

**Corporate Presentation** 

NASDAQ: CRIS

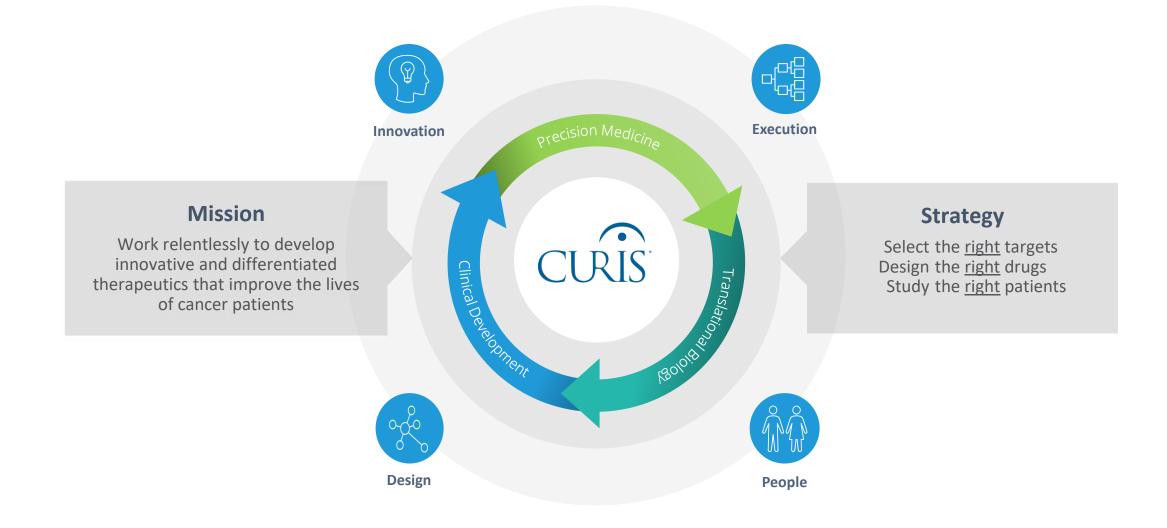


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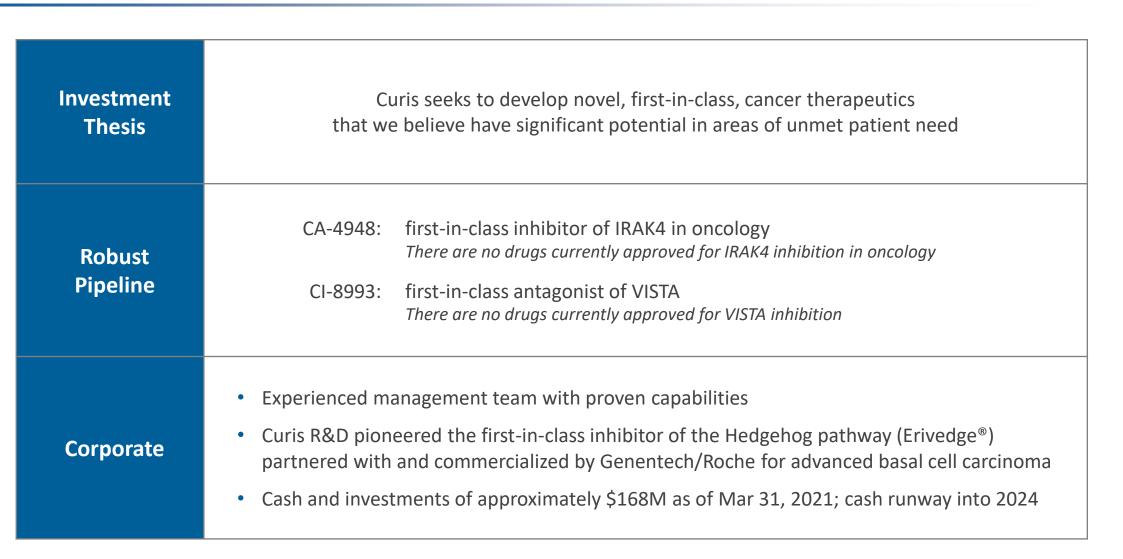
## **Curis Mission & Strategy**

Developing the New Generation of Targeted Cancer Drugs



CURIS

## Company



# **Evolution of Curis**



### Progressing through Clinical Studies on the Path to Potential Registration

2019 2020		2021
Initial Clinical Data	Expand Clinical Opportunities	Registrational Strategy
<ul> <li>Report initial Ph1 data for CA-4948 in NHL</li> <li>Evaluate new published research in IRAK4-L expression and the potential opportunity for CA-4948 in AML/MDS</li> </ul>	<ul> <li>Report expanded Ph1 data for CA-4948 study in NHL and identify Recommended Phase 2 Dose (RP2D)</li> <li>Initiate a Ph1 study of CA-4948 in AML/MDS including patients expressing IRAK4-L and report initial Ph1 data</li> </ul>	<ul> <li>Initiate Combination Study of CA-4948 and ibrutinib in NHL and evaluate potential paths for registration</li> <li>Initiate the clinical and non-clinical research collaboration with the NCI under the CRADA for CA-4948</li> </ul>
	Acquire exclusive option to license the leading VISTA monoclonal antibody program (CI-8993) and initiate a Ph1 study	<ul> <li>Report expanded Ph1 data for CA-4948 study in AML/MDS and identify Recommended Phase 2 Dose (RP2D)</li> <li>Report initial clinical data for CI-8993 Ph1 study targeting VISTA in solid tumors</li> </ul>

## Pipeline

## All Curis programs are novel, first-in-class



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ImmuNext \*\* Exclusive option to license IP from ImmuNext Genentech \*\*\* IP licensed to Genentech (Curis receives royalty income)



