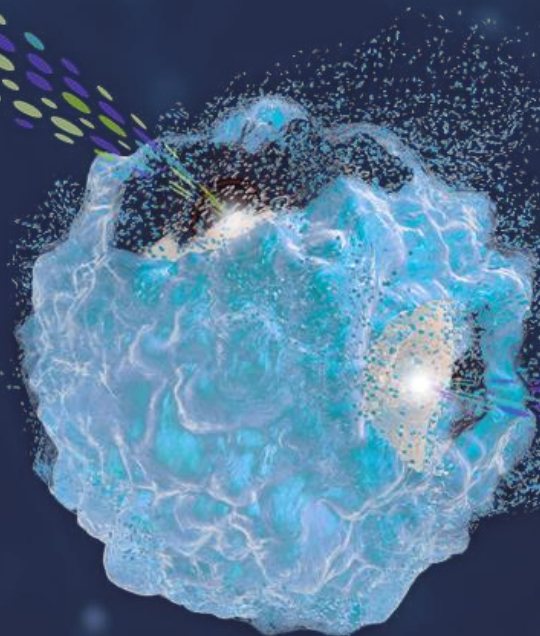




Prelude  
THERAPEUTICS

# Corporate Presentation

May 2021



# Disclaimer

This presentation contains “forward-looking” statements within the meaning of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995, including, but not limited to: our plans to develop and commercialize small molecule therapies, our expectations about timing and ability to commence, enroll or complete clinical studies and to obtain regulatory approvals for PRT543, PRT811, PRT1419, PRT2527 and other candidates in development, the ability of our product candidates to treat various cancers, the ability to discover additional suitable candidates for regulatory approval, the potential impact of the COVID-19 pandemic and the sufficiency of our cash and cash equivalents to fund our operations.

Any statements contained herein or provided orally that are not statements of historical fact may be deemed to be forward-looking statements. In some cases, you can identify forward-looking statements by such terminology as “believe,” “may,” “will,” “potentially,” “estimate,” “continue,” “anticipate,” “intend,” “could,” “would,” “project,” “plan,” “expect” and similar expressions that convey uncertainty of future events or outcomes, although not all forward-looking statements contain these words. Statements, including forward-looking statements, speak only to the date they are provided (unless an earlier date is indicated).

These forward-looking statements are based on the beliefs of our management as well as assumptions made by and information currently available to us. Although we believe the expectations reflected in such forward-looking statements are reasonable, we can give no assurance that such expectations will prove to be correct. If such assumptions do not fully materialize or prove incorrect, the events or circumstances referred to in the forward-looking statements may not occur. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this presentation to conform these statements to actual results or to changes in our expectations, except as required by law. Accordingly, readers are cautioned not to place undue reliance on these forward-looking statements. Additional risks and uncertainties that could affect our business are included under the caption “Risk Factors” in our Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission for the three months ended March 31, 2021.

# Prelude Therapeutics Vision

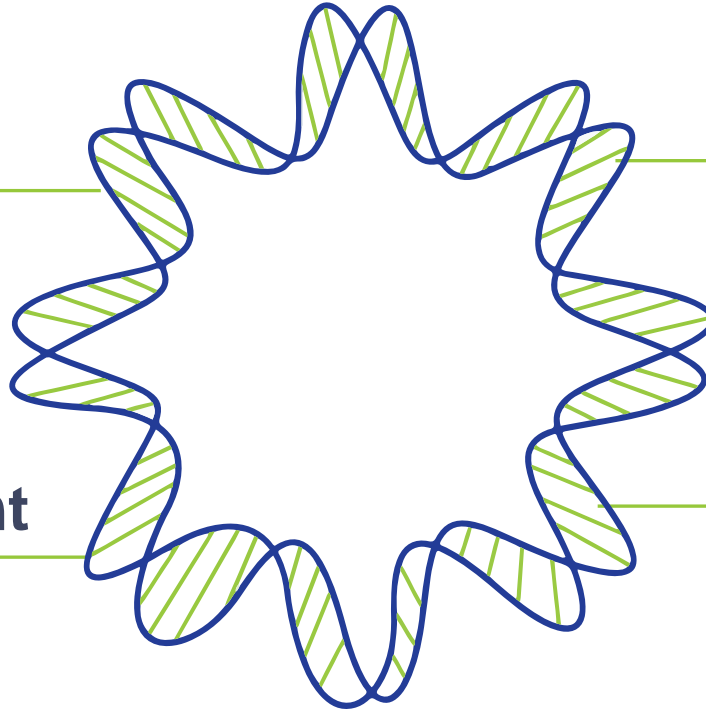
Building a patient-focused precision oncology company

## Discovery Engine

Powered by scientists with a track record of delivering precision oncology medicines

## Clinical Development

Highly selected patient populations & cancers with significant unmet need



## Regulatory Strategy

Efficient development path with potential for accelerated regulatory approvals

## Commercial Approach

Rapidly advancing potentially high value therapy candidates with a commitment to future patient access, awareness, and support

# Senior Management & Board of Directors

Experienced. Proven. Focused.



**Kris Vaddi, PhD**

Founder &  
Chief Executive Officer

Founding  
member



**Peggy Scherle, PhD**  
Chief Scientific Officer



**Deborah Morosini, MD, MSW**  
Executive Vice President  
and Chief of Clinical Affairs



**Andrew Combs, PhD**  
Executive Vice President  
and Head of Chemistry



**Christopher Pierce, MBA**  
Executive Vice President  
and Chief of Business  
Operations



**David Mauro, MD, PhD**  
Chief Medical Officer



**Brian Piper, MBA**  
Chief Financial Officer



## Board of Directors

**Paul Friedman, MD**

**Madrigal Pharmaceuticals** CEO

**Incyte** Former CEO

**Mardi Dier**

**ultragenyx pharmaceuticals** CFO

**PORTOLA PHARMACEUTICALS** Former CFO, CBO

**Victor Sandor, MD**

**ARRAY BIOPHARMA** Former CMO

**David Bonita, MD**

**OrbiMed Healthcare Fund Management** General Partner

**Julian C. Baker**

Managing Member  
Baker Brothers Investments

**Kris Vaddi, PhD**

Founder &  
Chief Executive Officer



# Prelude Therapeutics Corporate Highlights

**4** INDs cleared to date;

**3** Clinical stage programs;

**3** Preclinical assets



## Highly productive target class agnostic discovery engine

Pipeline focused on differentiated and validated targets



## Compelling market opportunities across multiple tumor types

Patient-inspired drug development, regulatory, and commercial strategies to address high unmet need



## Multiple wholly owned programs with fast-to-market potential

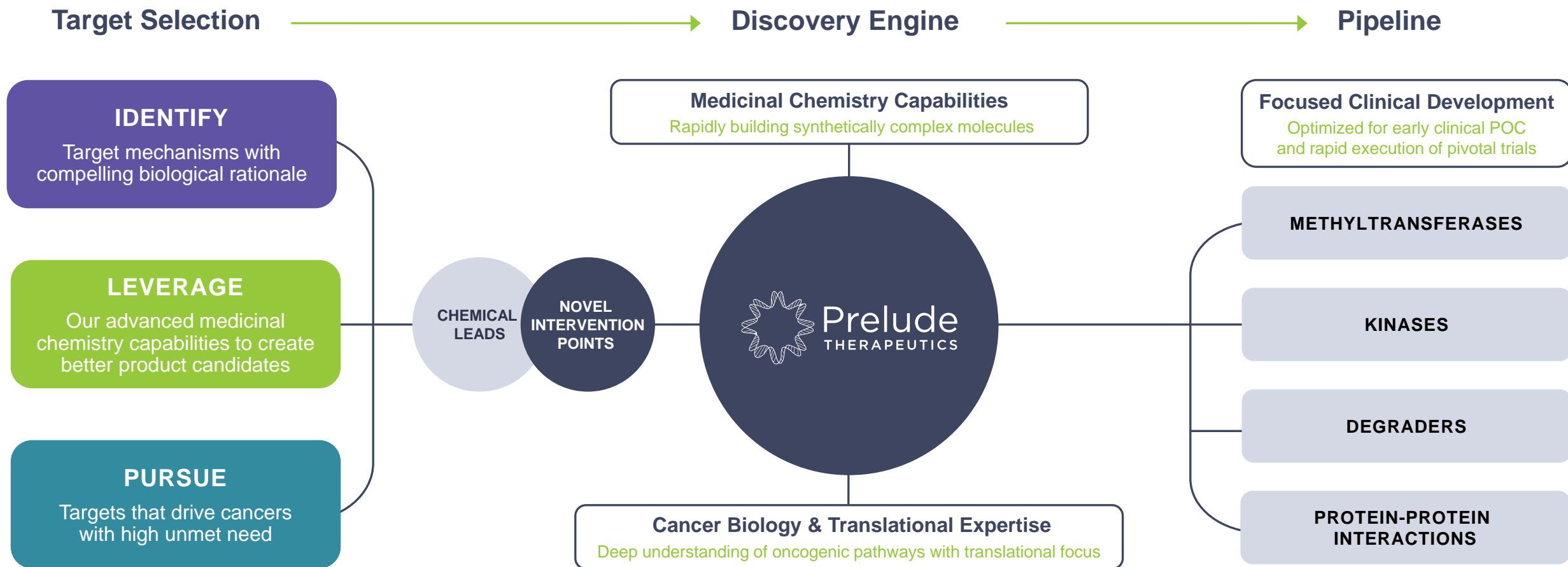
Lead programs, PRT543 & PRT811 (PRMT5) and PRT1419 (MCL1) target clinically validated mechanisms with differentiated product profile




## Experienced leadership team with marquee investors and board members

Deeply experienced employee base that has worked on multiple approved targeted agents

# Prelude Discovery and Development Approach



# Prelude Therapeutics Pipeline

Program	Indications	Discovery/ Preclinical	IND Enabling	Phase 1	Phase 2	Phase 3	Upcoming Milestones	Worldwide Rights
<b>PRT543</b> (PRMT5)	Selected Solid Tumors (incl. ACC, HRD+)			●			<ul style="list-style-type: none"> <li>Multiple expansion cohorts ongoing</li> <li>Initial data presentation 2H2021</li> </ul>	
	Selected Myeloid Malignancies (incl. MF and MDS)			●				
<b>PRT811</b> (Brain Penetrant PRMT5)	GBM and CNS Metastatic Cancers			●			<ul style="list-style-type: none"> <li>Expansion cohorts mid-2021</li> <li>Initial clinical data 2H2021</li> </ul>	
<b>PRT1419</b> (MCL1)	Selected Hematological Malignancies (oral formulation)			●			<ul style="list-style-type: none"> <li>Addition of expansion cohorts expected 2H2021</li> </ul>	
	Solid Tumors (IV formulation)			●			<ul style="list-style-type: none"> <li>Phase 1 trial to commence mid-2021</li> </ul>	
<b>PRT2527</b> (CDK9)	Selected Solid and Hematological Malignancies		●				<ul style="list-style-type: none"> <li>IND 2021</li> </ul>	
<b>PRT-SCA2</b> (SMARCA2)	Multiple Genomically Selected Cancers	●					<ul style="list-style-type: none"> <li>IND 2022</li> </ul>	
<b>PRT-K4</b> (Kinase)	Solid Tumors	●					<ul style="list-style-type: none"> <li>IND-enabling 2021</li> </ul>	

Wholly-owned patent portfolio covering composition of matter and method of use patents. Prior to possible extensions, PRT543 has IP coverage into at least H2 2038; PRT811 and PRT1419 until at least 2039

