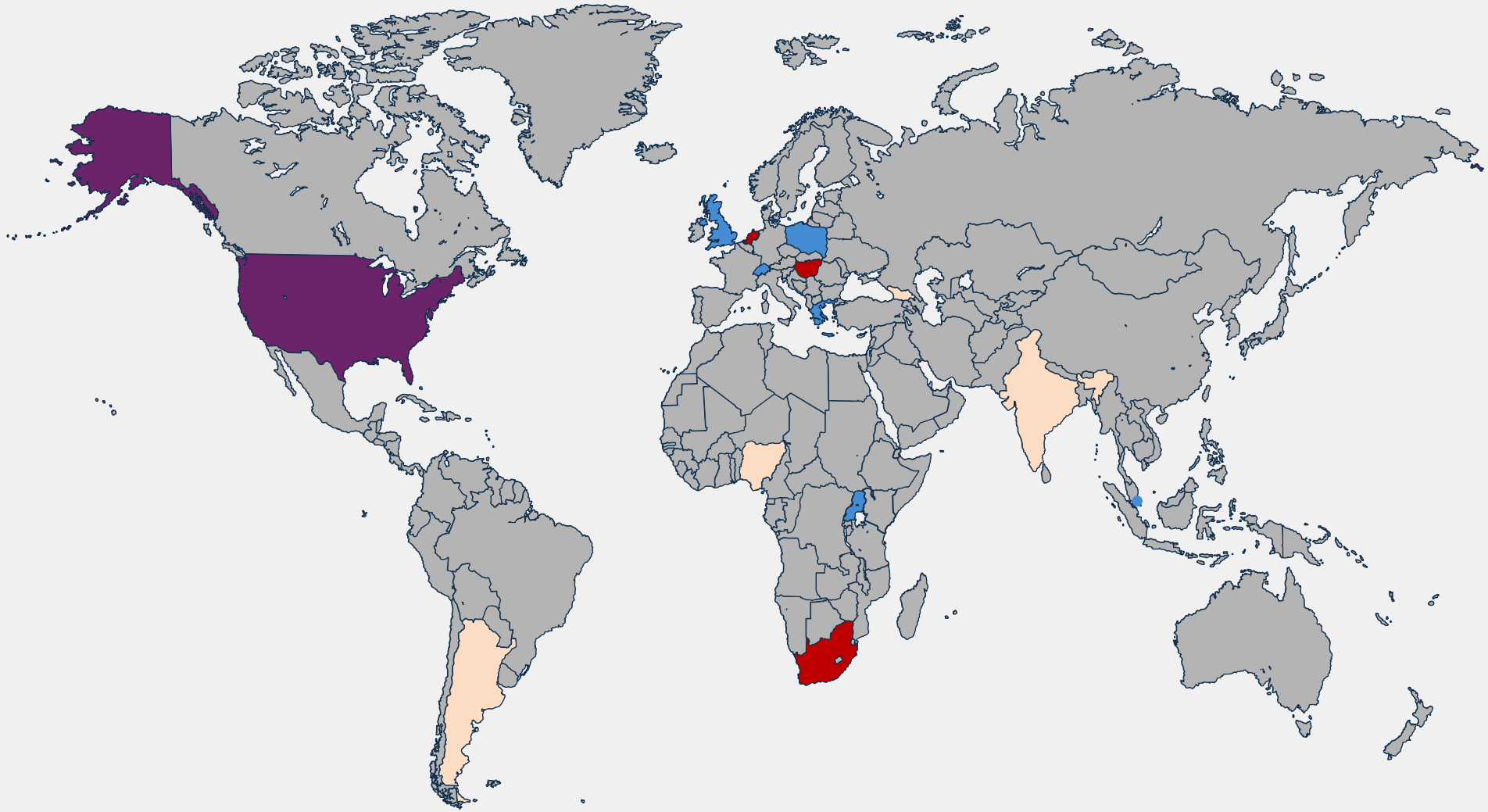
ACTIV-3 — **No active engagement of the immune system (no Fc, no ADE liability)**

Phase 3 in hospitalized patients with COVID-19
Futility analysis after 300 patients
Up to 1000 hospitalized patients with 600 mg

NIH

* Emergency Use Authorization submission, pending interim analysis of data is supportive of EUA

Global Clinical Trial Sites of Ensovibep



EMPATHY*

ACTIV-3

Both Trials

Approved, not recruiting yet

*EMPATHY to expand globally in the Phase 3 stage

Cooperative Binding Translates to Prevention of Mutational Escape

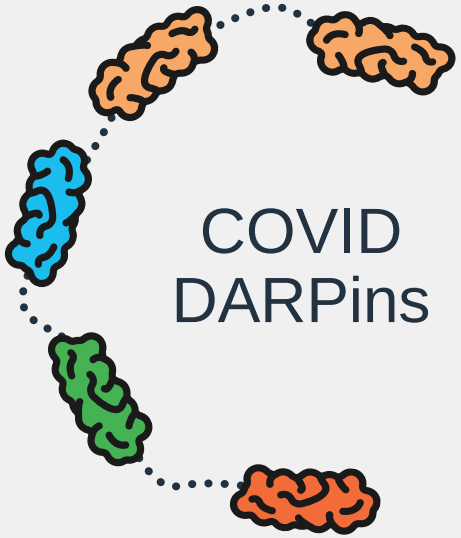
Lineage (Origin)	VSV or Lentivirus Pseudotype Neutralization Assay IC_{50} [ng/mL]
Reference	1.0
	1.1
Alpha / B.1.1.7 / United Kingdom	1.7
	0.9
Beta / B.1.351 / South Africa	5.0
	1.2
Gamma /P.1 / Brazil	1.2
	0.7
Delta / B.1.617.2 / India	**2.4**
Epsilon / B.1.429 / California (US)	2.2
	0.9
Eta / B.1.525 / Nigeria	6.2
	6.8
Lambda / C.37 / Peru	**0.5**
Iota/ B.1.526 / New York (US)	3.0
R.1	2.4
A.23.1	1.6
	0.3
Kappa / B.1.617.1 / India	3.2
	2.0
B.1.618 / India	8.1