## IRAK4 Targeted Program in AML/MDS

CA-4948: In development for treatment of cancers driven by IRAK4-L

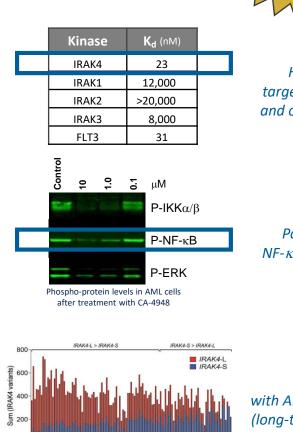


## CA-4948 Overview

### First-in-Class Inhibitor of IRAK4 in Oncology

	Profile
Value Proposition	<ul> <li>First-in-class IRAK4 inhibitor in cancer</li> <li>Specific malignancies in Lymphoma are characterized by overactivity of NF-κB and the TLR/myddosome (which is dependent upon IRAK4)</li> <li>Specific malignancies in Leukemia are characterized by spliceosome mutations that cause an overexpression of IRAK4-L (the oncogenic isoform of IRAK4)</li> <li>Composition-of-matter IP extends into 2035</li> </ul>
Target	Lymphoma: 100% of patients treated w/ibrutinib (IRAK4i combination with BTKi)
Patient Population	Leukemia: >50% of AML/MDS patients (population which overexpresses IRAK4-L)
Product	<ul> <li>Potent and orally bioavailable inhibitor of IRAK4 for treatment of NF-κB driven</li></ul>
Candidate Description	lymphomas and IRAK4-L driven leukemia

Booher et al. EHA 2019 (poster #PS991)
 Booher et al. AACR 2017 (poster #1168)
 Smith et al. Nat Cell Biol 2019



In Nov 2020, the NCI selected CA-4948, Curis's first-in-class IRAK4 inhibitor, and entered into an agreement ("CRADA") with Curis to conduct both clinical and non-clinical studies of CA-4948 in oncology

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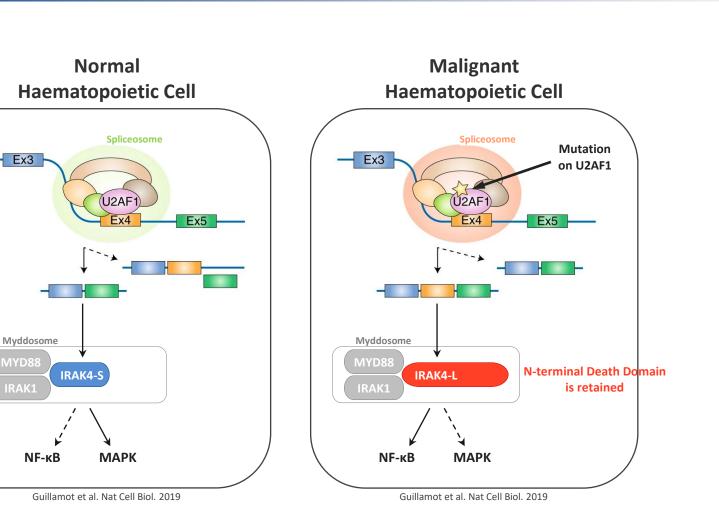
Highly specific and targeted inhibitor of IRAK4 and other relevant kinases<sup>1</sup>

<u>In Lymphoma:</u> Potent suppressor of NF-κB signal transduction<sup>2</sup>

<u>In Leukemia:</u> >50% of patients with AML overexpress IRAK4-L (long-to-short ratio of > 1.25)<sup>3</sup>

AML patients (ordered by ratio of IRAK4-L to IRAK4-S)

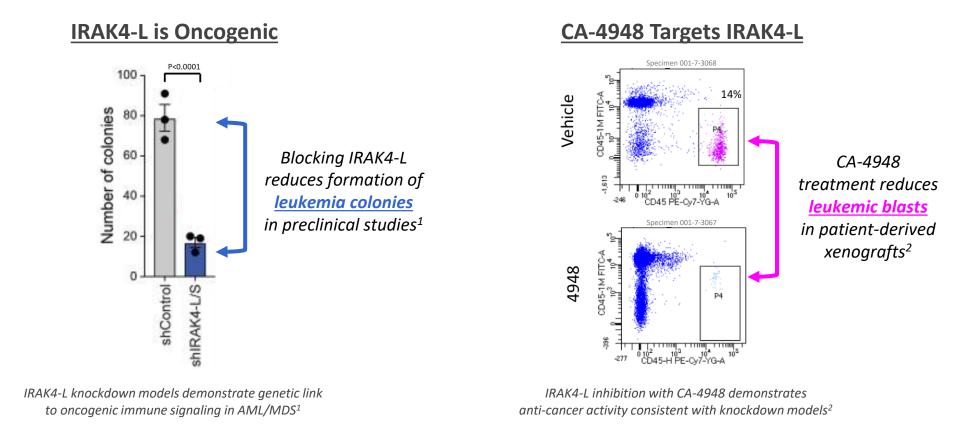
### IRAK4-L is a Novel Target in AML/MDS



specific genetic mutations (incl. U2AF1 and SF3B1) drive the expression of IRAK-L, the long isoform of IRAK4



Targeting IRAK-L Demonstrates Anti-Cancer Activity in Preclinical Models



RIS



### Landscape of Disease Targets in AML/MDS

Disease Driver	% of Patient <u>Population</u>
IRAK4-L	> 50%1
FLT3	25-30% <sup>2</sup>
TET2	10-20% <sup>3</sup>
IDH2	9-13% <sup>4</sup>
IDH1	6-10% <sup>4</sup>
CEBPA	~10%3

- Non-targeted therapies administered in monotherapy have historically provided limited clinical benefit, especially in relapsed/refractory patients
- Targeted therapies (e.g., FLT3, IDH) have been limited by the size of their respective target patient populations
- IRAK4-L is a novel target in AML/MDS and has been shown to be preferentially expressed in >50% of the AML/MDS patient population (>50% of patients have an IRAK4 long-to-short ratio > 1.25)