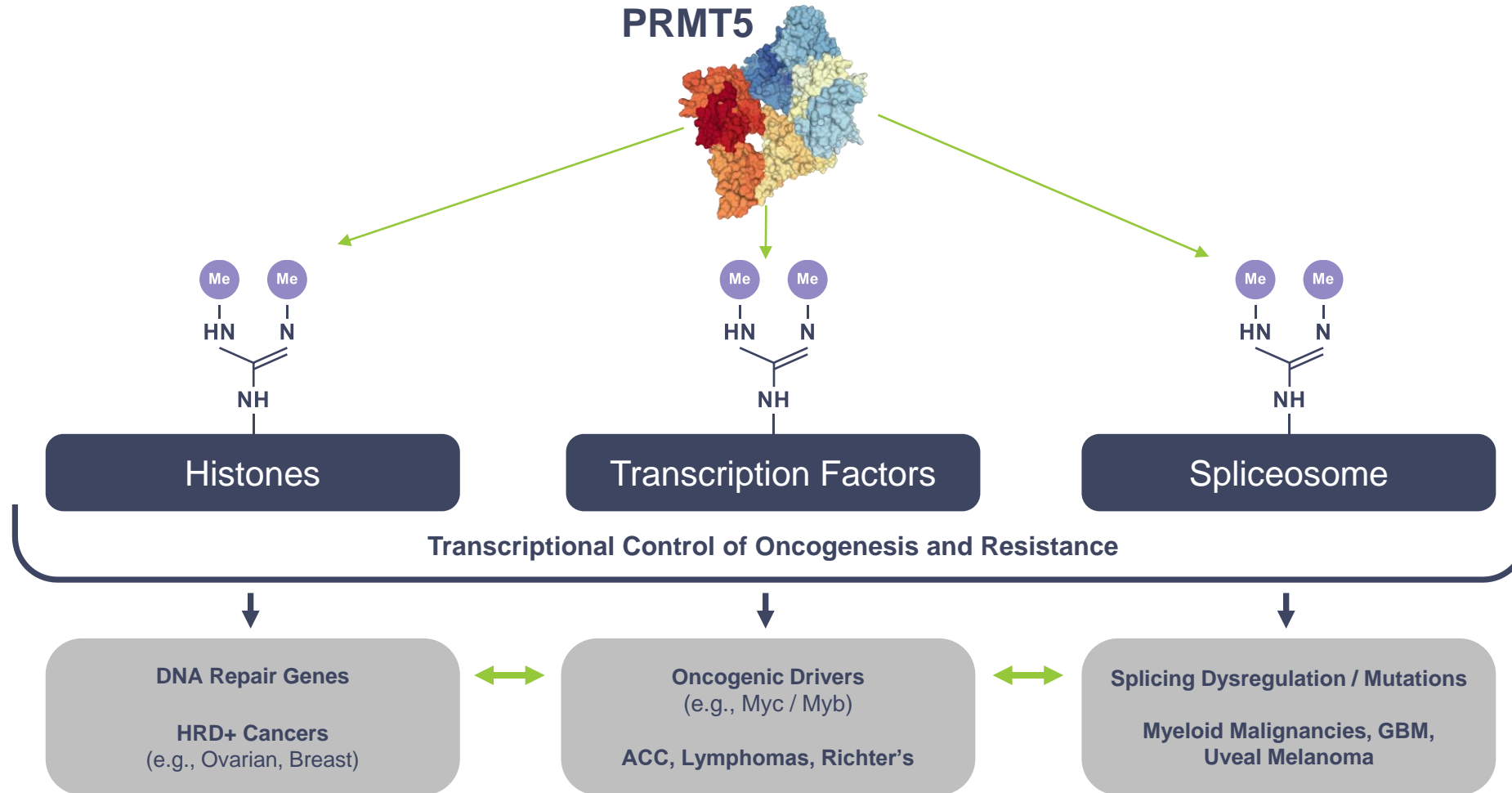


# PRMT5 Programs



# PRMT5 Pathway Drives Oncogenesis and Resistance

PRMT5



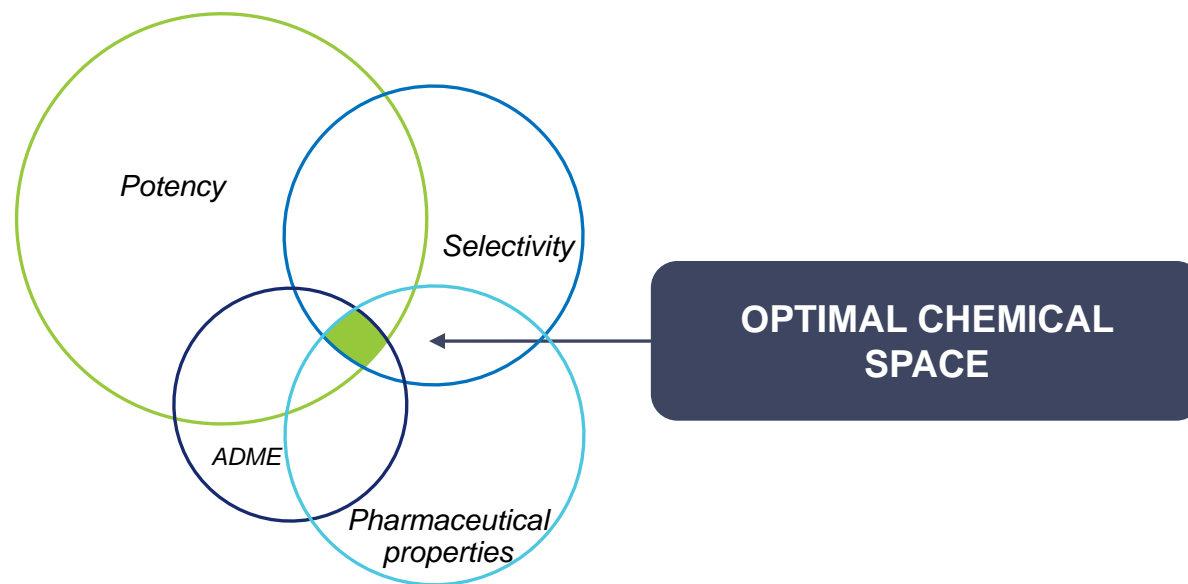
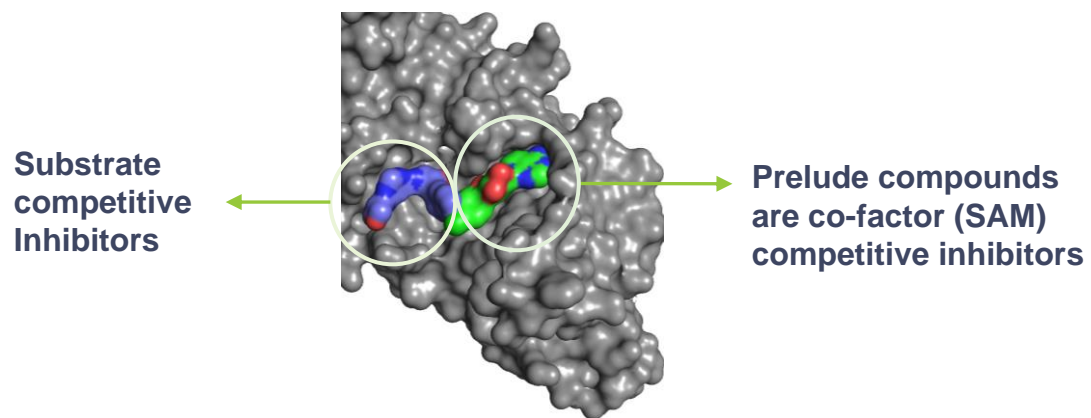
**PRMT5 inhibition can be leveraged to potentially treat a broad range of solid tumors and hematologic malignancies**

# Prelude PRMT5 Program

Optimized for a well-balanced and differentiated profile

PRMT5

## Differentiating Mechanism of Action



Designed and synthesized >600 compounds to select PRT543 and PRT811 for advancement

# PRT543

Opportunity for Accelerated  
Development Path

Potential best-in-class  
PRMT5 inhibitor



## Differentiated PRMT5 Inhibitor

- Highly selective and potent



## Targets Selected Solid Tumors and Heme Malignancies

- Strong scientific rationale
- Clinical PoC for target



## Optimized PK Profile

- High oral bioavailability and long half-life
- Differentiated safety and efficacy profile



## Potential Rapid Path to Market

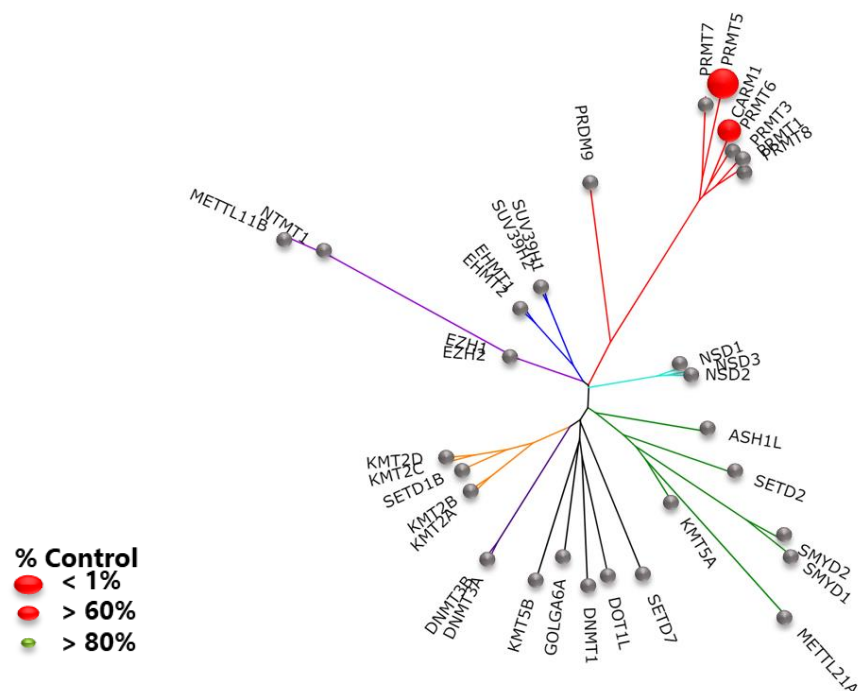
- Phase 1 ongoing
- Potential for accelerated approval pathway

# PRT543 – A Potent, Selective and Oral PRMT5 Inhibitor Candidate

PRMT5

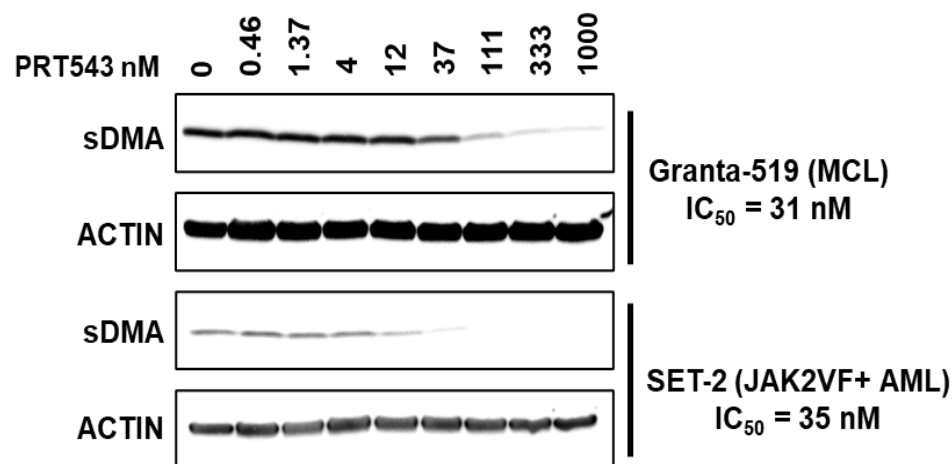
## PRT543 is Highly-Selective

Vs 36 methyltransferases in addition to a broad panel of receptors, transporters and channels