All Variants | Reported *in vitro* Therapeutic Activity

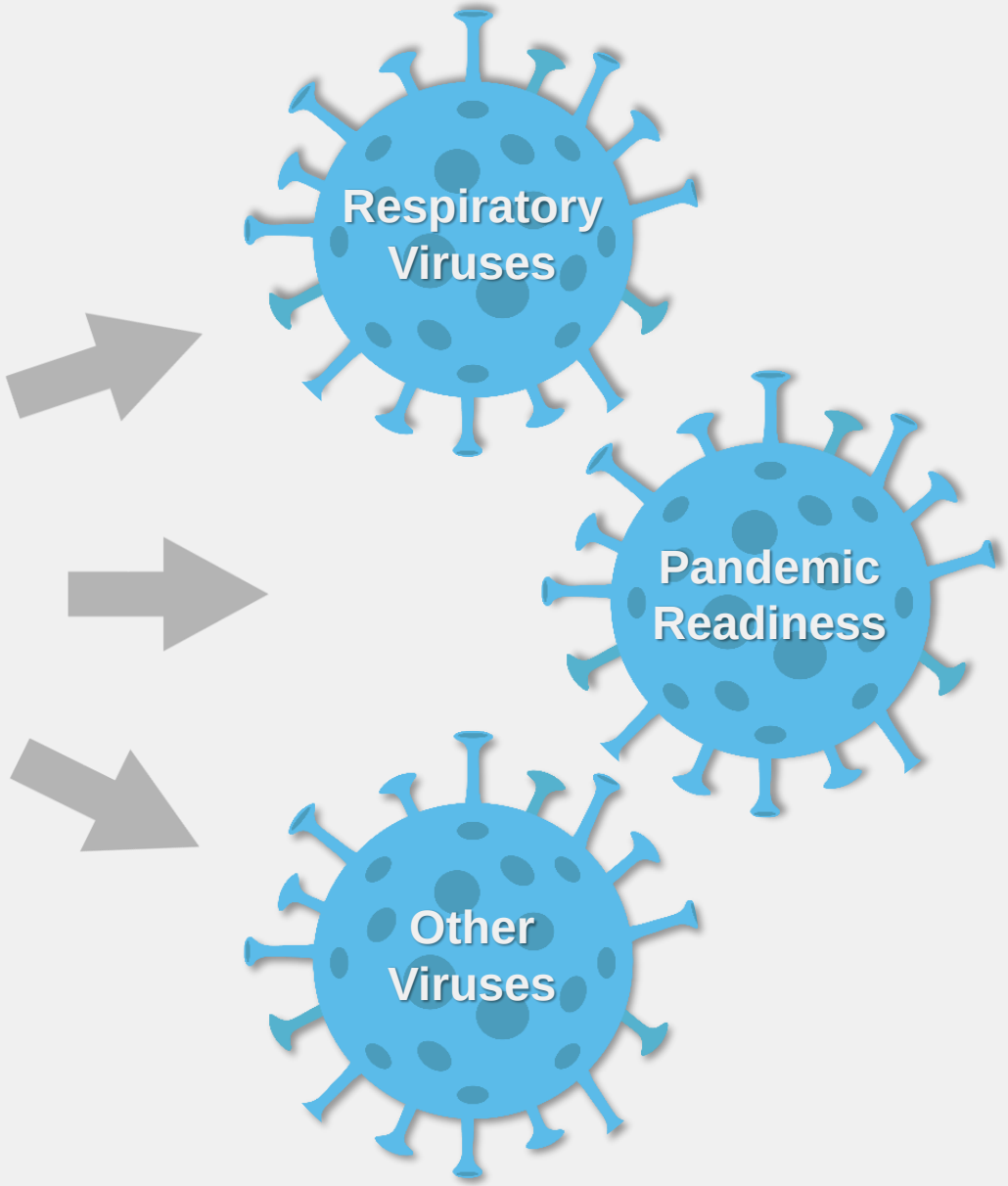
Ensovibep Upcoming Milestones

- Final data from phase 1
- Open label phase 2a results
- Futility analysis from ACTIV-3 (NIH sponsored)
  - Futility analysis following 300 patient data
  - Hospitalized patients (Up to 1,000)
- EMPATHY (Novartis / MP)
  - Part A results (N=400)
  - Part B initiate (N≥1,700)
  - Potential EUA submission 2021 / early 2022
- S.C. Phase 2/3 study initiation (Novartis / MP)
  - Initiate once dosing for EMPATHY part B is established

DARPin® Opportunities in Virology



- **Multi-valency** for superior potency
- **Multi-specificity** for mutation resistance
- **Speed of candidate generation**
- **Large amount & fast production**
- **High stability and solubility** for simple distribution and administration



MOLECULAR partners

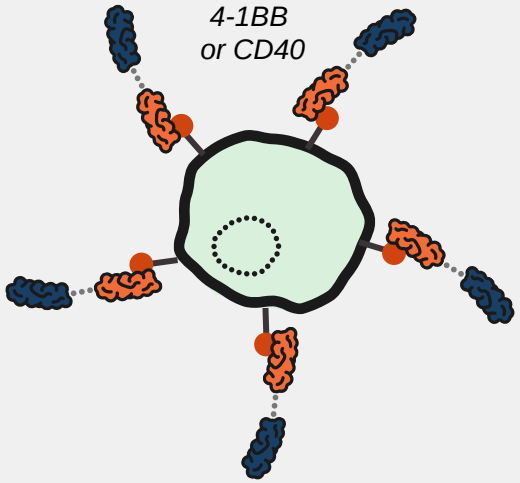
Localized Immune Activators

AMG 506 / MP0310 & MP0317

Local Activation of Immune cells: Fibroblast Activation Protein (FAP) as a General Switch

BODY

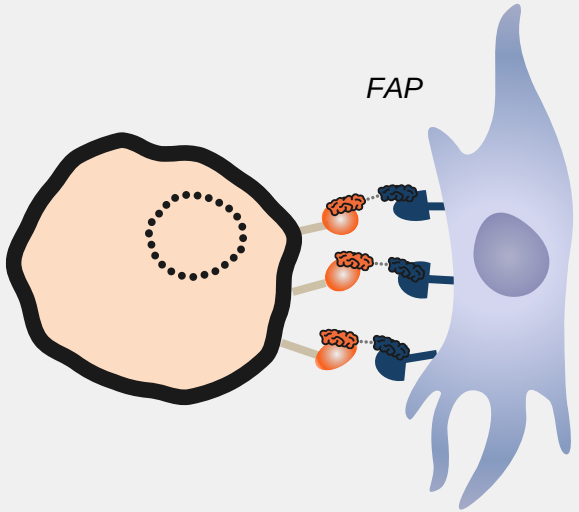
- In normal tissues, receptor is broadly distributed
- Immune cell remains inactive

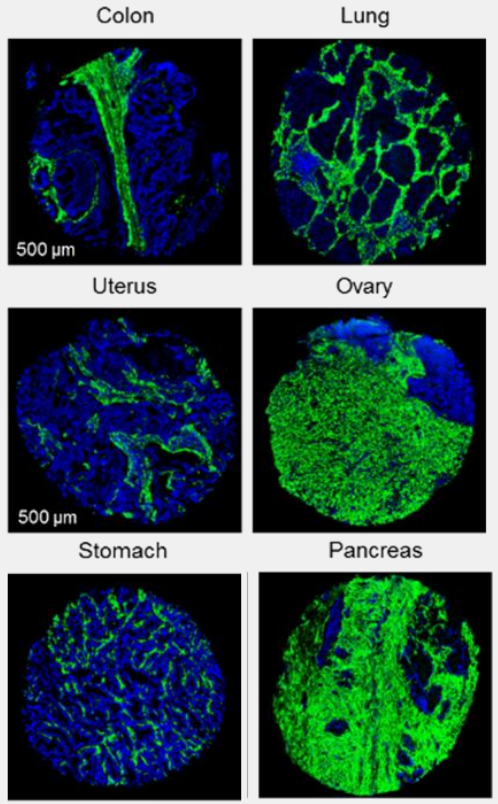


VS

TUMOR

- High FAP concentration near tumor clusters receptors
- Immune cell is activated

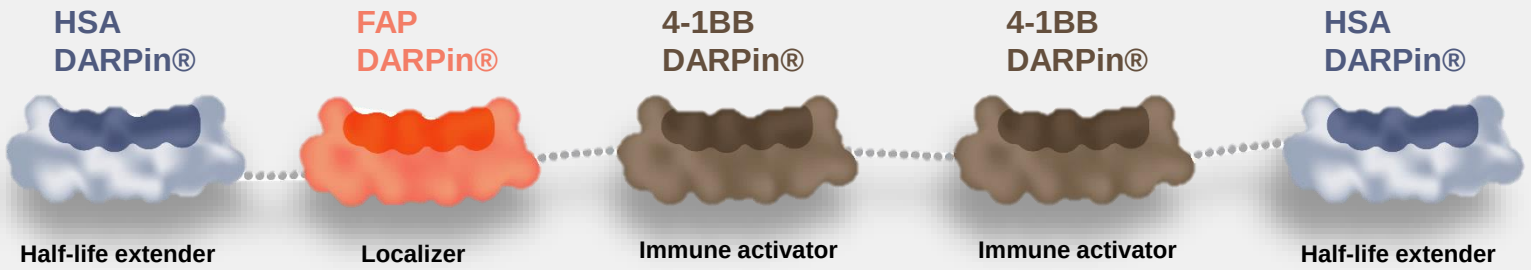


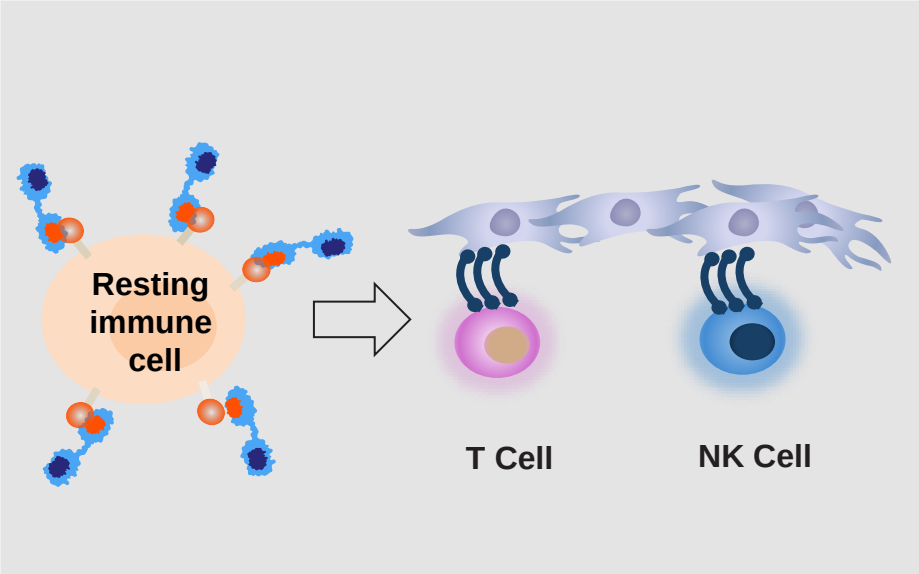


Human FAP, DAPI

- No activation by mono-binding of FAP or CD40/4-1BB
- Simultaneous binding leads to tumor-local immune activation