### Trial Design

	Data cut-off: 23Nov2020			
Baseline Characteristics of Ph1 Patients	Overall (N=6)			
Male (%)	5 (83%)			
Female (%)	1 (17%)			
Median Age (range)	72 (32-84)			
Median Prior Therapies (range)	3 (1-4)			
Histology				
Acute Myelogenous Leukemia (AML)	4 (67%)			
Myelodysplastic Syndrome (MDS)	2 (33%)			

### **Study Objectives**

Primary: Maximum tolerated dose and recommended Phase 2 dose Secondary: Pharmacokinetic (PK) profile, preliminary anti-cancer activity

#### **Study Population**

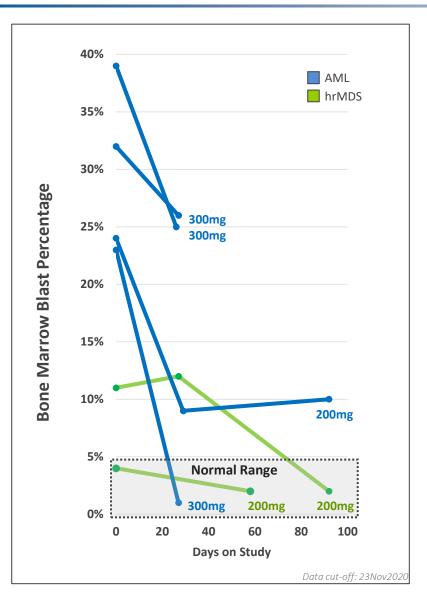
- Relapsed/Refractory disease
- Histopathologically confirmed AML or High-Risk MDS
- Age  $\geq$  18 years
- ECOG performance Status of  $\leq 2$

#### Dosing

- Oral
- 28-day cycles
- 3+3 escalation design (200mg BID, 300mg BID, 400mg BID and 500mg BID)



### Monotherapy Anti-Cancer Activity Observed in Early Ph1 Data

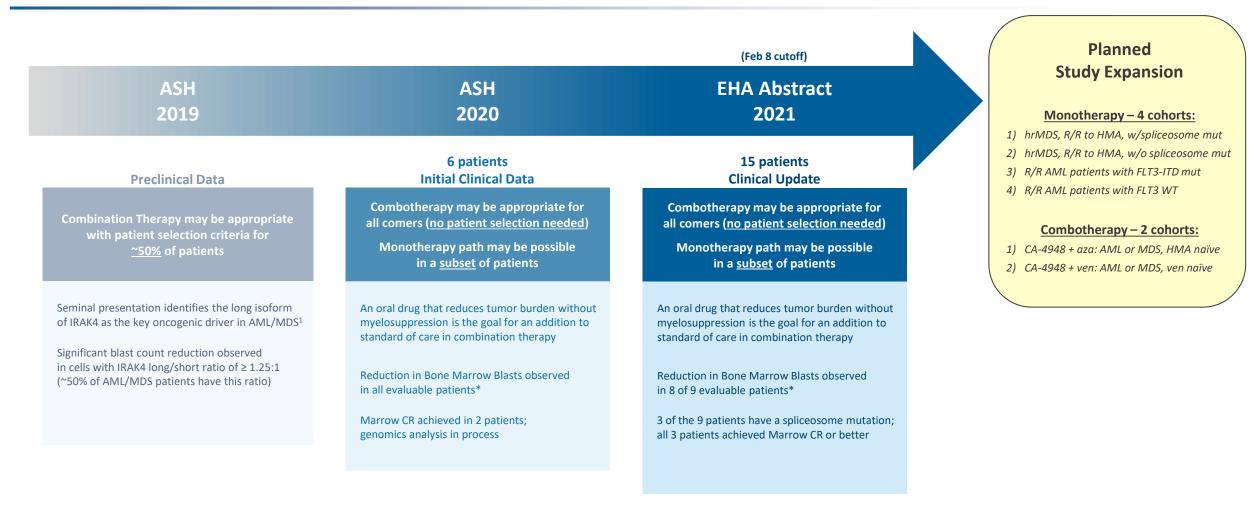


- 1<sup>st</sup> patient dosed in Q3 2020
- Consistent reduction of Marrow Blasts across population (6 patients)
- 2 patients have achieved Marrow CR

		Blasts Baseline	Blasts Best Resp	<u>Change</u>	
AML	005-2003	32%	26%	-19%	
AML	005-2002	39%	25%	-36%	
AML	003-1002	24%	9%	-63%	
hrMDS	003-1003	4%	2%	-50%	
hrMDS	003-1001	11%	2%	-82%	<b>Marrow CR</b>
AML	005-2001	23%	1%	-96%	Marrow CR

Note: To achieve Marrow CR, a patient's blast count must be elevated at baseline (>5%) and, after treatment, decrease by  $\geq$  50% from baseline into the normal range ( $\leq$ 5%)

### Identifying the patient population that may benefit from treatment with CA-4948



\*Evaluable patients include all patients who had elevated blast count at baseline (>5% blasts) for whom post-treatment marrow assessments were available as of the cutoff date