## Dose-Dependent PD

Modulation of sDMA (symmetric dimethylation) is a direct measure of PRMT5 activity



*~50% reduction in plasma sDMA correlates with efficacy in preclinical models*

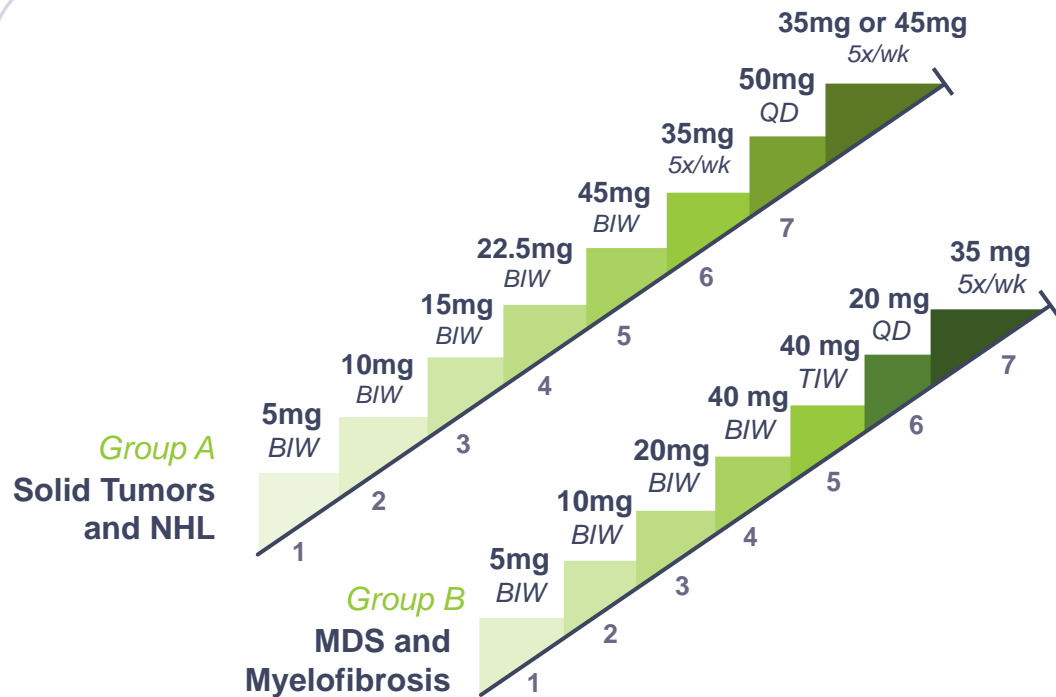
PRT543 demonstrated optimized potency, dose-dependent PD, and selectivity offering best-in-class potential



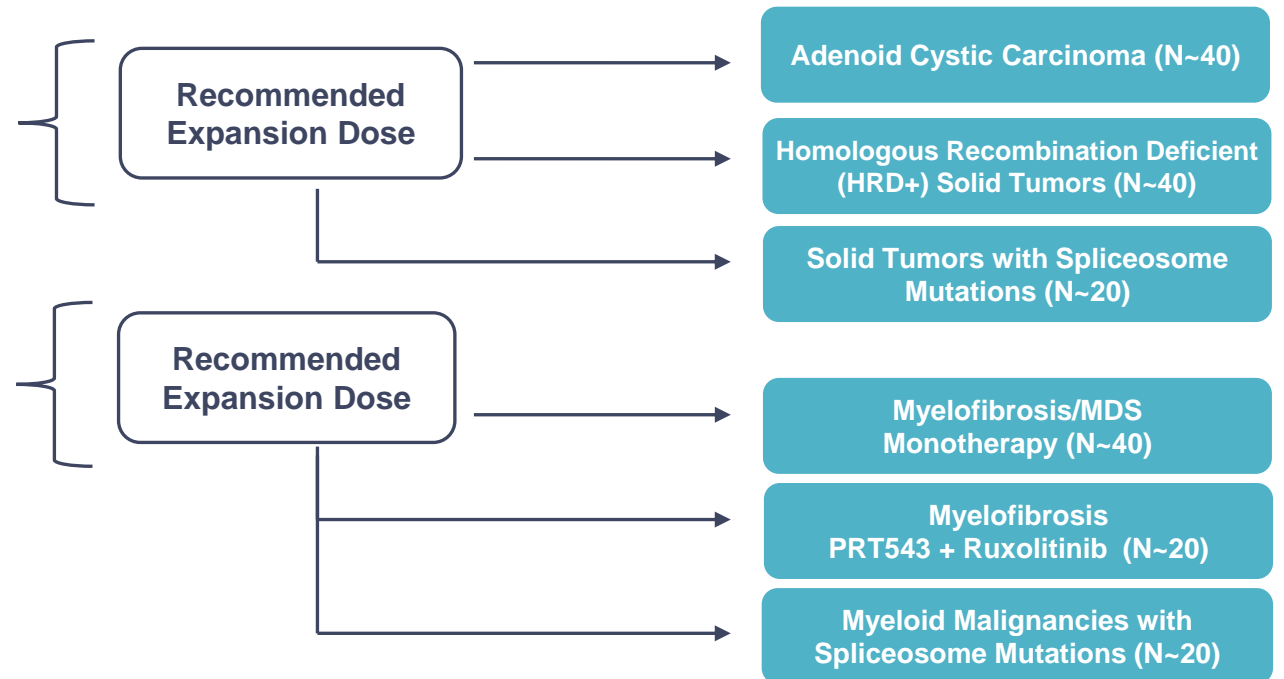
# PRT543 Phase 1 Clinical Trial

PRMT5

## Dose Escalation



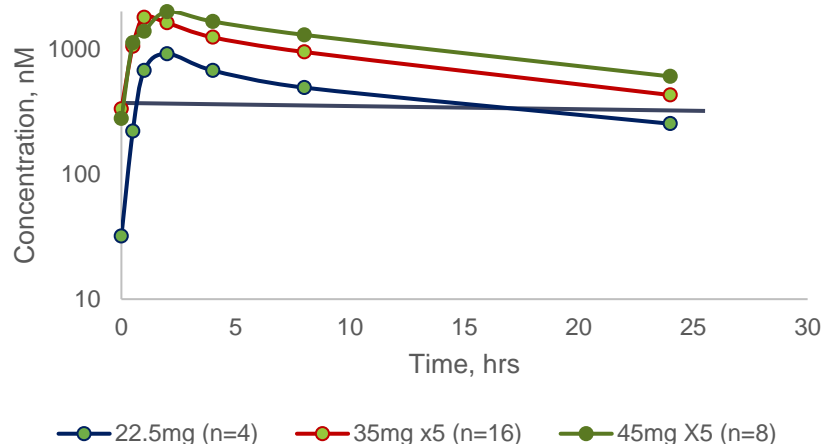
## Expansion Cohorts



# PRT543 Phase 1 – Interim PK/PD Results Demonstrated Predictable Profile

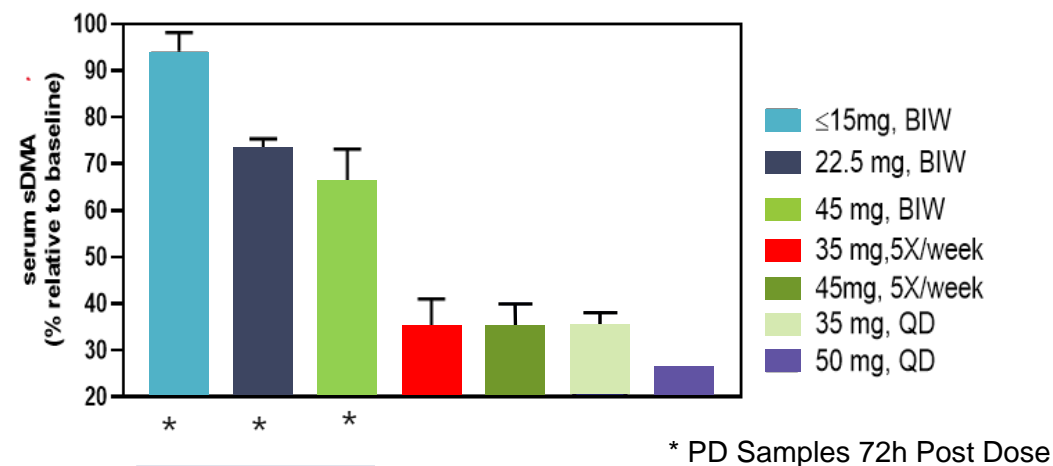
PRMT5

## Dose-Proportional Increase in Exposure (Steady State)



Parameter	35 mg (5x)	45 mg (5x)
C <sub>max</sub> (nM)	1792	1989
T <sub>1/2</sub> (h)	10.7	12.3
AUC (μM.h/wk)	13962	16542

## Dose-Dependent Decrease in Serum sDMA



Serum was obtained from patients at various times following administration of PRT543 and analyzed for sDMA levels by LC/MS. The data are shown as % relative to pre-dose levels

**PRT543 doses selected for expansion cohorts  
provide optimal target coverage based on  
preclinical models**

Data as of March 15, 2021

# PRT543 Phase 1 Clinical Trial Safety Profile

## Phase 1 clinical trial of PRT543 enrolled 61 patients

- 42 with advanced solid tumors (including two with HRD+ high grade serous ovarian cancer)
- 11 with MF
- Seven with MDS
- One with NHL

## Overall safety profile consistent between both Groups A and B

- Majority of drug related adverse events were Grade 1-2 with anemia and thrombocytopenia being the most common Grade 3-4 adverse events
- 24 SAEs reported amongst 11 patients, with three individual SAEs deemed drug related
- Thrombocytopenia remains only dose-limiting toxicity
- No patients discontinued study due to adverse events

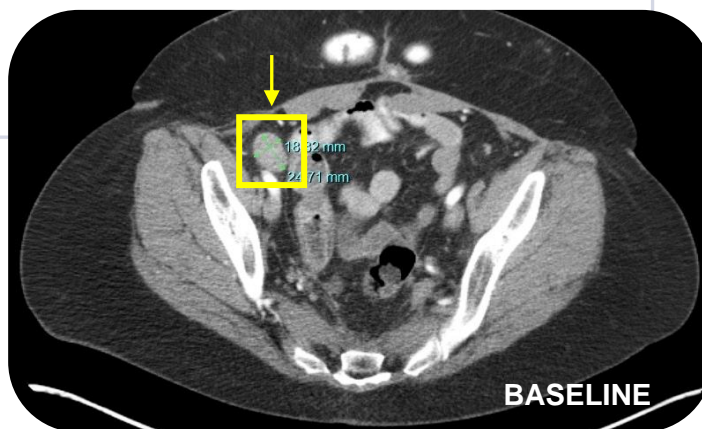
*Status as of December 16, 2020*

# Durable Confirmed CR in HRD+ High Grade Serous Ovarian Cancer

PRMT5

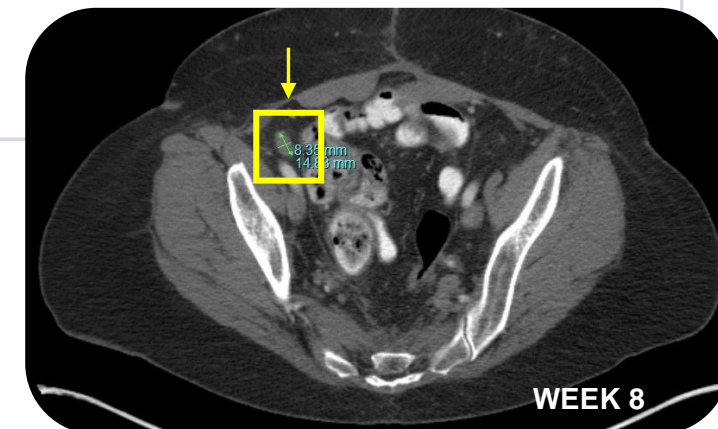
## Patient History

- Diagnosed in 2014 with tumor origin in fallopian tube
- Seven prior lines of therapy including PARPi
- Enrolled in 35mg, 5x/week; currently ongoing
- Based on genomic analysis of archival tumor tissue, HRD+
  - Mutations in genes involved in DNA damage response (ATR, RAD51D, BRCA1)
  - Plans to confirm HRD status in validated clinical assay
- One target lesion per RECIST and CA125 level of 37.8 U/mL at baseline