AMG 506 / MP0310: Localized Activation of 4-1BB



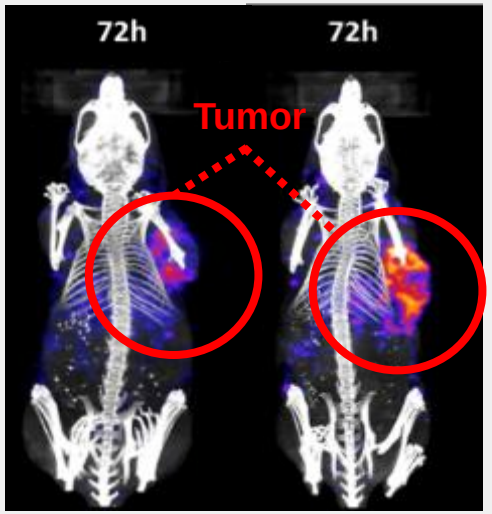


- Good safety profile without major systemic toxicity
  - No liver toxicity or systemic activation of immune cells
  - IRRs frequent but manageable
- MP0310 is observed in tumor tissue
- Tumor biopsies show tumor-localized immune response consistent with the MoA
- Next step: investigate appropriate dosing schedule for sustained activity
- $50m upfront, ~$500m in milestones plus royalties

Combination of AMG 506 / MP0310 and TAA x CD3 Bi-Specific Results in Significant Increase of Intratumoral CD8+ T Cells

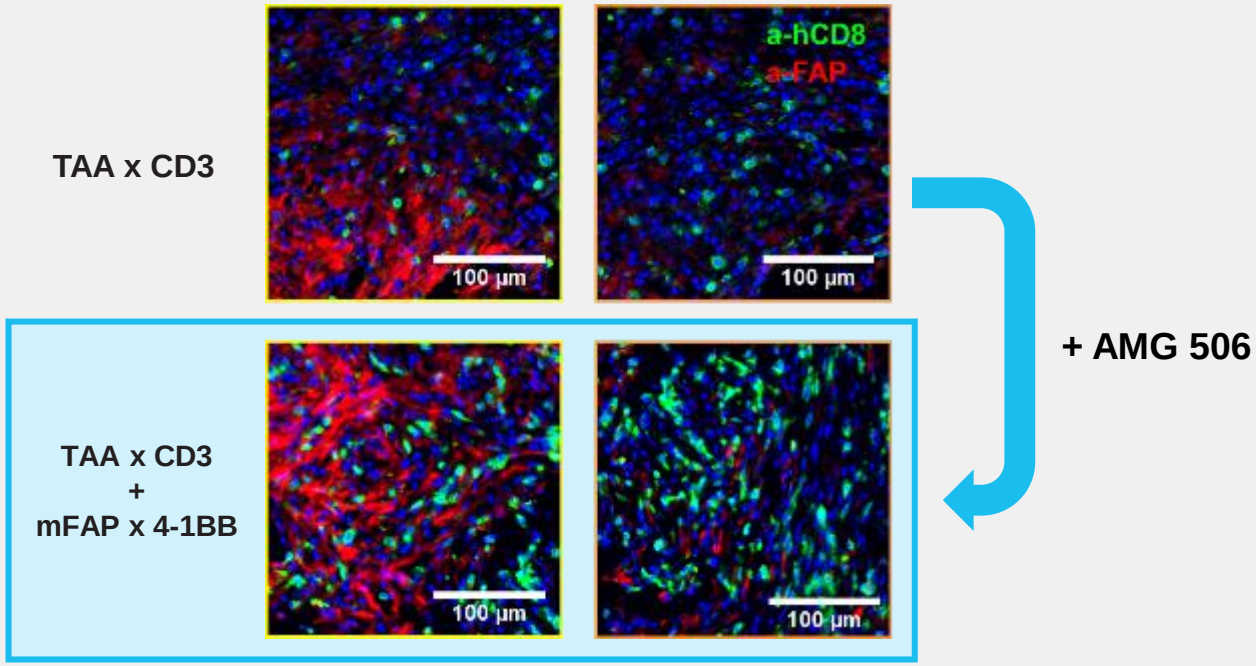
FAP-Mediated Tumor Accumulation of AMG 506