## **IRAK4** Targeted Program in NHL

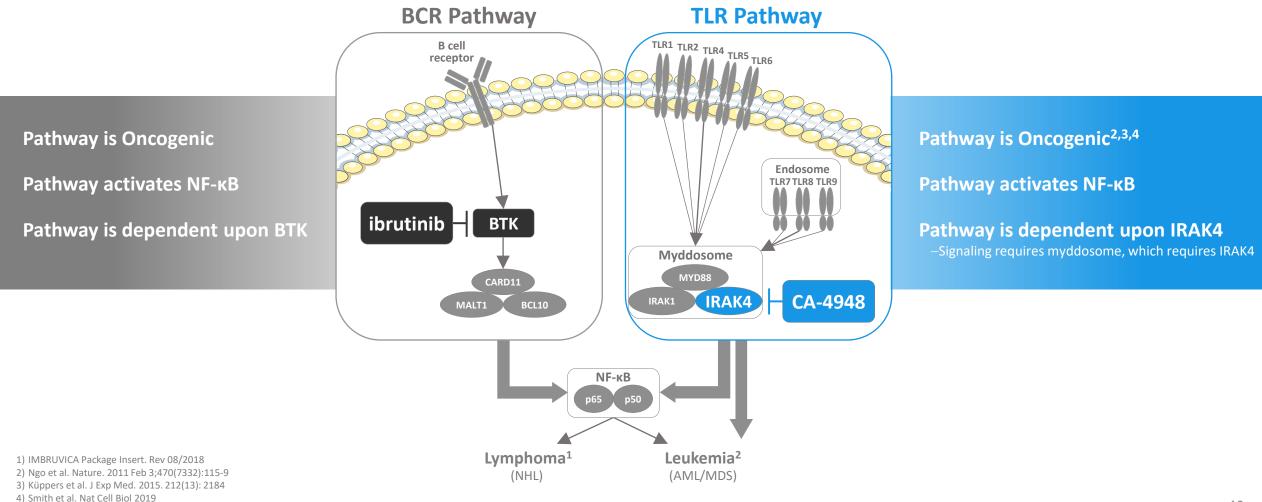
CA-4948: In development for treatment of cancers driven by NF-KB and the TLR/Myddosome

## CA-4948



### Novel Mechanism of Action for Addressing NF-κB





### Trial Design

Da	nta cut-off: 23Nov2
Baseline Characteristics of Ph1 Patients	Overall (N=31)
Male	26 (84%)
Female	5 (16%)
Median Age	69yrs
Histology	
Diffuse large B-cell lymphoma (DLBCL)	14 (45%)
Transformed follicular lymphoma (t-FL/DLBCL)	6 (19%)
Waldenström's Macroglobulinemia (WM)	4 (13%)
Other Lymphoma*	7 (23%)
Prior Therapies	
Median prior lines of therapy	4 prior lines
BTK inhibitor, n (%)	6 (19%)
CAR-T, n (%)	5 (16%)
ASCT , n (%)	7 (23%)
Other	13 (42%)
MYD88 Status	
Positive, n (%)	2 (6%)
Negative, n (%)	18 (58%)
Unknown, n (%)	11 (35%)

\*includes Lymphoplasmacytic (n=2), Mantle Cell (n=2), Marginal Zone (n=2), High Grade MYC-BCL<sub>6</sub> (n=1)

### **Study Objectives**

Primary: Safety and tolerability

Secondary: Pharmacokinetic (PK) profile, preliminary anti-cancer activity

### **Study Population**

- Relapsed/Refractory disease
- Histopathologically confirmed B-cell NHL, including WM/LPL
- Age ≥ 18 years
- ECOG performance status of  $\leq 1$

#### Dosing

- Oral, QD or BID continuous dosing
- 21-day cycles

#### Dose Levels, 3+3 Design

QD: 50, 100mg BID: 50, 100, 200, 300 or 400mg

## **Treatment Emerging Adverse Events**



### *Most AEs have been Grade 1-2, manageable, and reversible*

	Adverse Reaction			<b>300 mg BID</b> (n=6); (%)		<b>400 mg BID</b> (n=8); (%)		<b>All</b> (n=30); (%)
		All Grades	Grade 3 or 4	All Grades	Grade 3 or 4	All Grades	Grade 3 or 4	All Grades
	Diarrhea	20	0	33	0	25	0	20
Gastrointestinal	Nausea	20	0	17	0	38	0	27
disorders	Vomiting	20	0	17	17	25	0	20
	Constipation	20	0	0	0	13	0	20
	Upper respiratory infection	40	20	0	0	13	0	7
Respiratory	Dyspnoe	20	0	0	0	13	13	7
	Upper-airway cough	40	0	0	0	0	0	7
	Fatigue	40	0	0	0	50	0	37
General & Other	Oedema	20	0	0	0	0	0	10
	Dehydration	20	0	0	0	13	13	10
	Headache	20	0	0	0	13	0	10
Nervous system	Dizziness	0	0	0	0	25	0	20
disorders	Insomnia	20	0	0	0	13	0	7
	Peripheral sensory neuropathy	0	0	0	0	25	0	7
	Back pain	20	0	0	0	13	0	10
Musculoskeletal	Myalgia	40	0	0	0	38	0	17
disorders	Rhabdomyolysis	0	0	0	0	25	25	7
	Muscle weakness	20	20	0	0	13	0	7
	Neutropenia	40	40	17	17	25	0	7
Hematological	Anemia	20	0	33	0	13	13	20
	Thrombocytopenia	0	0	0	0	13	13	7

Data cut-off: 110ct2020

#### General

- No Grade 5 toxicity
- Only 2 treatment discontinuations due to TEAEs; both at low doses
- (asymptomatic amylase increase; rash)
- Intra-patient dose-reductions: 13%
- Intra-patient dose-escalations: 10%