## Patient Response

- RECIST CR at first follow up tumor assessment with associated drop in CA-125 level to 2.6 U/mL
- A second follow up scan performed 8 weeks after first follow up confirmed the CR and CA-125 measured 4.6 U/mL
- A third follow up scan performed at 24 weeks demonstrated continued CR and CA-125 measured 3.3 U/mL
- As of December 16, 2020, patient received 9 months of study therapy and remained in CR





# PRT543 Offers Broad Opportunity Across Tumor Types

PRMT5

Scientific Rationale		Tumor Types	US Market Opportunity
Transcriptional Regulation		Adenoid Cystic Carcinoma HRD+ Tumors (Ovarian, TNBC, Others)	ACC: 10-15,000 patients Ovarian: 63% of ovarian tumors HRD+ TNBC: 55% of TNBC tumors HRD+ Prostate: 25% of mCRPC tumors HRD+
Splicing Dysregulation		Uveal Melanoma	Uveal Melanoma: 2,000 patients annually
Synthetic Lethality		Myeloid Malignancies (Myelofibrosis and MDS)	MF: ~12,000 intermediate/high risk patients MDS: 10,000 patients annually

# PRT811

Expanding PRMT5 Opportunity  
into CNS Cancers

Only clinical stage brain-  
penetrant PRMT5 inhibitor



## Differentiated Brain-Penetrant PRMT5 Inhibitor

- Highly selective and potent



## Targeting GBM and CNS Metastatic Brain Cancers

- High target engagement in the brain and preclinical activity



## Optimized PK Profile

- High and sustained brain exposure in preclinical studies



## Potential Rapid Path to Market

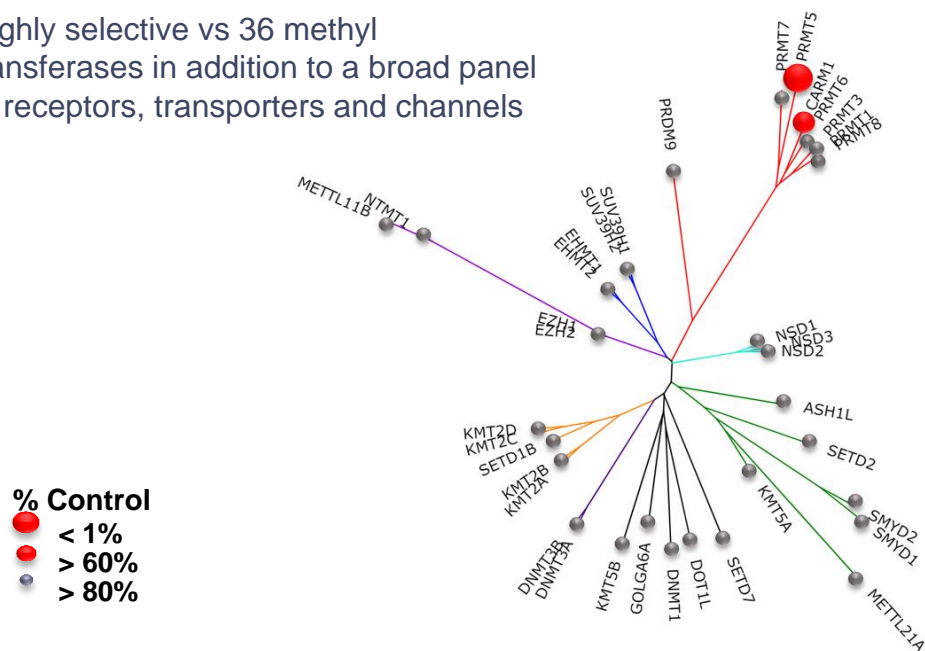
- Phase 1 ongoing
- Anticipated expansion in GBM and CNS metastatic cancers mid-2021

# PRT811 – A Potent, Selective and Brain Penetrant PRMT5 Inhibitor Candidate

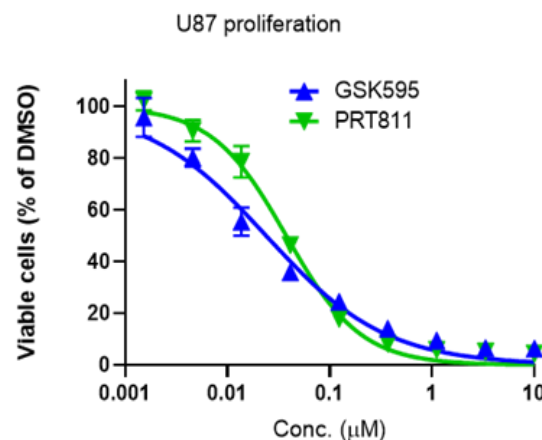
PRMT5

## PRT811 is a Potent SAM-Competitive PRMT5 Inhibitor

Highly selective vs 36 methyl transferases in addition to a broad panel of receptors, transporters and channels



## Equivalent Potency and 100-fold Higher Brain Exposure vs GSK'595



	GSK'595	PRT811
	<i>Mean</i>	<i>Mean</i>
Plasma concentration $\mu\text{mol/L}$	2.50	2.02
Brain concentration $\mu\text{mol/kg}$	0.722	4.11
Brain/plasma ratio	0.0293	2.26

PRT811 has high oral bioavailability, high brain exposure, and no dose-limiting toxicities to date

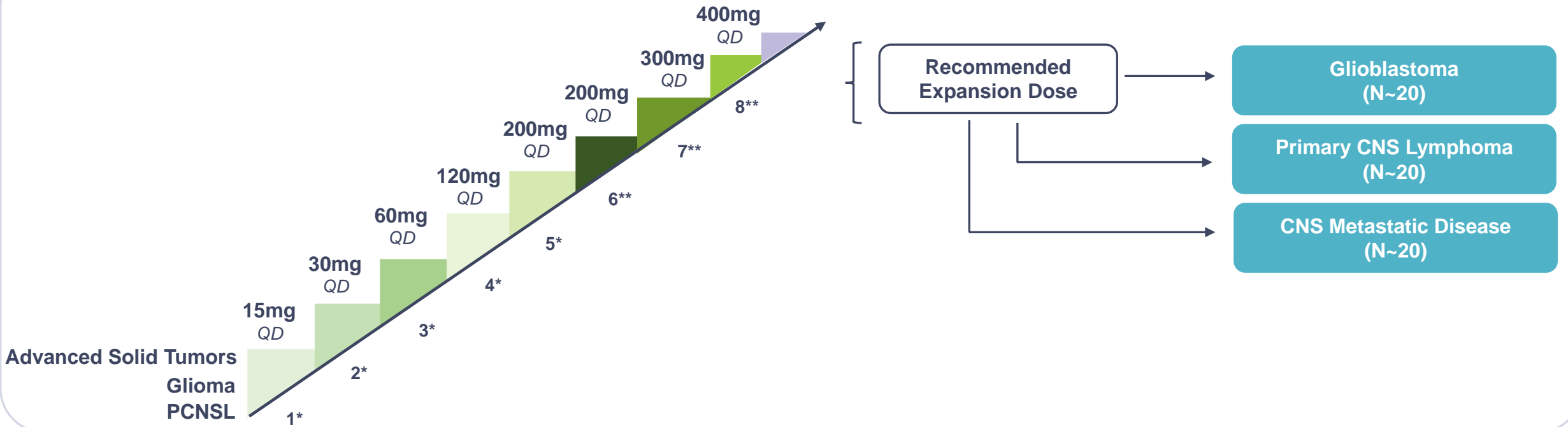
# PRT811 Phase 1 Clinical Trial

PRMT5

ANTICIPATED MID-2021

## Dose Escalation

## Expansion Cohorts



\* (2 weeks on/1 week off) 21-day cycles

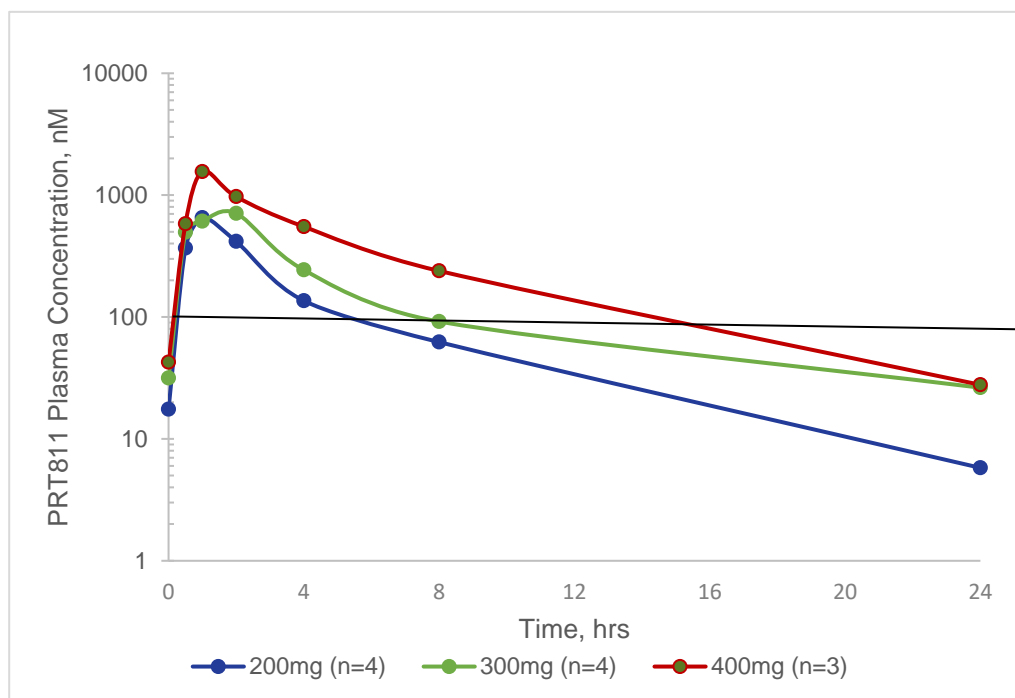
\*\* (Continuous 3 weeks on) 21-day cycles