HT-29-T-implanted NSG mice



no-FAP x 4-1BB mFAP x 4-1BB

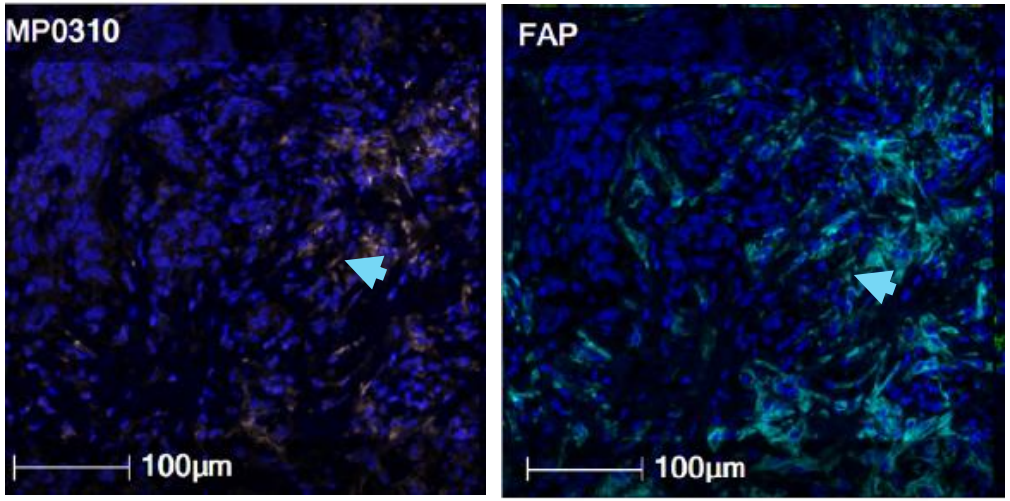
Intratumoral CD8 T cells



AMG 506 / MP0310 Accumulates in Tumor Tissue in Dose Dependent Manner

MP0310 low dose colocalizes with FAP

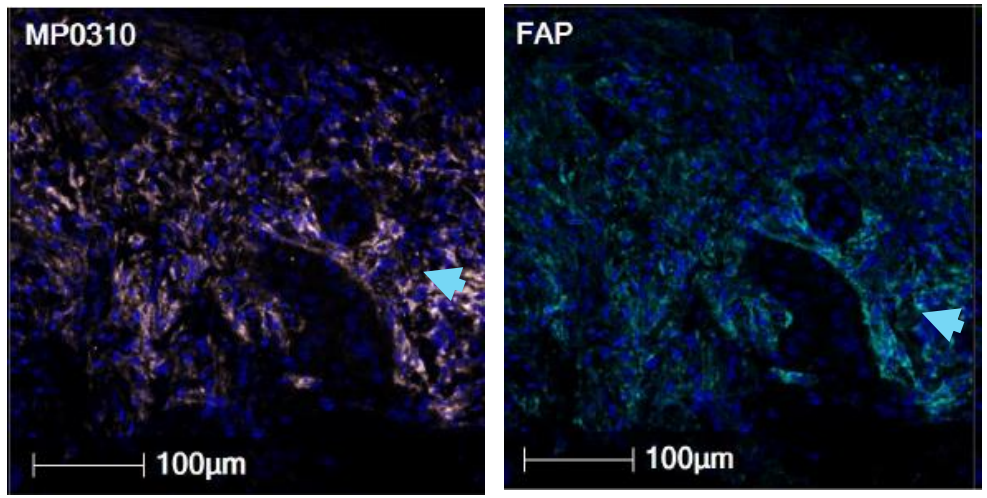
MP0310 < FAP



Endometrial carcinoma (Liver metastasis), C1D15

MP0310 high dose saturates FAP

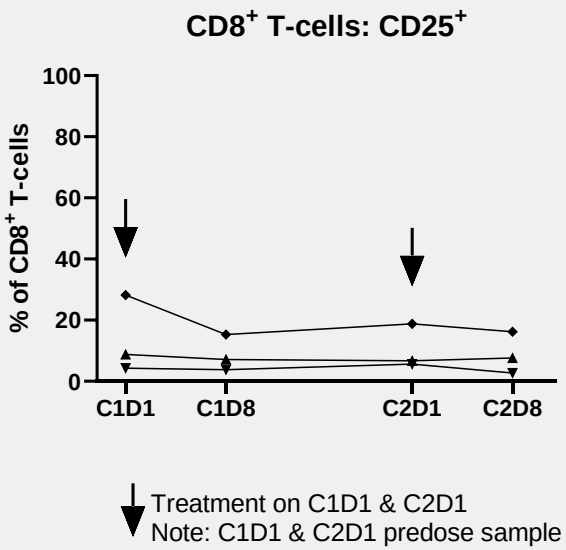
MP0310 > FAP



NSCLC (lung), C1D15

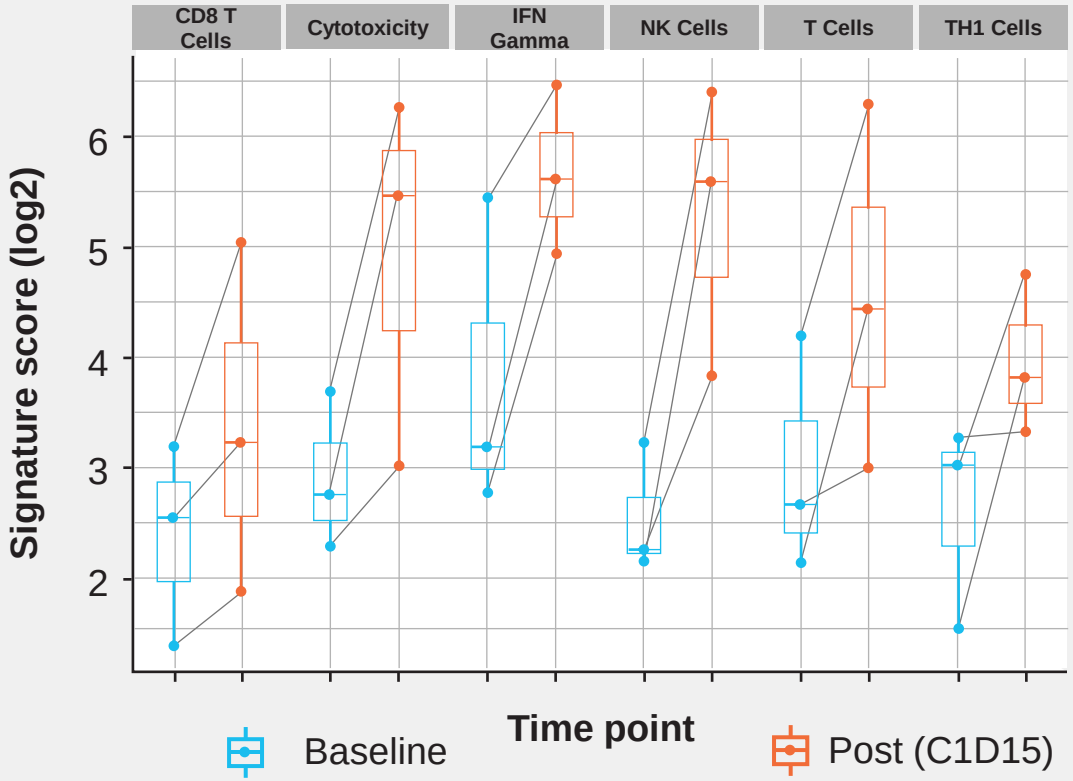
PD Activity in Paired Biopsies Supports AMG 506 / MP0310 MoA on 4-1BB Activation

BLOOD



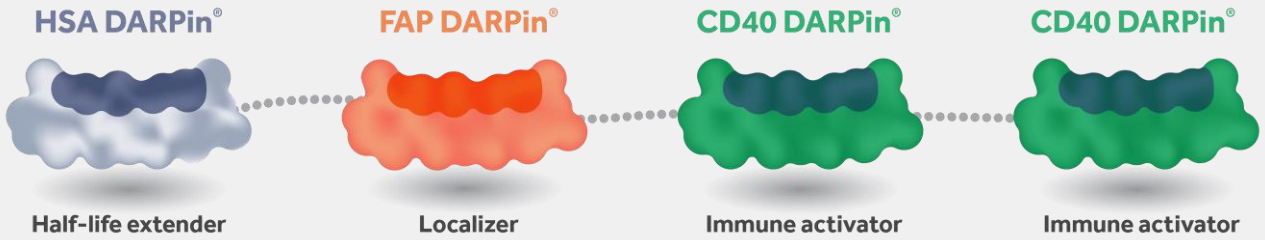
- In the blood, immune cells remain inactive (CD8+ & CD4+ T-cells, Treg, NKT, B-cells, NK)

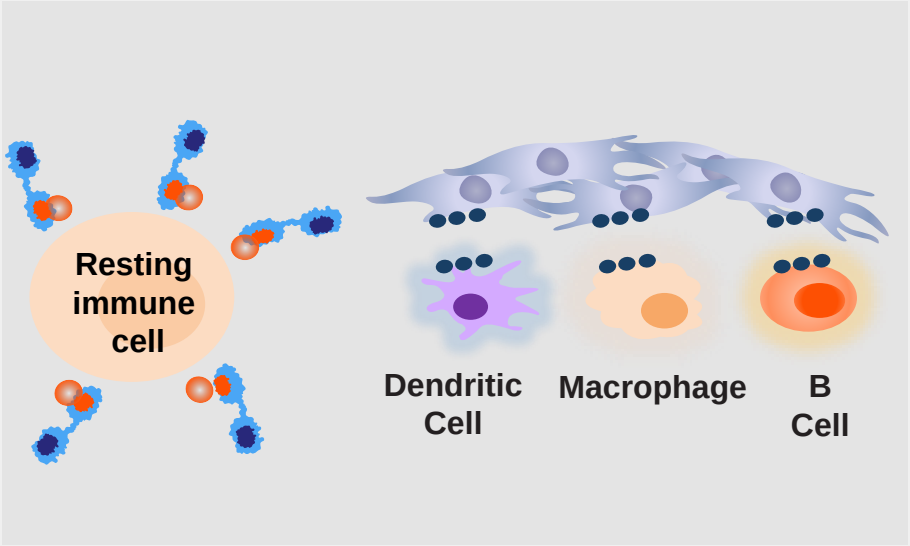
TUMOR



- In the tumor, T-cells and NK cells are activated

MP0317: Localized Activation of CD40

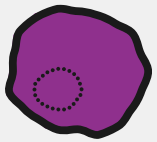




- Highly promising target with potential to significantly impact clinical outcomes for patients
- Complex biology to manage and administer safely and efficaciously
- FAP localization translating well, and will provide insights into dosing strategies
- Clinic design will include early potential for expansion based on activity
- Multiple avenues of combination treatments to explore: Chemo, PD-1, Radiation, etc.