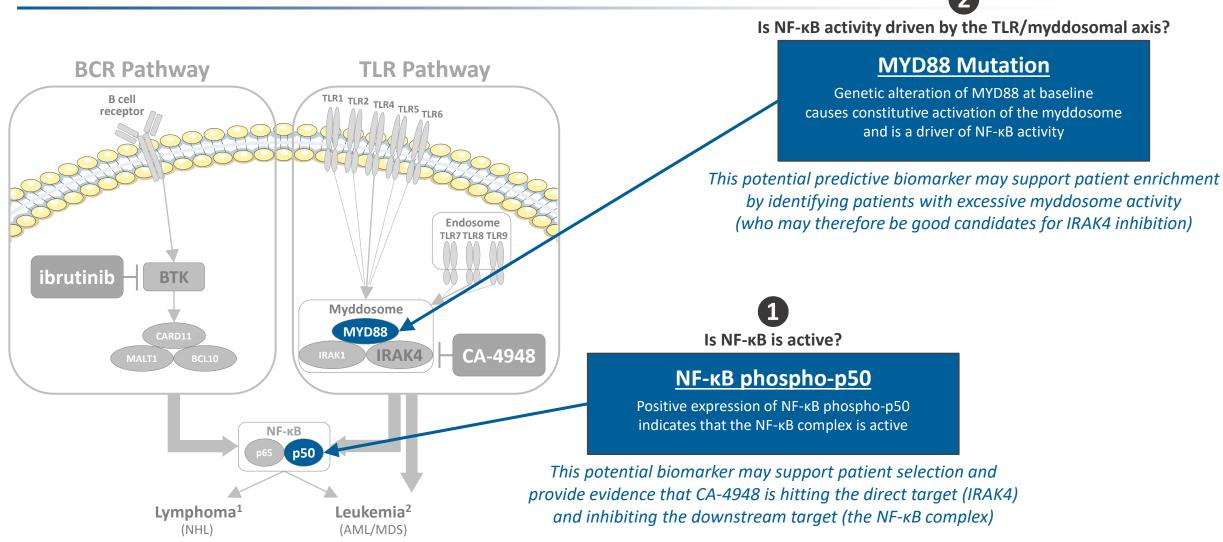
#### Rhabdomyolysis

- Observed in 2 patients, based on muscle soreness and CPK elevation
- No renal dysfunction was observed
- Both cases observed in Cycle 1 of dosing, early monitoring of CPK required
- Additional risk factors may be present (vigorous exercise, dehydration, comedications such as lipid-lowering statins)
- Requires dose interruption; treatment according to clinical presentation; in our uncomplicated cases, hydration, symptom control
- Both cases were reversible; treatment can be resumed at lower dose level

#### Other

- No TLS
- ECG no significant changes from baseline; no delayed toxicity

### Two Potential Biomarkers Identified



1) IMBRUVICA Package Insert. Rev 08/2018
 2) Ngo et al. Nature. 2011 Feb 3;470(7332):115-9

### Early Biomarker Data from Phase 1 patients

# This clinical study is ongoing, more data are needed to confirm these

potential biomarkers

#### NF-кВ phospho-p50

NF-κB phospho-p50 protein expression at baseline (indicator of NF-κB activity) correlates with patient outcomes

#### NEGATIVE POSITIVE at baseline at baseline NFκB phospho-p50 expression NFκB phospho-p50 expression before treatment with CA-4948 before treatment with CA-4948 Patient **Best Response Best Response** Patient -35% SD 12-1002 +86% PD 19-1001 18-2004 -24% SD +156% PD 02-1001 02-4004 +22% SD +75% PD 02-3003 12-4004 +125% PD 12-5007 -35% SD 12-5006 +190% PD 02-6007 +25% SD 13-6001 +98% PD 02-6008 +16% SD 01-4002 +65% PD +7% PD 15-1001

Note: data included for all patients for whom pre/post samples were available as of Nov 23, 2020

#### p-p50 Biomarker May Support Patient Selection

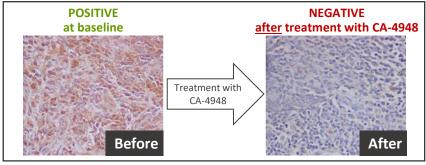
- Patients whose tumors do <u>not</u> exhibit NF-κB activity may <u>not</u> be amenable to NF-κB downregulation
   7 of 7 patients testing negative at baseline experienced disease progression
   2 of these patients were dosed at 200mg BID
- Patients whose tumors do exhibit NF-κB activity may be amenable to NF-κB downregulation
   6 of 7 patients testing positive for p-p50 at baseline achieved stable disease or tumor shrinkage
   1 of these patients (012-5007) was dosed at 300mg BID

#### **MYD88 Biomarker May Support Patient Enrichment**

- Both patients whose tumor tested positive for MYD88 mutation saw tumor reduction
- Observed tumor reduction is consistent with our thesis that patients with MYD88-mutated tumors should benefit from IRAK4 inhibition

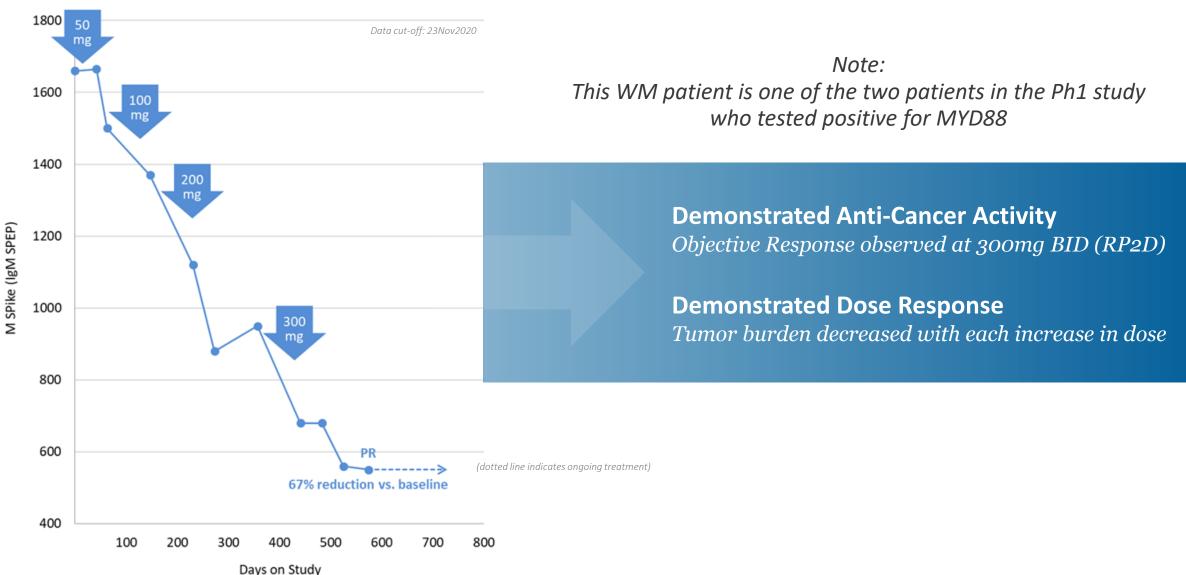
Phospho-p50 Expression in Pre/Post Tumor Biopsies Also Provides Evidence that CA-4948 is Hitting the Target (IRAK4) and Downregulating NF-κB Activity