# PRT811 Phase 1 – Interim Results Demonstrated Dose-Dependent PK/PD

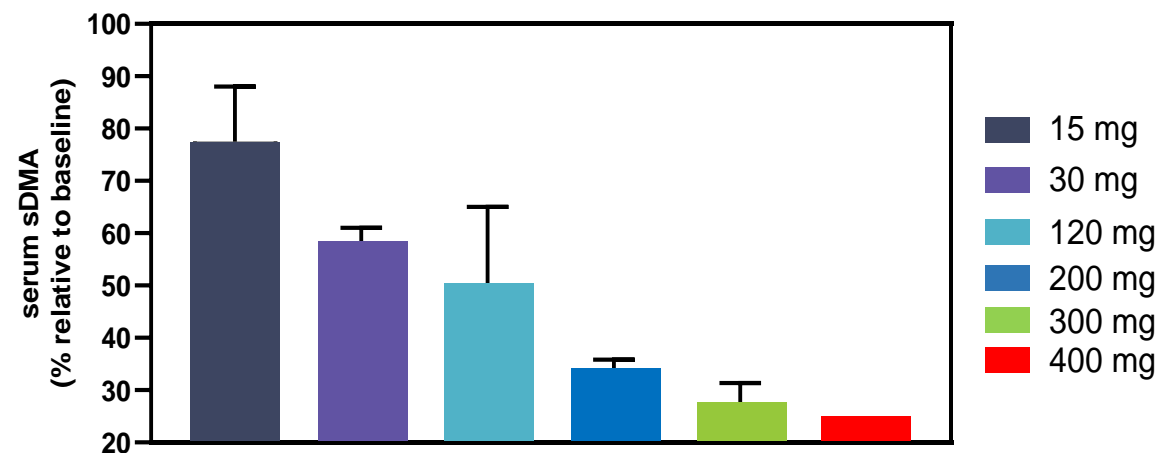
PRMT5

## PRT811 Pharmacokinetic Profile (Steady State)



— Trough Level target based on Preclinical models

## PRT811 Pharmacodynamic Profile Serum sDMA



**PRT811 offers the potential to achieve desired levels of PRMT5 inhibition in tissues including brain**

Data as of March 15, 2021

# PRT811 Phase 1 Clinical Trial Safety Profile

## Phase 1 clinical trial of PRT811 enrolled 24 patients

- 16 with advanced solid tumors
- Eight with GBM

## Overall safety profile

- Four patients each experienced one SAE, none of which was attributed to study therapy
- No dose limiting toxicities observed
- One patient discontinued study therapy due to transient Grade 2 nausea

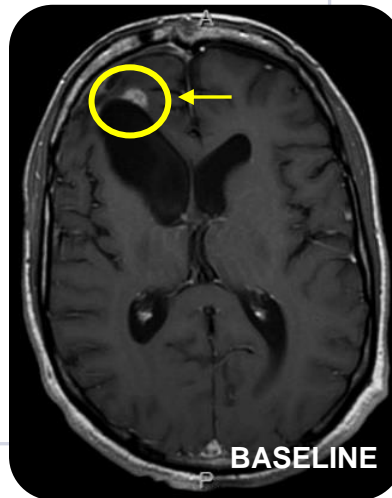
*Status as of December 16, 2020*

# Confirmed PR in Glioblastoma Multiforme

PRMT5

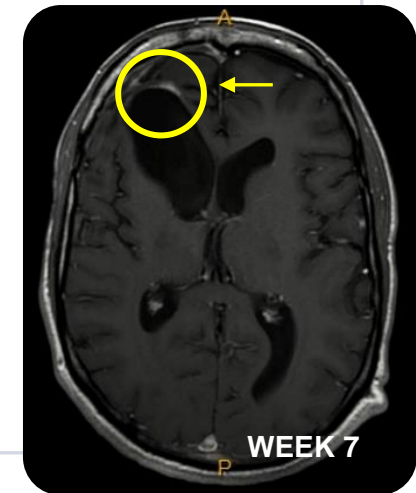
## Patient History

- Diagnosed with recurrent GBM and originally treated with surgery and chemoradiation with Temodar in July 2019
- Patient has not been treated with steroids or Avastin, and clinical status is stable
- Presented with progressive disease in June 2020
- Enrolled in **200 mg (q.d. two weeks on/one week off)** in July 2020
- Patient's tumor is:
  - IDH1+
  - MGMT unmethylated
- One target lesion per RANO (response assessment in neuro-oncology) measuring 23 mm x 10 mm



## Study Follow-Up

- In September 2020, at patient's first follow-up MRI evaluation (week 7) lesion measured 13 mm x 6 mm (**66% reduction**)
- Follow-up MRI at week 18 confirmed a partial response (PR) per RANO criteria and an **improved regression of 77% from baseline**
- As of December 16, 2020, patient received five months of study therapy and remained in PR and is clinically stable

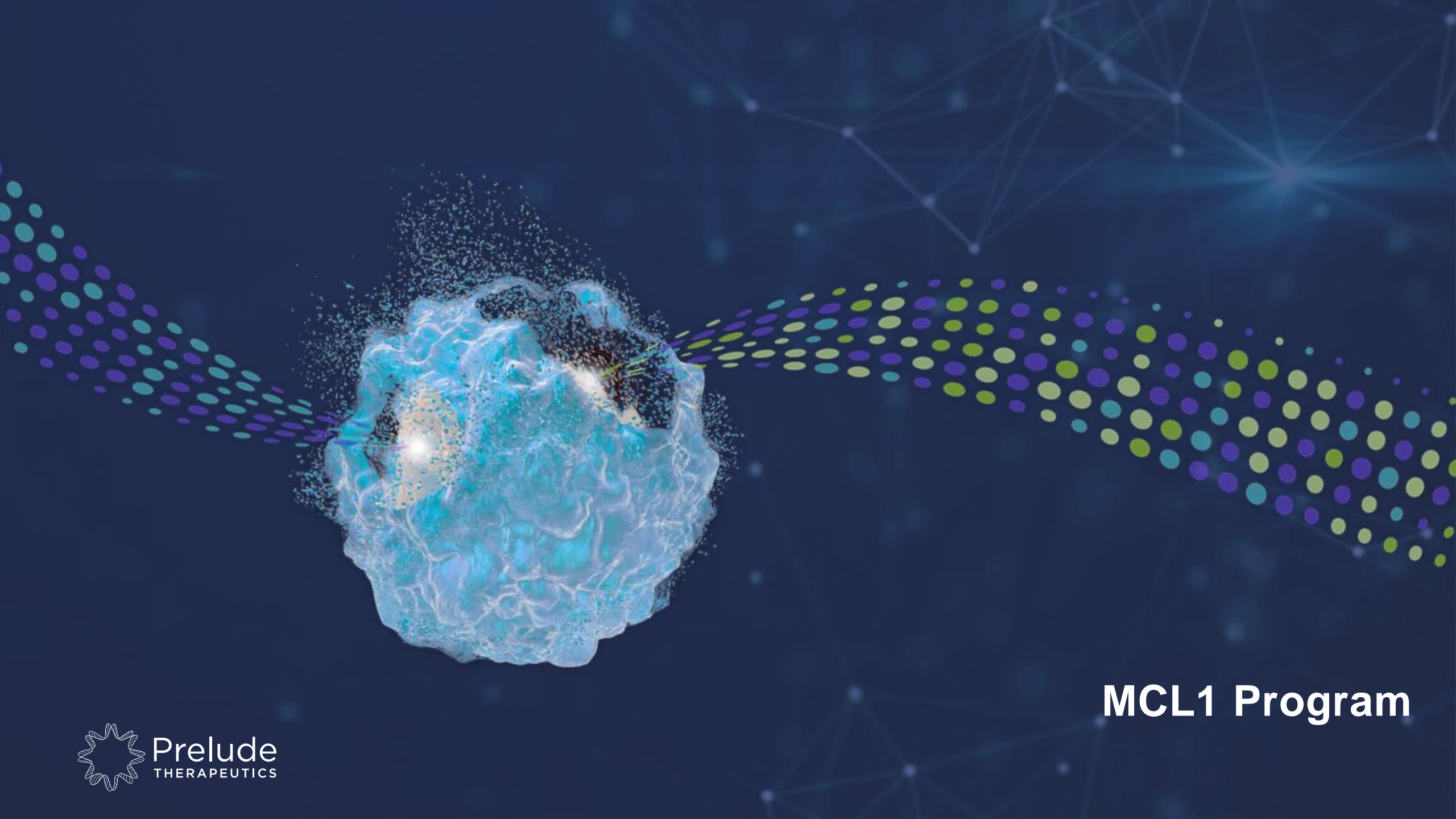


# PRT811 Expands PRMT5 Opportunity into CNS Cancers

PRMT5

		US Market Opportunity
Scientific Rationale	Tumor Types	
Transcriptional Regulation	Glioblastoma Multiforme	10,000 patients annually
Splicing Dysregulation	Primary CNS Lymphoma	~2,000 --2,500 patients annually
Synthetic Lethality	CNS Metastatic Disease	PRMT5i-sensitive subset of 200,000 CNS metastatic patients annually

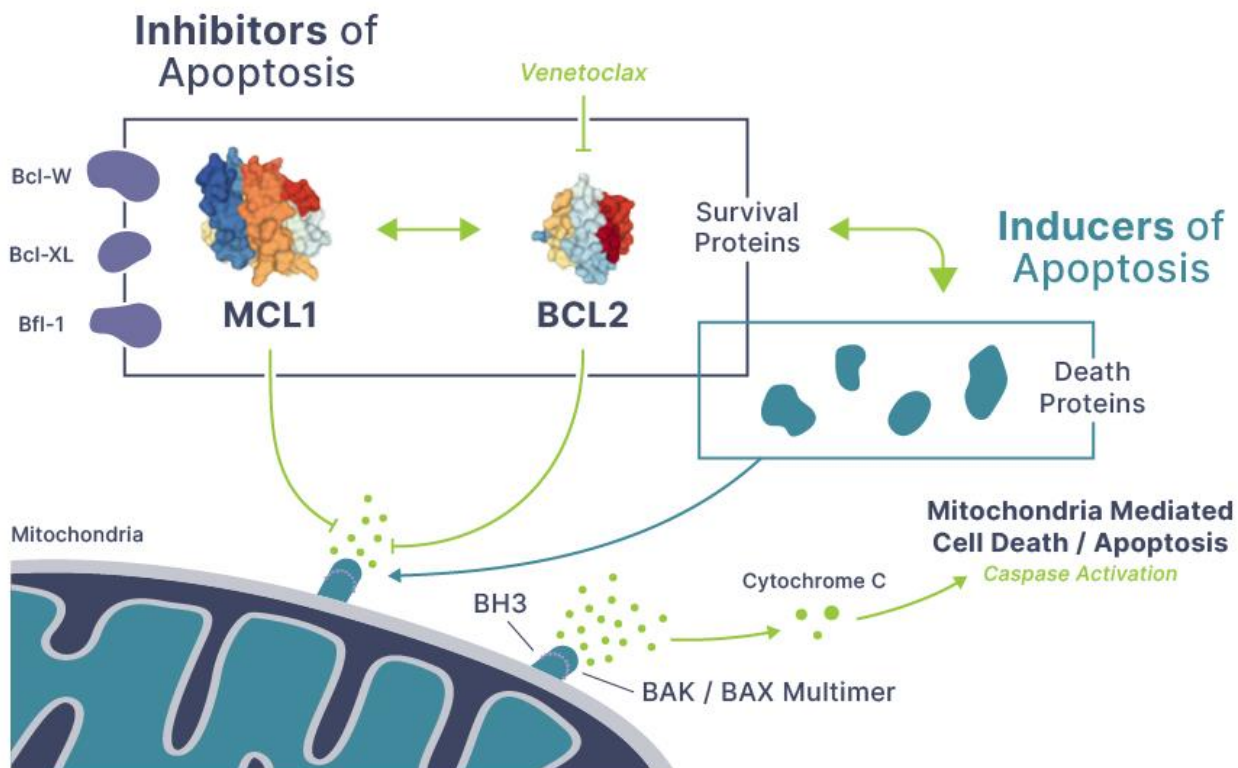




# MCL1 Program

# Prelude MCL1 Program

MCL1



- Dysregulated MCL1 expression occurs frequently in cancer
- MCL1 is a member of BCL2 family of proteins involved in blocking cell death proteins
- MCL1 is a validated bypass and resistance mechanism for venetoclax (BCL2 inhibitor) and TKIs
- Currently active competitor compounds are IV candidates
- Challenging medicinal chemistry target that requires disruption of protein-protein interaction