MP0317: FAP-dependent Activation of Specific Immune Cells

A

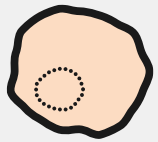


Dendritic cells:

CD86 ✓ IL-12 ✓

CD83 ✓ CD80 ✓

B



Macrophages:

TNFα ✓ IL-12 ✓

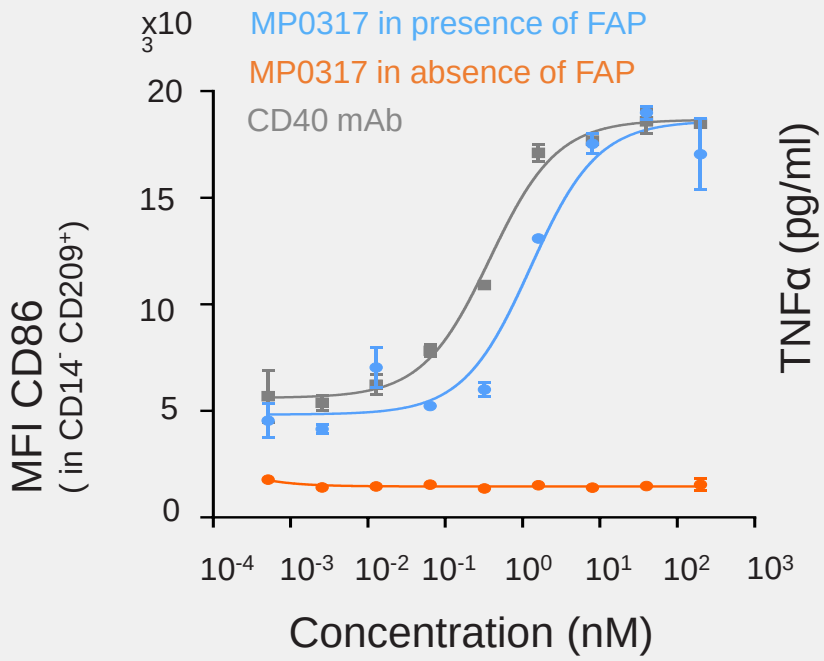
IL-6 ✓ CCL17 ✓

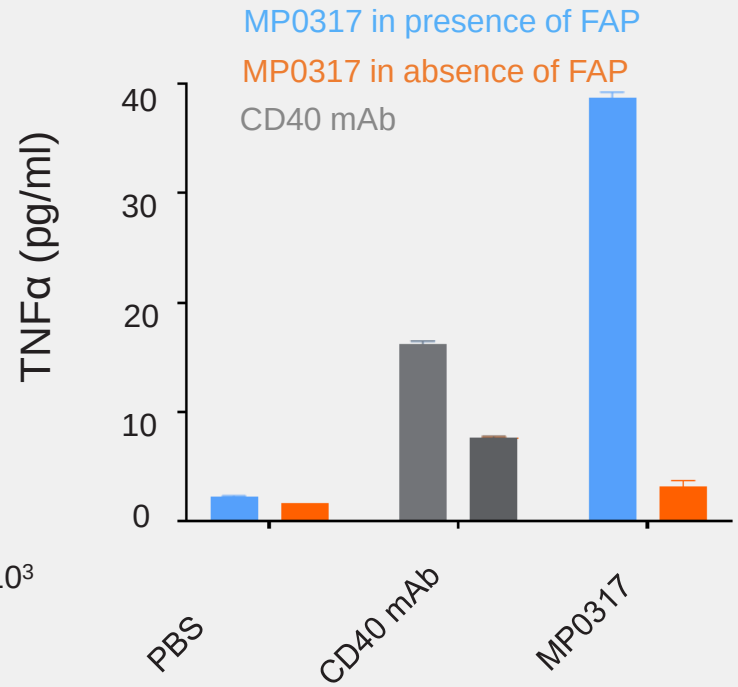
C

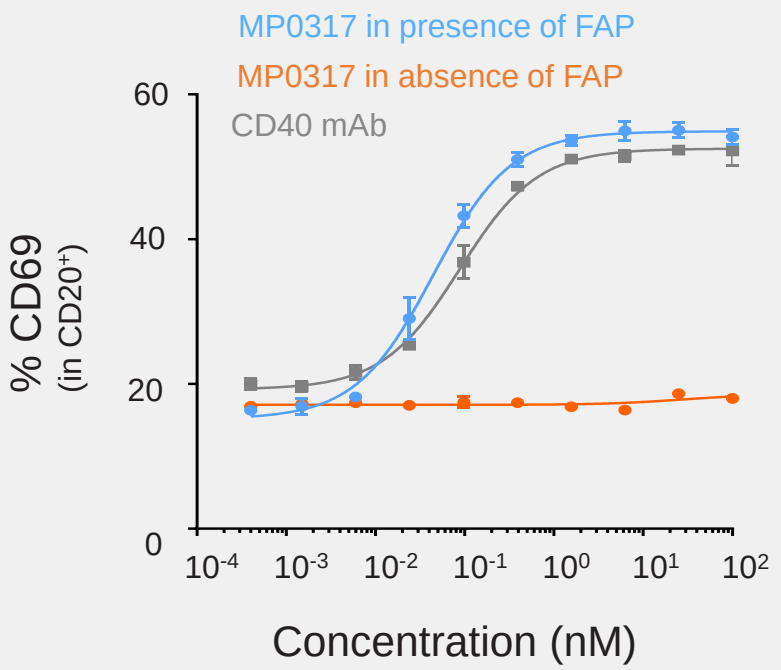
B cells:

CD69 ✓

CD86 ✓

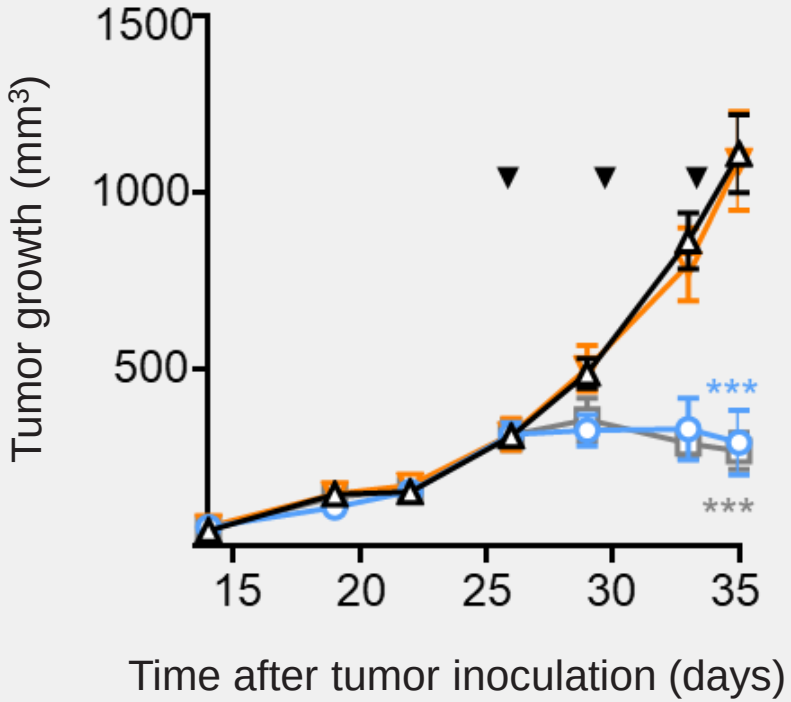


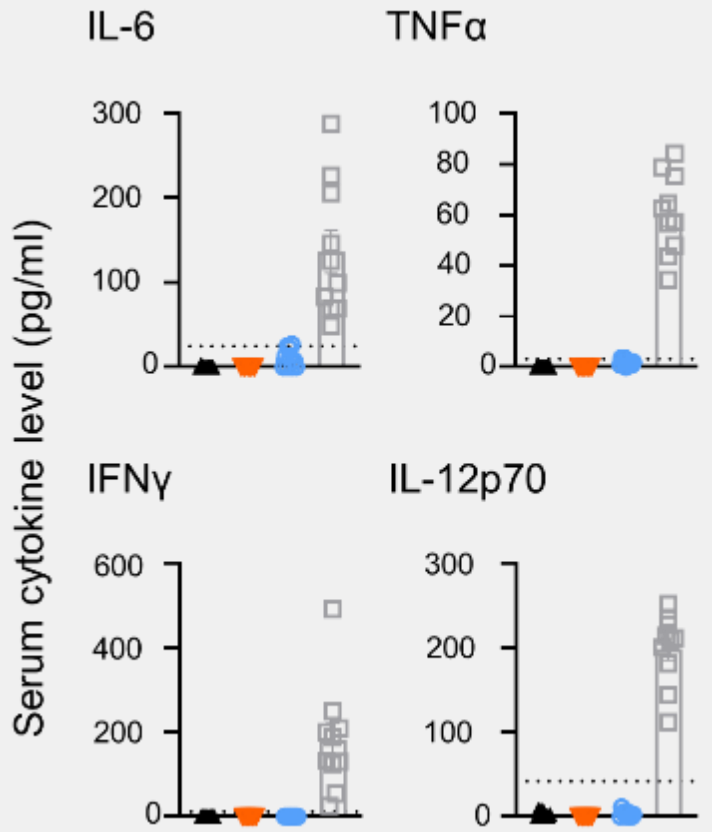




MP0317 Shows Full Activity with No Detectable Side-effects

FAP^{HIGH} TUMOR: MC38-FAP Colorectal cancer





Vehicle

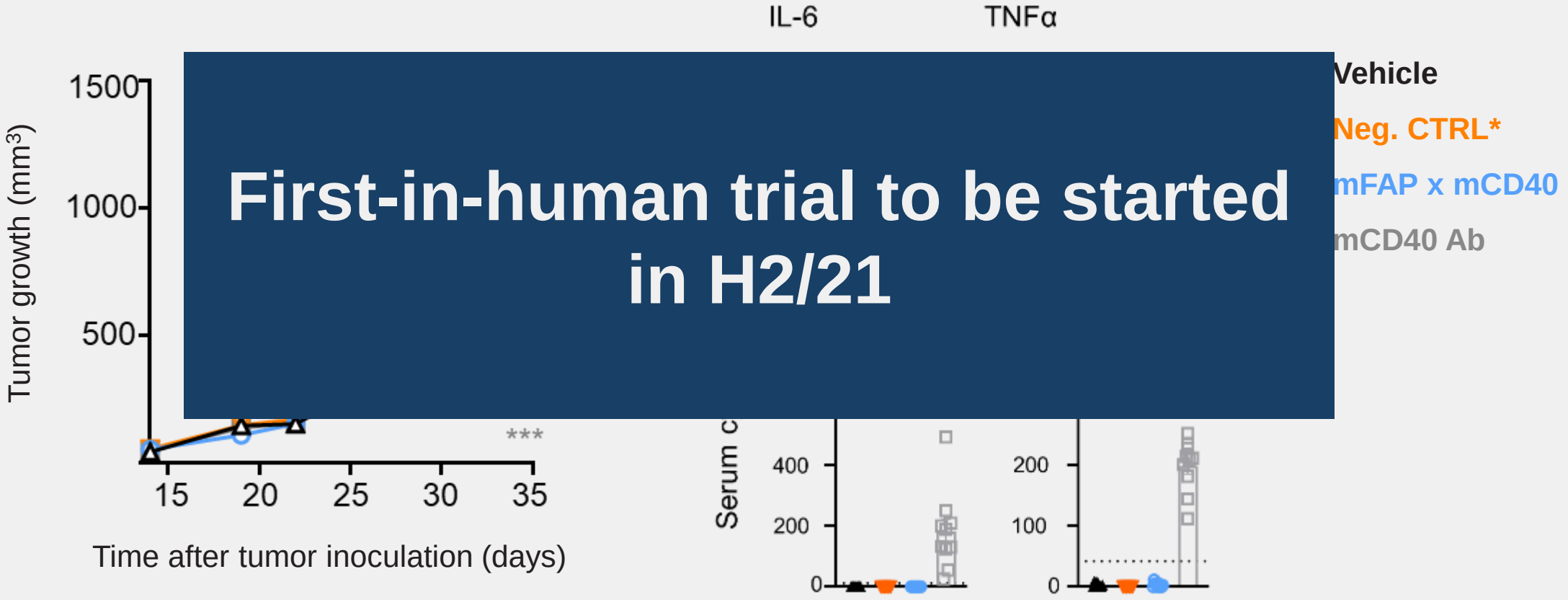
Neg. CTRL*

mFAP x mCD40

mCD40 Ab

MP0317 Shows Full Activity with No Detectable Side-effects

FAP^{HIGH} TUMOR: MC38-FAP Colorectal cancer

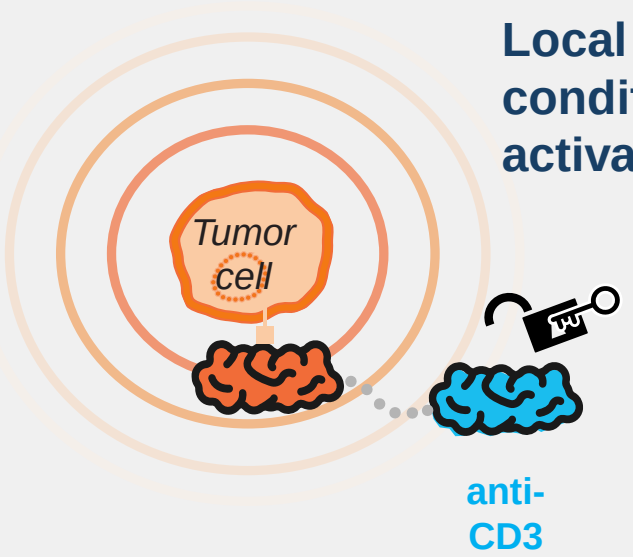


First-in-human trial to be started in H2/21

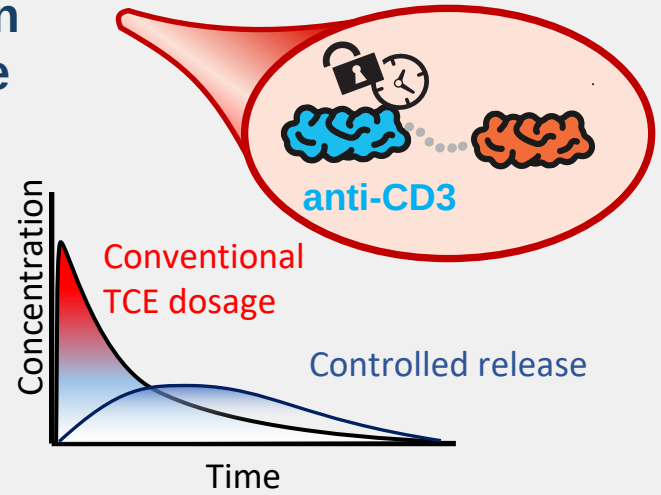
New Therapeutic Platforms: Unlocked

Next Generation T-cell Engagers

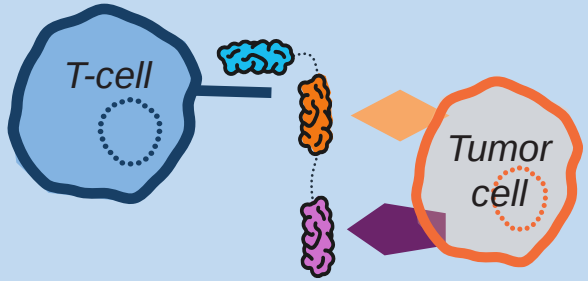
Local & conditional activation



Slow activation over time



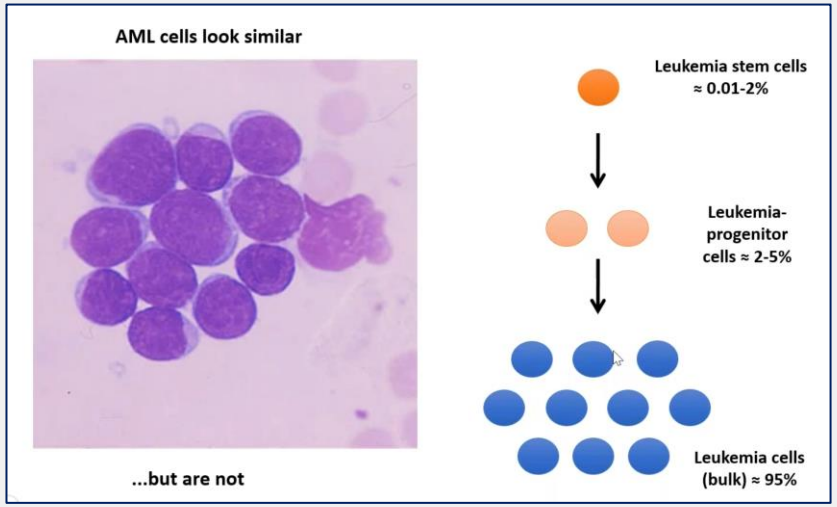
Multi-specific T-cell engagers

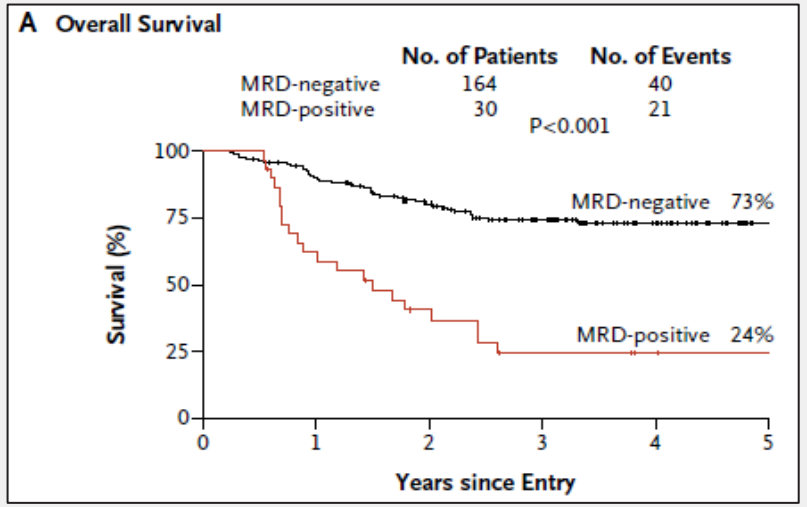


Improve safety to allow optimal dosing and Deepen Efficacy for longer effect

Updated at AACR 2021

AML: Deadly Disease for About Half of the Patients





MRD-status in NPM1-mutated AML in PB after 2nd induction chemotherapy was the only significant prognostic factor (Ivy. NEJM 2016)