After treating the patient with CA-4948, their tumor no longer expresses NF-κB phospho-p50

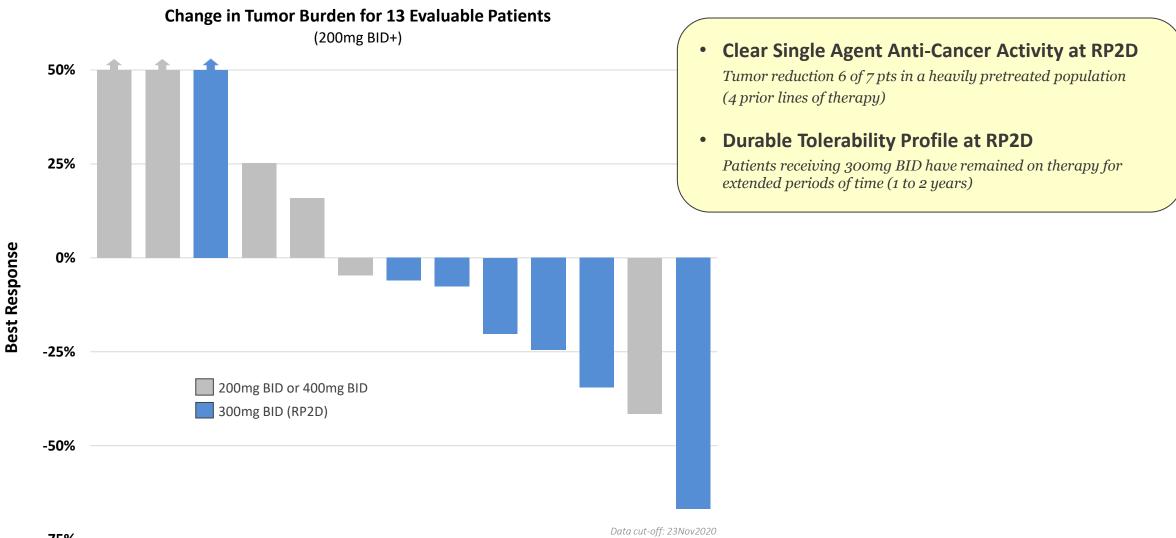




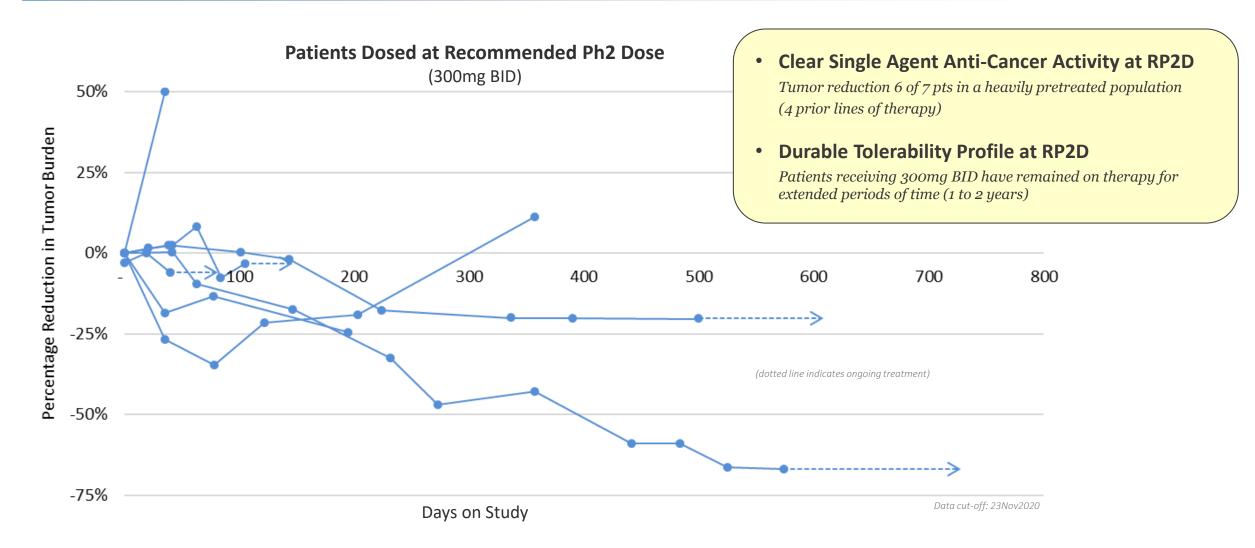
### Anti-Cancer Activity and Dose Response in a Patient with Waldenströms Macroglobulinemia (WM)



### In Updated Ph1 Data, 300mg BID (RP2D) Offered Best Balance of Tolerability and Anti-Cancer Activity



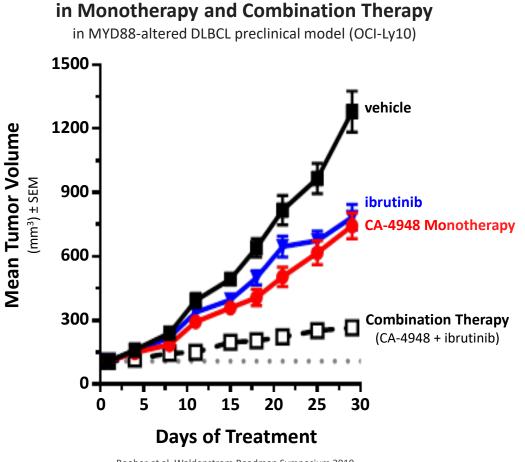
In Updated Ph1 Data, 300mg BID (RP2D) Offered Best Balance of Tolerability and Anti-Cancer Activity



**Anti-Cancer Activity** 



### 2021 Plan: Initiate Clinical Study in Combination Therapy (CA-4948 + ibrutinib)



#### **Mechanism of Action Supports Combination**

• CA-4948 potentially offers a novel mechanism for reducing NF-κB activity by targeting the TLR/myddosome (a parallel/complementary pathway to the BCR/BTK pathway)