# PRT1419

## Differentiated Clinical-Stage MCL1 Inhibitor Candidate



### MCL1 Inhibitor

- Potent and selective
- Oral and IV formulations



### Targeting Selected Heme Cancers

- Robust activity in preclinical models with once weekly dosing
- Synergistic with venetoclax



### Optimized PK Profile Maximizes Therapeutic Window

- High oral bioavailability and optimized physicochemical properties



### Potential Rapid Path to Market

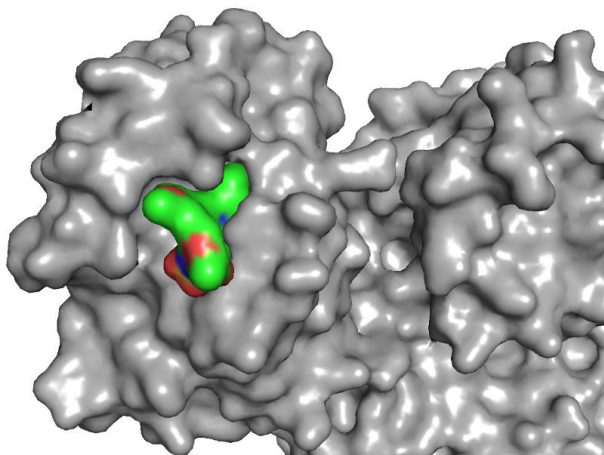
- Phase 1 dose escalation ongoing; expansion cohorts expected 2H2021 (oral)
- Phase 1 in solid tumors to commence mid-2021 (IV)

# PRT1419: Potential Leading MCL1 Inhibitor

MCL1

## Highly Potent Binding to MCL1

Prelude compounds are competitive inhibitors of BIM binding



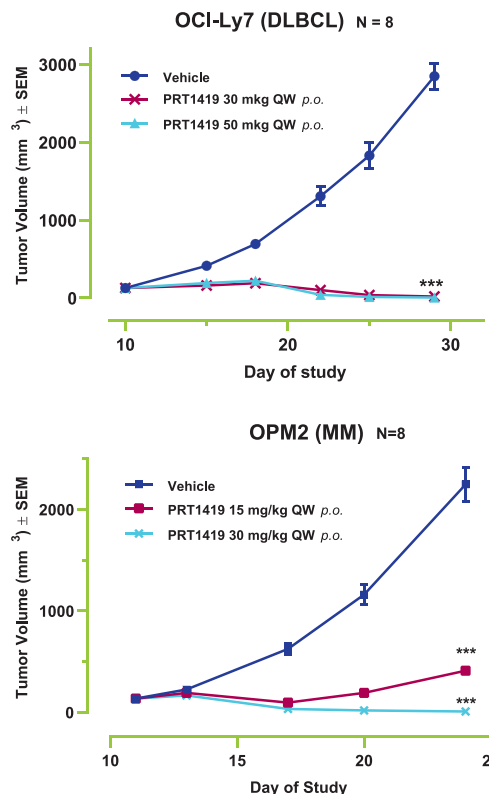
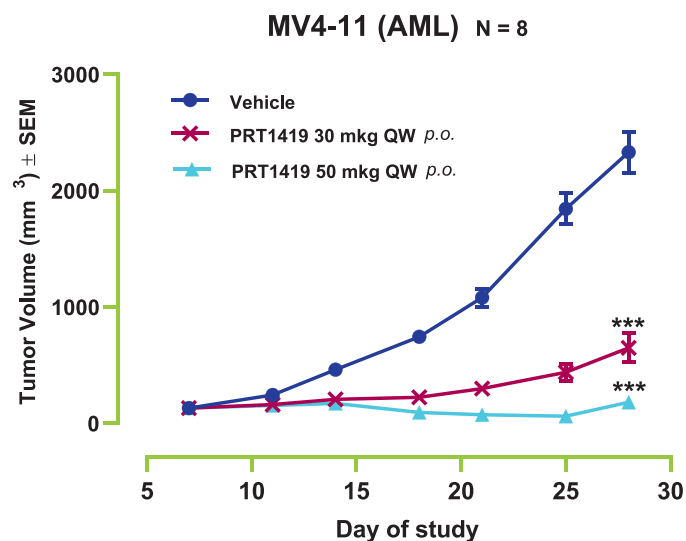
Assay	AMG176	AZD5991	MIK665	PRT1419
Proliferation IC <sub>50</sub> (nM)	150	31	4.5	80
Whole Blood IC <sub>50</sub> (nM)	1800	320	430	210
Caco-2 (x10 <sup>-6</sup> cm/s)	6	<0.1	0.2	11
Human Hepat. CI (%HBF)	42	ND	ND	71
Solubility at pH 7.4 (μg/mL)	13	ND	ND	>1000
Route of Administration	IV	IV	IV	Oral/IV

**PRT1419 is a potent MCL1 inhibitor candidate with no preclinical evidence of cardiac toxicity**

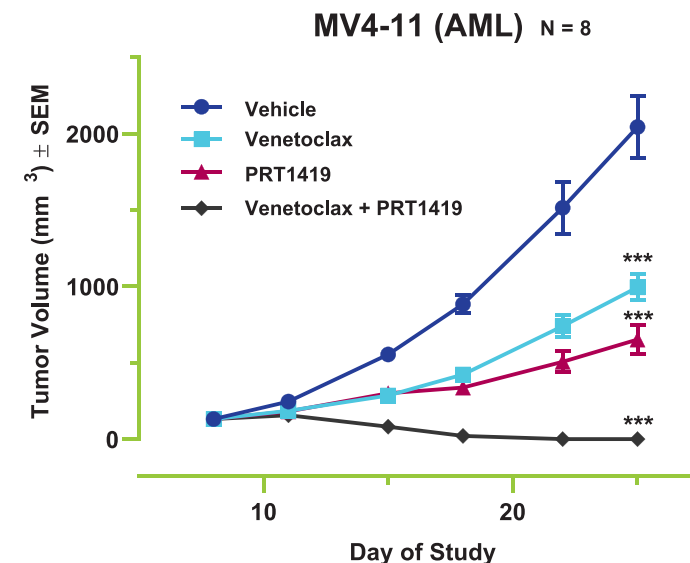
# PRT1419 Demonstrated Preclinical Activity as Monotherapy and in Combination

MCL1

## Monotherapy



## Combination



Dose-dependent activity with tumor regression at once-weekly, oral dosing in hematological tumor models



# Oral PRT1419 Phase 1 Clinical Trial

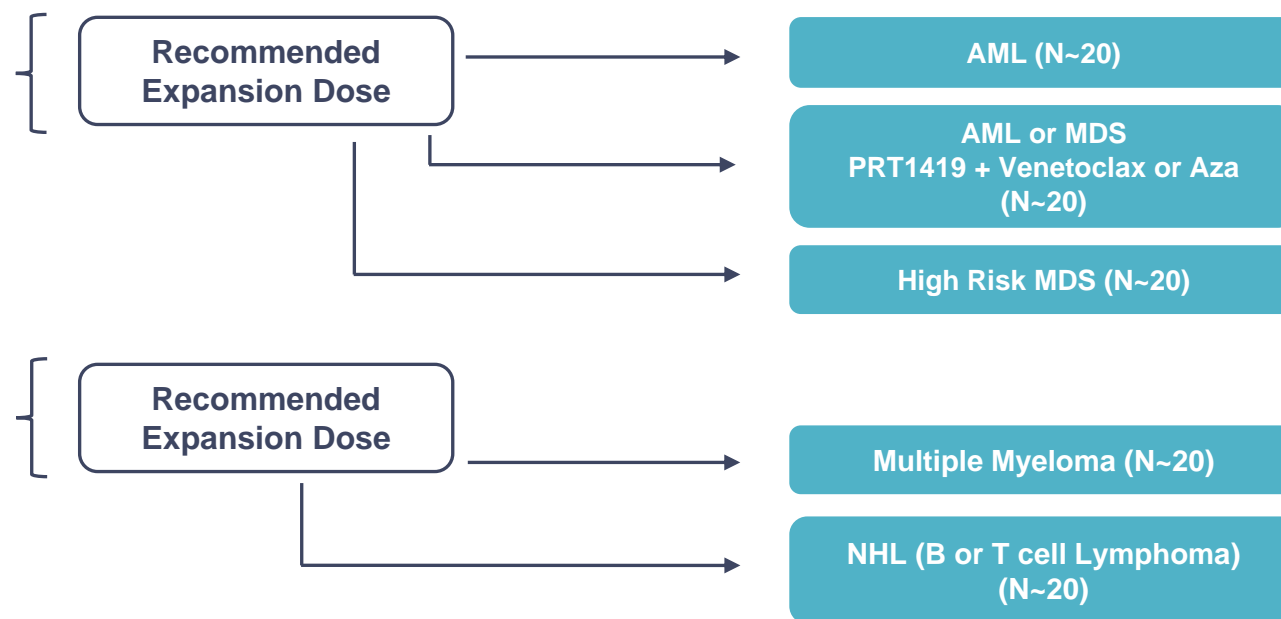
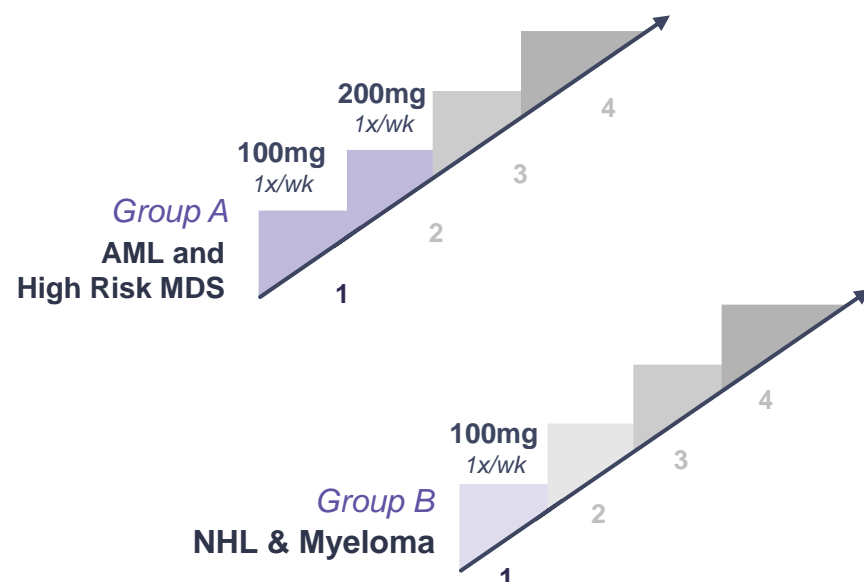
Phase 1 Initiated in 2H2020