Persistence of LSCs is the driver of relapse

- "MRD+ status" refers to low level disease and can be detected by immunophenotypic or molecular markers
- Current T-cell engager approaches are limited by on-target toxicity (not clean targets)

Our DARPin Approach:

- target LSCs and blasts, while sparing healthy cells, incl. HSPCs, and
- Use multi-targeting avidity to attack cancer cells, mainly
- Greater therapeutic window due to the lack of CRS and other toxicities

DARPin® Solution

Multi-specific T-cell engager with improved benefit/risk in AML

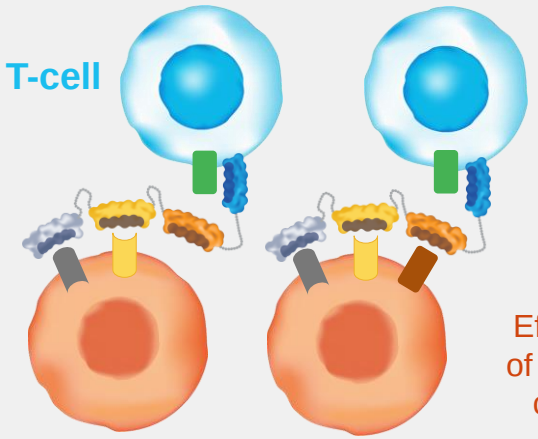
Efficacy

- **Higher dose levels** for efficient killing of cancer cells
- **Multiple attack:** Specific killing of several malignant cell types
- **Prolonged effect**: Counteract tumor heterogeneity / targeting leukemic stem cells (LSCs)

Safety

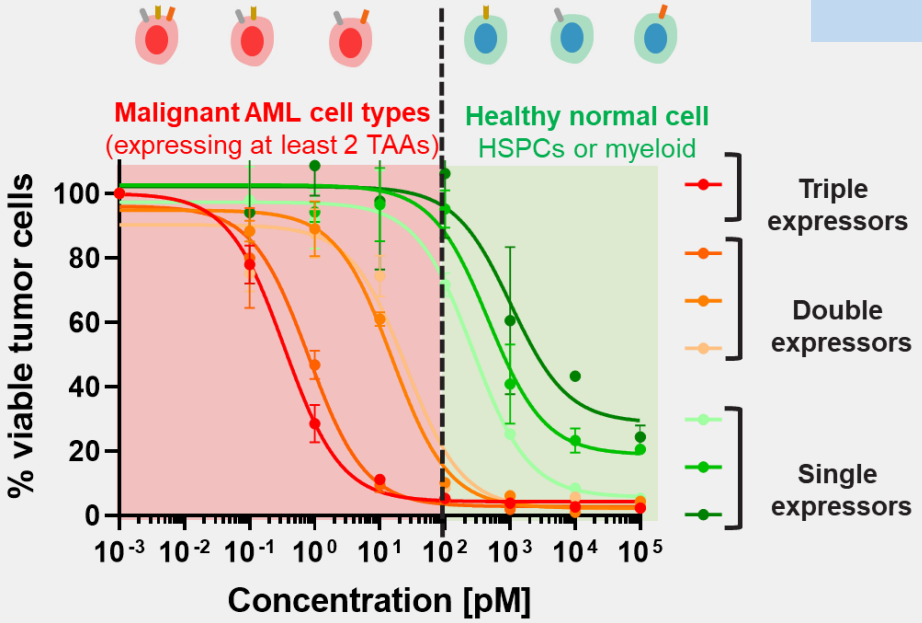
- **Reduce off-tumor effects**
- **Reduce hyper-immune stimulation** (e.g. cytokine release syndrome)

Multi targets
High avidity engagement



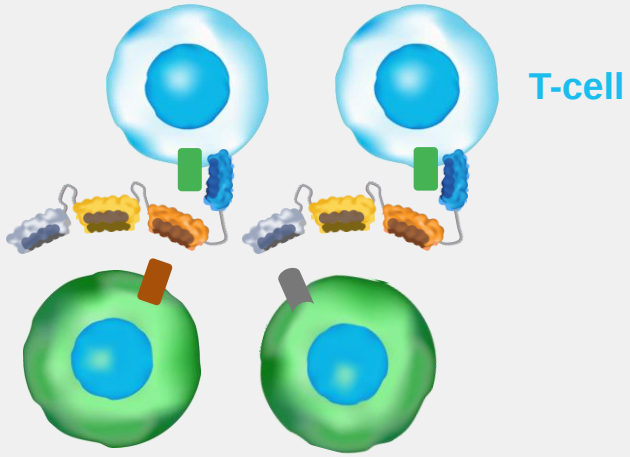
Efficient attack of heterogenous cancer cells

Malignant AML cell types
Blasts or LSCs (≥2 TAAs)