#### **Clear Single Agent Anti-Cancer Activity**

 Monotherapy anti-cancer activity demonstrated in both preclinical models and initial Ph1 data

#### **Clear Synergy with ibrutinib**

- CA-4948 and ibrutinib show clear synergy in preclinical models
- Next Step: initiate clinical study of CA-4948 and ibrutinib

# CA-4948 in Lymphoma (combination study)

### Trial Design

### **Study Objectives**

Primary: Safety and tolerability of CA-4948 in combination with ibrutinib Secondary: Pharmacokinetic (PK) profile, preliminary anti-cancer activity

### **Study Population**

- Relapsed/Refractory disease
- Histopathologically confirmed B-cell NHL, including WM/LPL
- Age ≥ 18 years
- ECOG performance Status of  $\leq 1$

### Dosing

- CA-4948 Oral twice daily
- ibrutinib Oral daily at labeled dose
- 21-day cycles
- 3+3 escalation design for CA-4948 (1<sup>st</sup> cohort will be 200mg BID)

### Additional Patient Cohorts to be Studied in Planned Expansion

- BTK inhibitor naïve, Marginal Zone Lymphoma (MZL)
- BTK inhibitor naïve, ABC-DLBCL
- BTK inhibitor naïve, Primary CNS Lymphoma (PCNSL)
- Patients with adaptive resistance to ibrutinib



## VISTA Targeted Program in Solid Tumors

CI-8993: In development for treatment of cancers driven by VISTA-mediated Immune Suppression

## CI-8993 Overview



### In Development for VISTA Expressing and Infiltrated Cancers

Profile				
Value Proposition	<ul> <li>First-in-class monoclonal antibody antagonist of VISTA</li> <li>Composition-of-matter IP extends into 2034</li> </ul>			
Target Patient Population	<ul> <li>Patients with VISTA-expressing cancers (incl. Mesothelioma, NSCLC, and TNBC)</li> <li>Patients receiving PD1/PDL1 or CTLA4 antibody therapy (or those who have already received it and have developed resistance to it)</li> </ul>			
Product Description	<ul> <li>Monoclonal antibody developed by ImmuNext/Janssen in partnership with Randy Noelle's lab at Dartmouth (the co-discoverer of VISTA)</li> </ul>			

## **CI-8993 Target Background**

VISTA is an Important Checkpoint Regulator

#### **RESEARCH ARTICLE SUMMARY**

#### T CELLS

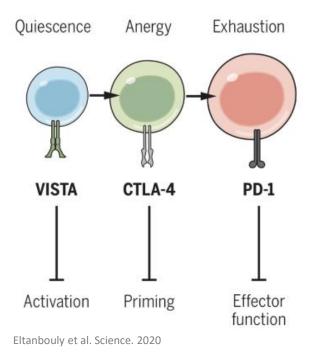
# VISTA is a checkpoint regulator for naïve T cell quiescence and peripheral tolerance

Mohamed A. ElTanbouly\*, Yanding Zhao\*, Elizabeth Nowak, Jiannan Li, Evelien Schaafsma, Isabelle Le Mercier, Sabrina Ceeraz, J. Louise Lines, Changwei Peng, Catherine Carriere, Xin Huang, Maria Day, Brent Koehn, Sam W. Lee, Milagros Silva Morales, Kristin A. Hogquist, Stephen C. Jameson, Daniel Mueller, Jay Rothstein, Bruce R. Blazar, Chao Cheng†, Randolph J. Noelle†

- CTLA-4, PD-1, and VISTA are the three main players in controlling checkpoint blockade
- VISTA controls early T cell activation events
- Blockade of VISTA will allow for an expanded T cell response against tumors

Eltanbouly et al. Science. 2020

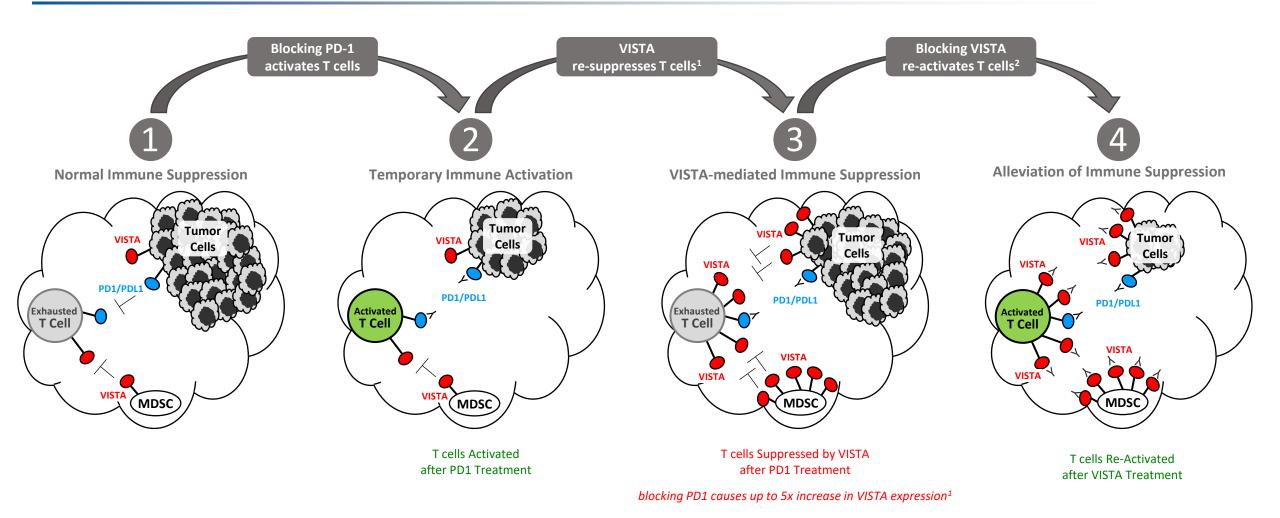
#### Integration of VISTA with other wellestablished negative checkpoint regulators of T cell activation