MCL1

2021

## Dose Escalation

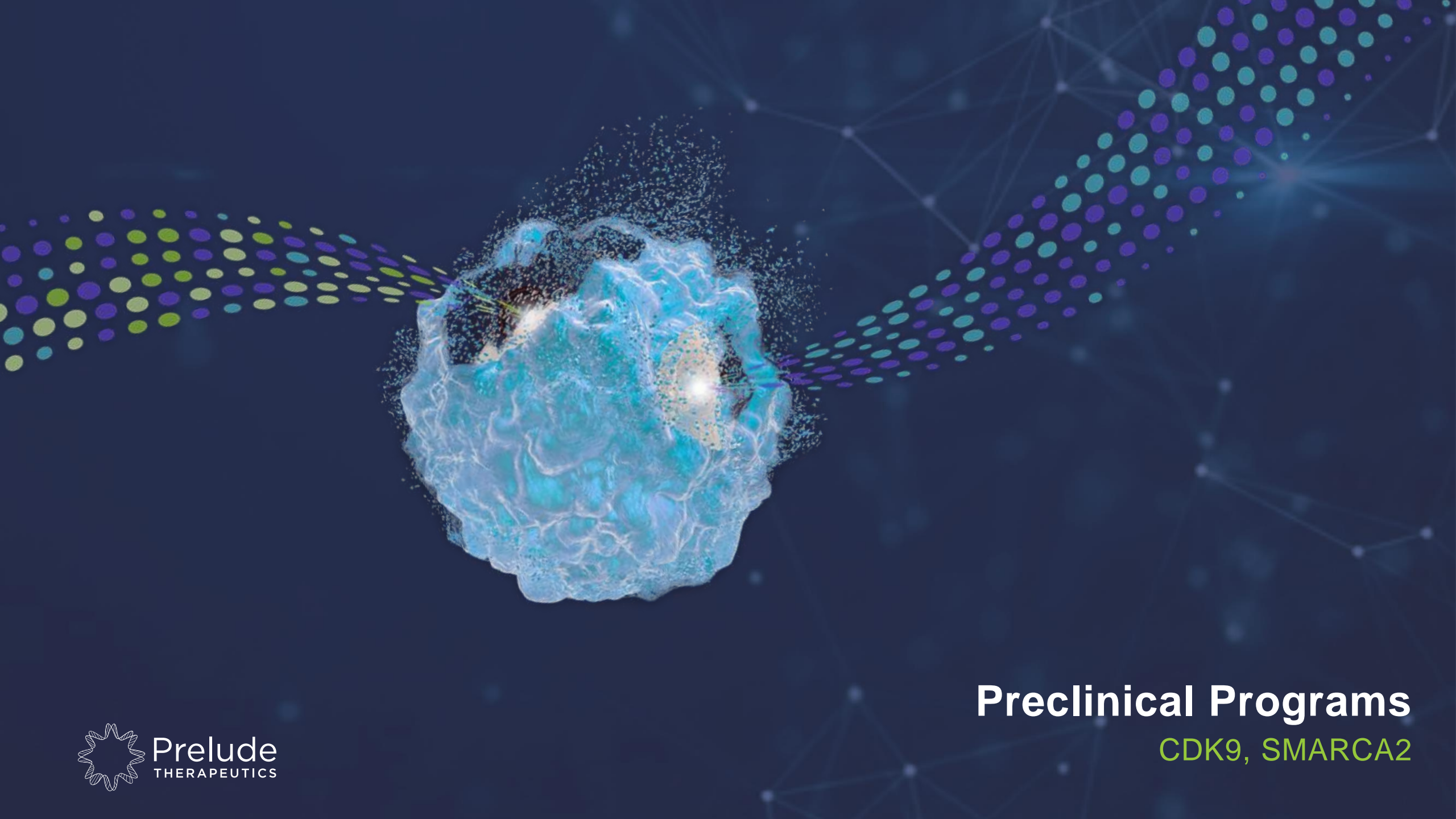
## Expansion Cohorts



Phase 1 dose escalation ongoing; only Grade 1-2 AEs observed

Status as of December 16, 2020



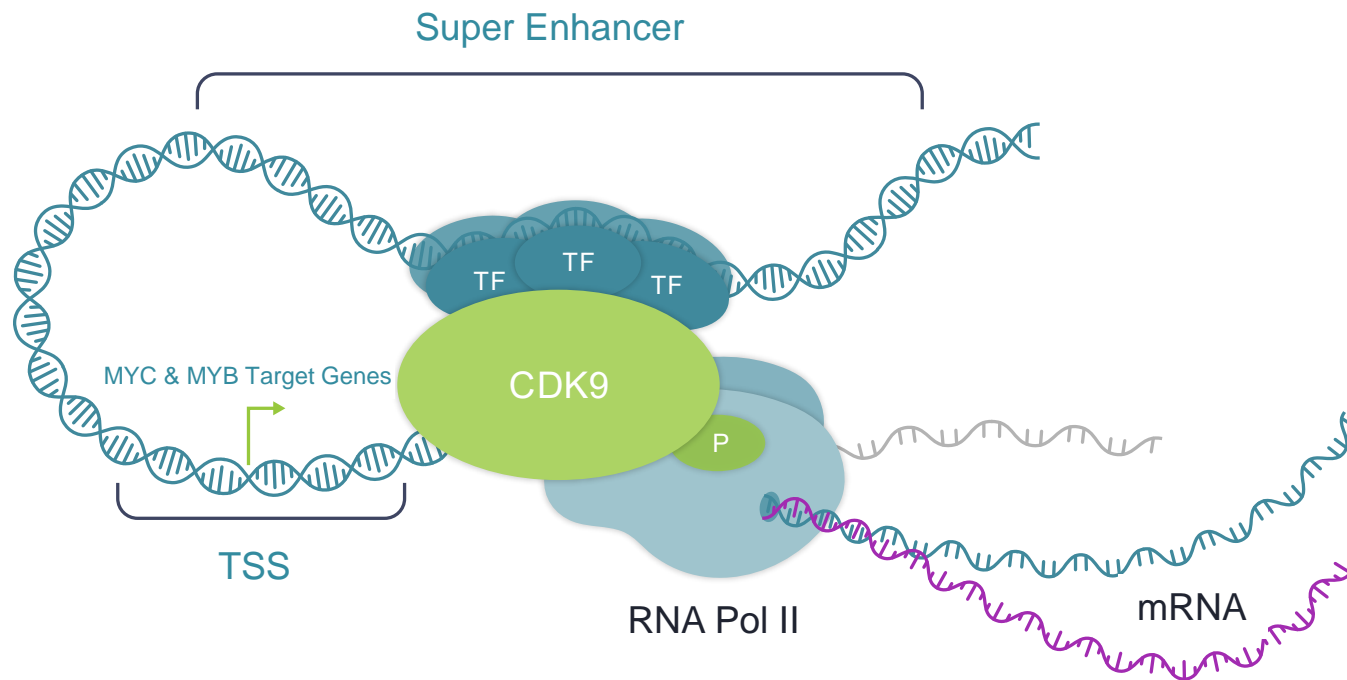


# Preclinical Programs

CDK9, SMARCA2

# Prelude CDK9 Program

CDK9



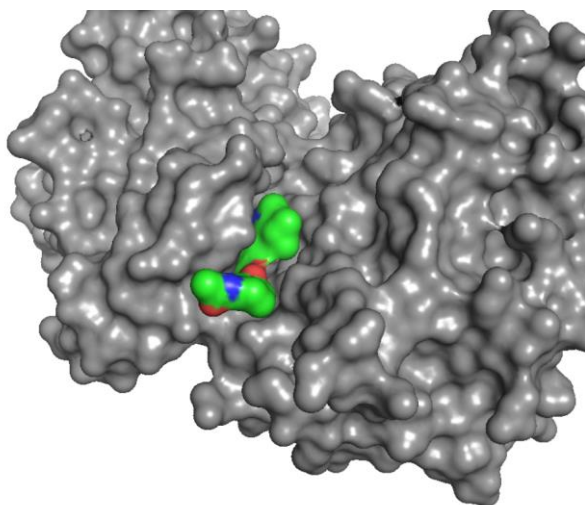
- CDK9 phosphorylates RNA Pol II and regulates transcription
- Regulates expression of several immediate early genes driving oncogenesis and resistance (i.e. MYC, MYB, MCL1)
- Non-selective CDK9 inhibitors have demonstrated clinical activity in multiple tumor types but poor tolerability
  - Lack of selectivity and potency vs other CDK9s is believed to contribute to low therapeutic window

**Highly-selective CDK9 inhibitors believed to have broad applicability in hematological and solid malignancies**

# PRT2527: Potent and Highly Selective CDK9 Inhibitor Candidate

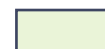
CDK9

## Highly Selective CDK9 Inhibitor Candidate



Prelude compounds  
are ATP competitive  
inhibitors

Compound		AZD4573	KB0742	VIP152**	PRT2527
Biochemical* IC <sub>50</sub> (nM)	CDK9	1.9	483	16	0.95
Proliferation* IC <sub>50</sub> (nM)		11	915	84	18
Plasma* IC <sub>50</sub> (nM)		192	1056	923	196
Fold Selectivity CDK9 vs Other Isoforms	CDK1	23x	>20x	371x	73x
	CDK2	35x	>20x	147x	340x
	CDK3	2x	>20x	37x	35x
	CDK4	53x	>20x	38x	250x
	CDK5	37x	>20x	>600x	>1000x
	CDK6	79x	>20x	296x	>1000x
	CDK7	150x	>20x	>600x	>1000x



>100x



100-10x



<10x

\*Internal data; biochemical assay at 1 mM ATP, H929 CTG proliferation assay; \*\*VIP151 was formerly BAY151 and licensed to Vincer by Bayer

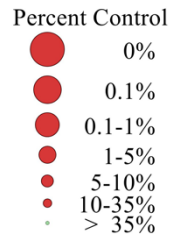
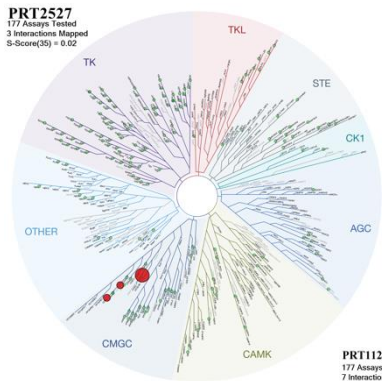
**PRT2527 demonstrated improved potency  
and kinase selectivity relative to competitor  
compounds in preclinical studies**

# CDK9 Inhibitor Candidate: PRT2527

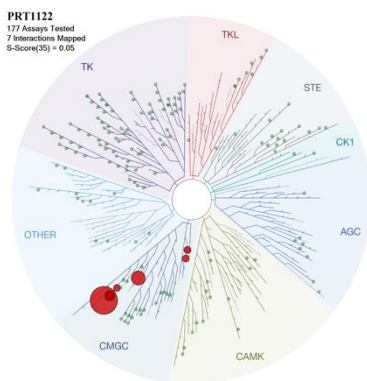
CDK9

## Improved Selectivity

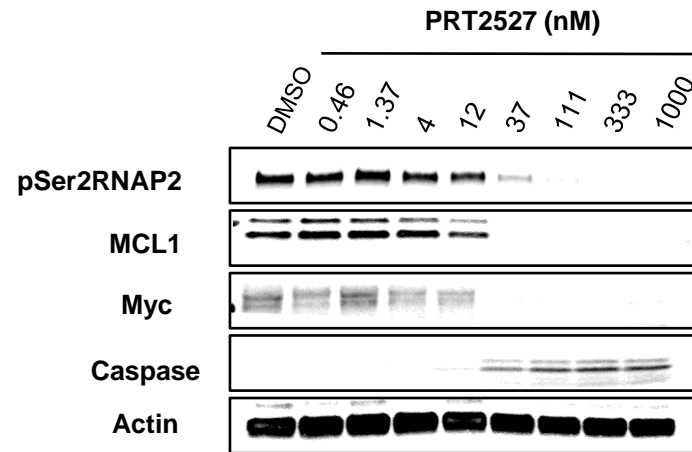
### PRT2527



### AZD4573

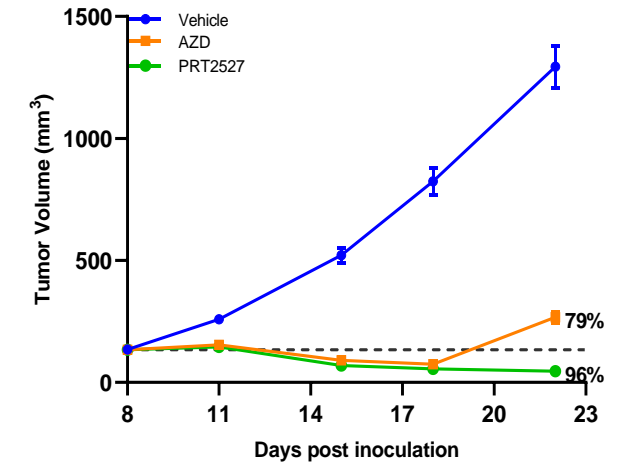


## Potent in Vitro Activity



## Sustained Regressions at Well-Tolerated Doses in Vivo

### MV4-11 (AML)



# SMARCA2 Targeted Degradation Program

SMARCA2

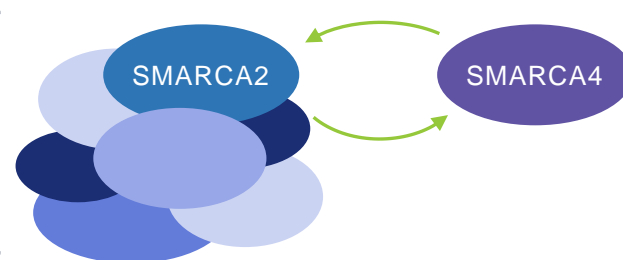
## SMARCA4 and SMARCA2 Regulate Chromatin Accessibility and Gene Expression