Minimal required dose level to kill cells

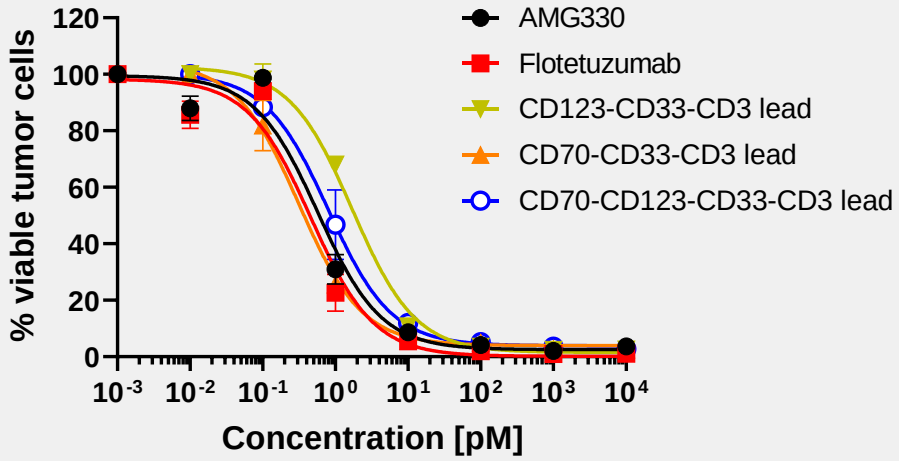
Single targets
Low affinity engagement



Healthy normal cell
HSPCs or myeloid cells

AML Candidates: Retained Potency with Favorable Side Effect Profile *in vitro*

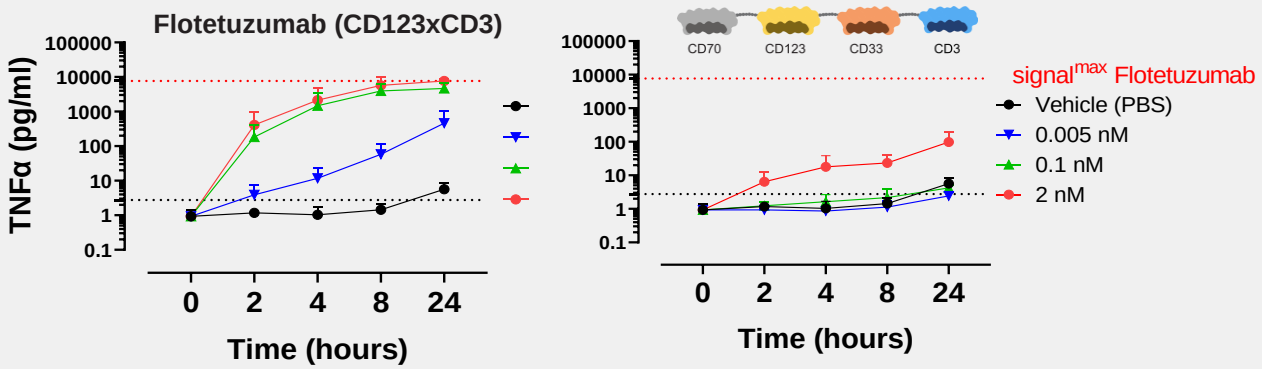
High Potency of Candidates



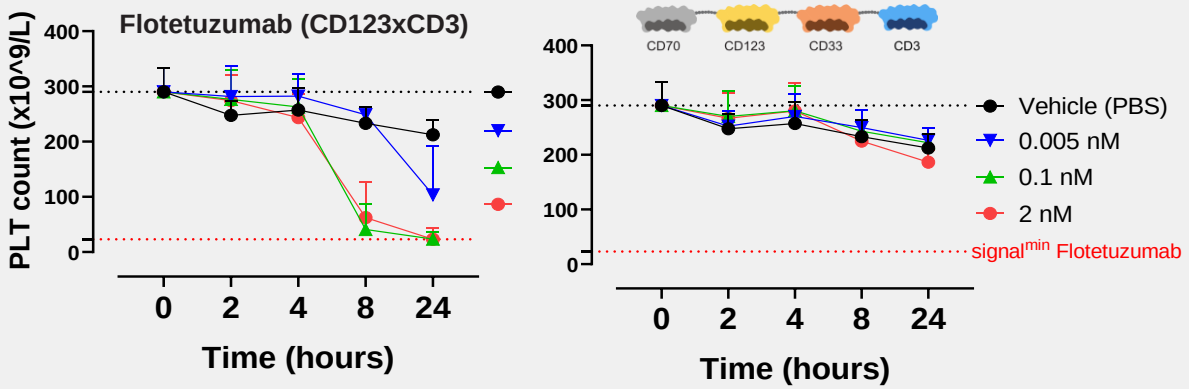
Effect on Healthy Blood Cells

immuneed

TNFα secretion



Platelet Counts



Financials & Outlook

H1 2021 Financial Highlights

- Ongoing strong financial position with CHF 174.3 million in cash and short-term deposits as of June 30, 2021
- Completed initial public offering of American Depositary Shares (“ADSs”) on the Nasdaq, raising $63.8 million (CHF 58.8 million) in gross proceeds to secure financing of ongoing operations into H2 2023
- Net cash outflow from operating activities of CHF 52.5 million in H1 2021
- Unchanged FY 2021 guidance

Financial Guidance for Full-Year 2021

- Total expenses of CHF 65-75 million,
  of which around CHF 7 million non-cash effective costs
- Gross cash burn of CHF 85-95 million, incl. CHF 20 million payable to Novartis for the manufacturing of commercial supply of Ensovibep
- With CHF 174.3 million cash at hand (incl. short-term time deposits) and no debt, the Company is funded into H2 2023, excluding any potential receipts from R&D partners
- Guidance subject to progress and changes of pipeline

DARPin® Platform – Our Differentiation

Infectious disease | Discovery | Oncology | Ophthalmology

CANDIDATE / FOCUS	RESEARCH	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3	RIGHTS
Ensovibep (MP0420) / COVID-19			ACTIV-3 Ph 3 Hospitalized			
Ensovibe						NOVARTIS
Next Gen / COVID-19						
AMG 5						GEN
MP031 / FAP x CD40						
						MOLECULAR partners
Platform Discovery						
T cell Eng						
Additional						MOLECULAR partners

Cooperative binding; super high affinity + prevent mutational escape

FAP localization and conditional activation in tumor microenvironment

Tuned affinities, triple antigen-targeting, avidity dependent activation for high coverage and high selectivity. CD3 immune recruitment

Conditional activation, Switch mechanisms, high programmability

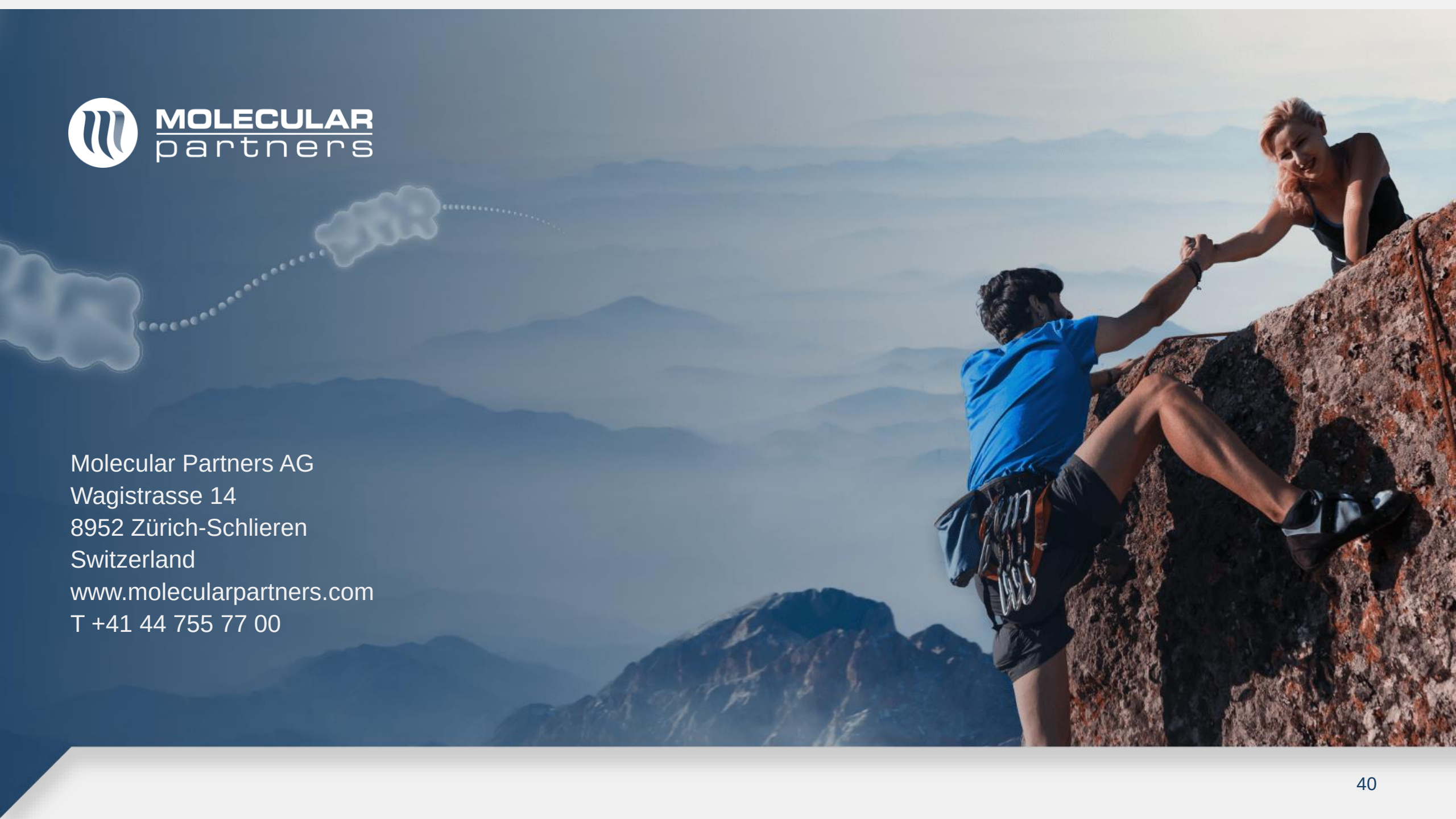
Multiple options in the virology field, announcing details by end of 2021

Upcoming Potential Catalysts Across the Portfolio

Immuno-oncology portfolio	
AMG 506 (MP0310)	▪ Identify ideal dosing regimen in ongoing Phase 1 (H2/2021) ▪ Amgen potential review (H2/2021)
MP0317	▪ MP0317 FIH in H2 2021
MP0-AML	▪ 1st Candidate selected for development ▪ Update at ASH – FIH in 2022
Antiviral portfolio	
Ensovibep (MP0420)	▪ EMPATHY readout Phase 2b from 400 patients in H2 2021; potential for EUA applications (US&EU) ▪ ACTIV-3 futility analysis from 300 patients in H2 2021 with full data in 2022 ▪ BLA submission possible in 2022
Novel antivirals	▪ Next generation COVID drug, built for the future ▪ Develop novel DARPins for viral targets with new programs expected to be announced in R&D day 2021

Funded into H2 2023

(Not incl. any future proceeds related to partnerships)



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