## **CI-8993 Target Background**

# CURIS

### Role of VISTA in Immune Suppression in the Tumor Microenvironment (TME)



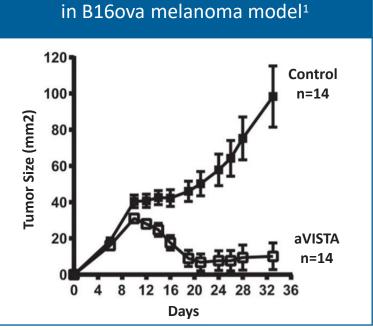
## **CI-8993 Preclinical Data**



Preclinical anti-cancer activity demonstrated in both monotherapy & combination therapy

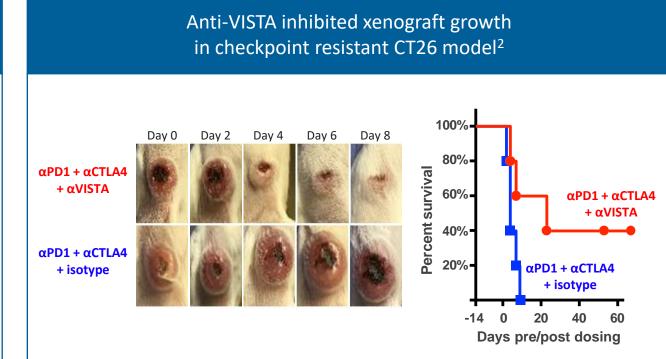
### Monotherapy

Anti-VISTA inhibited tumor growth



<sup>&</sup>lt;sup>1</sup> Le Mercier et al. Cancer Res. 2014 Apr 1

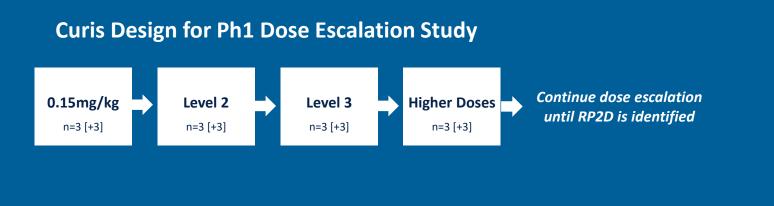
**Combination Therapy** 



<sup>&</sup>lt;sup>2</sup> J. Lines, IEBMC Conference 2019

# **CI-8993 Clinical Plan**

### Phase 1 dose escalation study design



### **Prior clinical development of CI-8993:**

#### CI-8993 was originally developed by Janssen (JNJ-61610588)

- JNJ licensed VISTA IP from ImmuNext in 2012 and initiated a Ph1 study in 2016
- 12 patients were enrolled; initial dose level was 0.005mg/kg
- Low-grade transient Cytokine Release Syndrome (CRS) seen at 0.15mg/kg and above

### JNJ halted study after 1 DLT at sub-therapeutic dose level

- The only patient treated at 0.3mg/kg experienced grade 3 CRS-associated encephalopathy after 36hrs on treatment
- Patient was initially treated w/antibiotics; symptoms resolved after treatment with tocilizumab
- JNJ opted to halt the study and return IP to ImmuNext

#### Target range for expected anti-cancer activity (0.5 – 2.0mg/kg) was never reached

#### **Patient Population**

• Patients with advanced refractory solid tumors (includes mesothelioma, melanoma, NSCLC, TNBC)

#### Treatment

- Bi-weekly dosing
- Mitigate potential toxicities by desensitization, premedication, dosing interval and duration

#### Objective

- Safety, PK/PD, tolerability during dose escalation
- Anti-cancer activity during expansion

#### Curis Design for Ph1 Study Design Incorporates Key Learnings from Janssen Ph1 Study

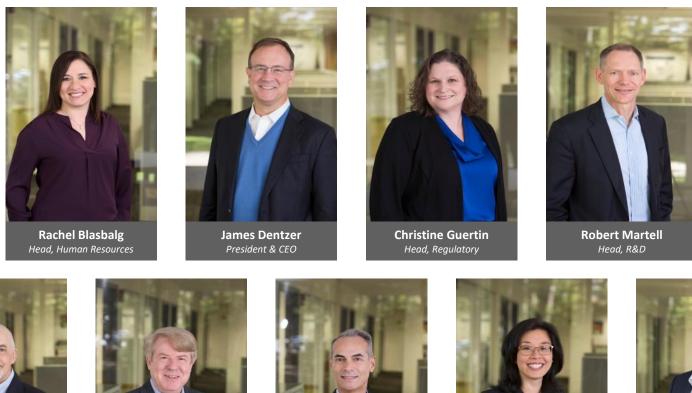
- CRS is likely an on-target toxicity; indicates drug is hitting the target and inducing inflammatory response
- Oncology community is now familiar with managing CRS; NCCN guidelines were issued in 2018
- FDA cleared the study IND which outlined our plan for managing CRS and enabling escalation to therapeutic dose levels

# Company

Investment Thesis		uris seeks to develop novel, first-in-class, cancer therapeutics e believe have significant potential in areas of unmet patient need
Robust Pipeline	CA-4948: CI-8993:	first-in-class inhibitor of IRAK4 in oncology There are no drugs currently approved for IRAK4 inhibition in oncology first-in-class antagonist of VISTA There are no drugs currently approved for VISTA inhibition
Potential Catalysts	✓ 1H 2021: Mid 2021: 2H 2021:	Initiate combination study of CA-4948 and ibrutinib in NHL patients Report expanded data in CA-4948 Ph1 study in AML/MDS patients Report initial data in CI-8993 dose escalation Ph1 study



### Leadership Team





Mark Noel Head, Intellectual Property



Head, Clinical Development



**Raul Soikes** Head, Portfolio Management



Nancy Soohoo General Counsel



CURIS



End of Corporate Presentation

NASDAQ: CRIS