### Paralog Dependency

*SMARCA4 Compensates for SMARCA2 Function*

NORMAL CELL

*SWI/SNF Chromatin Remodeling Complex*



SMARCA4  
MUTANT TUMORS



SMARCA2 Degradation → Synthetic Lethality

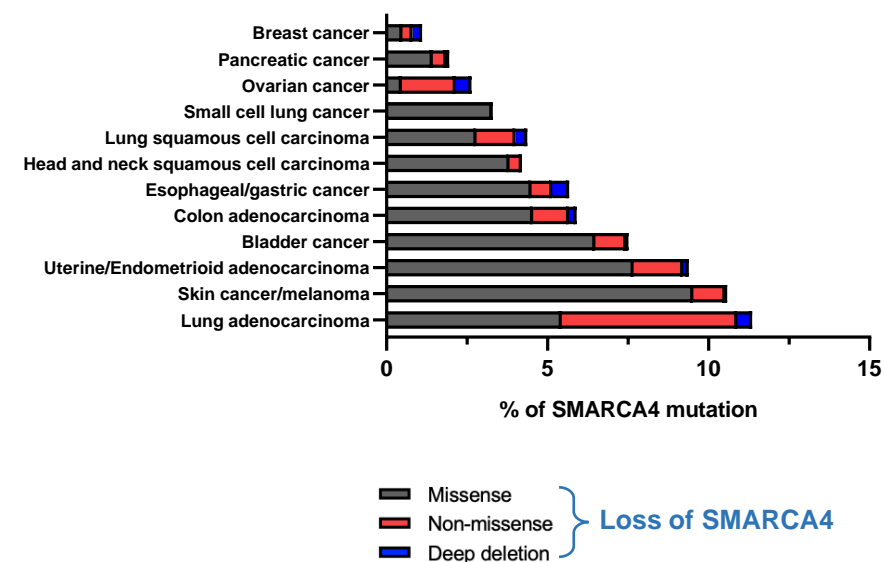
SMARCA4

*Dysfunctional SMARCA4*



*Tumor Cell Death*

## Loss of SMARCA4 Leads to SMARCA2 Dependency



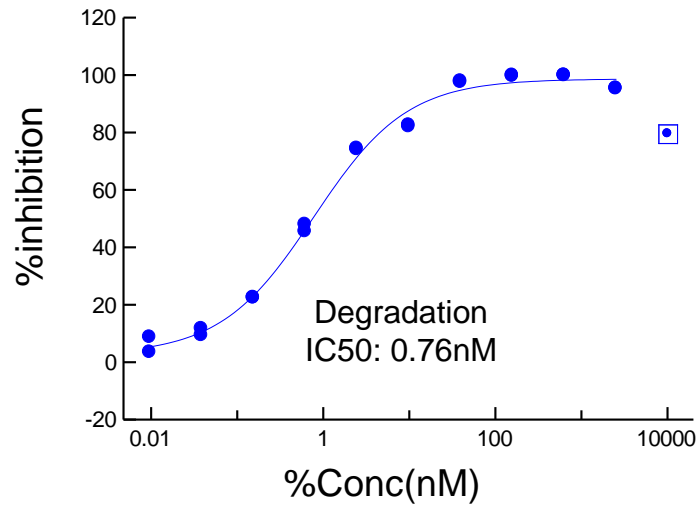
Opportunity to target 10 – 12% NSCLC with SMARCA4 deletions



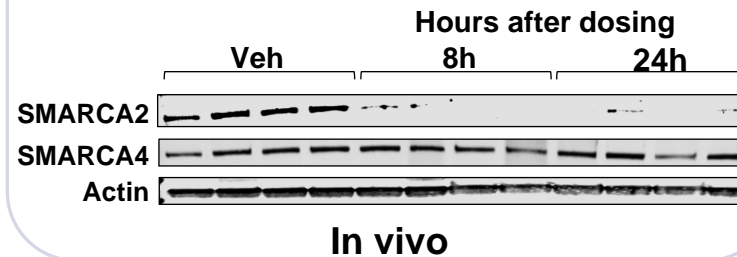
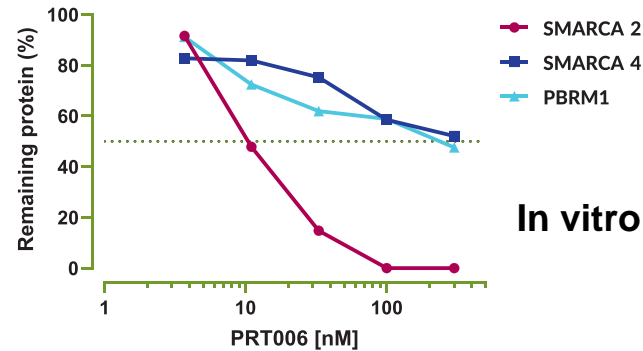
# PRT-SCA2: Potent Selective SMARCA2 Degraders with In Vivo Activity

SMARCA2

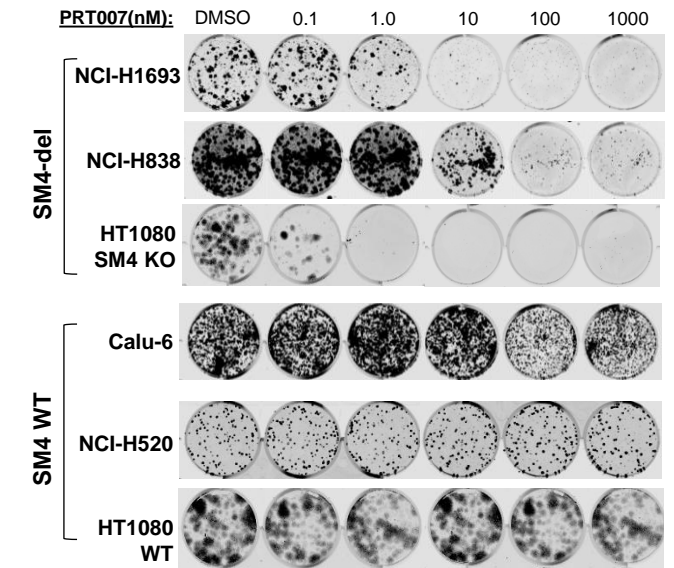
## Sub-Nanomolar Potency for SMARCA2 Degradation



## Highly Selective for SMARCA2 Degradation

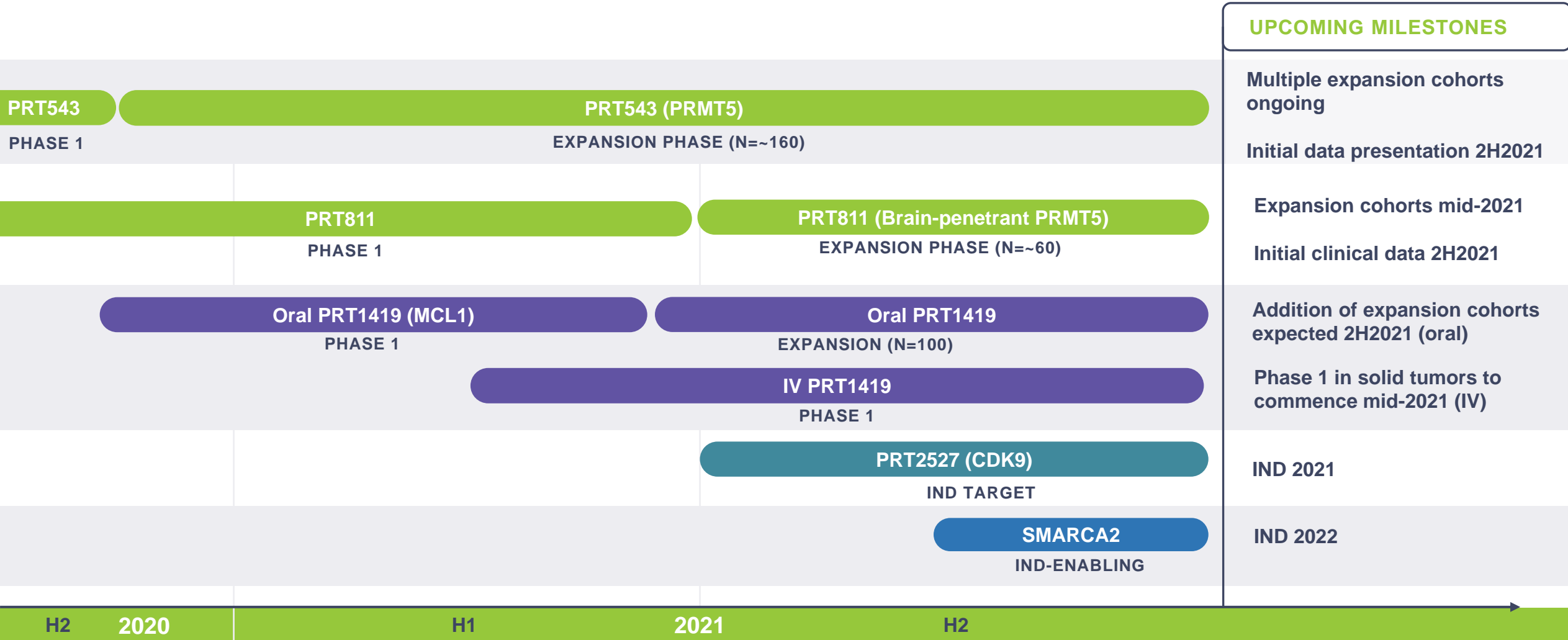


## Prelude SMARCA2 Degraders Replicate Genetic Synthetic Lethality





# Prelude Therapeutics Projected Milestones



# Financial Highlights

## Shares Outstanding

- 46.8 million shares voting and non-voting common stock as of March 31, 2021
- 61.0 million shares fully diluted

## Cash and Cash Equivalents

- \$363.0 million as of March 31, 2021
- Current cash and cash equivalents will be sufficient to fund operating expenses and capital expenditure requirements into 2023

# Prelude Therapeutics Corporate Highlights

**4** INDs cleared to date;

**3** Clinical stage programs;

**3** Preclinical assets



## Highly productive target class agnostic discovery engine

Pipeline focused on differentiated and validated targets



## Compelling market opportunities across multiple tumor types

Patient-inspired drug development, regulatory, and commercial strategies to address high unmet need



## Multiple wholly owned programs with fast-to-market potential

Lead programs, PRT543 & PRT811 (PRMT5) and PRT1419 (MCL1) target clinically validated mechanisms with differentiated product profile



## Experienced leadership team with marquee investors and board members

Deeply experienced employee base that has worked on multiple approved targeted agents



Prelude  
THERAPEUTICS

Thank You

