

DEVELOPING PRECISION MEDICINES FOR THE TREATMENT OF CANCER



Forward-Looking Statements

This presentation contains forward-looking statements. Such statements include, but are not limited to, statements regarding our research, preclinical and clinical development activities, plans and projected timelines for tipifarnib, KO-539 and KO-2806, plans regarding regulatory filings, our expectations regarding the relative benefits of our product candidates versus competitive therapies, and our expectations regarding the therapeutic and commercial potential of our product candidates. The words "believe," "may," "should," "will," "estimate," "promise," "plan", "continue," "anticipate," "intend," "expect," "potential" and similar expressions (including the negative thereof), are intended to identify forward-looking statements. Because such statements are subject to risks and uncertainties, actual results may differ materially from those expressed or implied by such forward-looking statements. Risks that contribute to the uncertain nature of the forward-looking statements include: our preclinical studies and clinical trials may not be successful; the U.S. Food and Drug Administration (FDA) may not agree with our interpretation of the data from clinical trials of our product candidates; we may decide, or the FDA may require us, to conduct additional clinical trials or to modify our ongoing clinical trials; we may experience delays in the commencement, enrollment, completion or analysis of clinical testing for our product candidates, or significant issues regarding the adequacy of our clinical trial designs or the execution of our clinical trials may arise, which could result in increased costs and delays, or limit our ability to obtain regulatory approval; the commencement, enrollment and completion of clinical trials and the reporting of data therefrom; the COVID-19 pandemic may disrupt our business and that of the third parties on which we depend, including delaying or otherwise disrupting our clinical trials and preclinical studies, manufacturing and supply chain, or impairing employee productivity; our product candidates may not receive regulatory approval or be successfully commercialized; unexpected adverse side effects or inadequate therapeutic efficacy of our product candidates could delay or prevent regulatory approval or commercialization; and we may not be able to obtain additional financing. Additional risks and uncertainties may emerge from time to time, and it is not possible for Kura's management to predict all risk factors and uncertainties.

All forward-looking statements contained in this presentation speak only as of the date on which they were made. Other risks and uncertainties affecting us are described more fully in our filings with the Securities and Exchange Commission. We undertake no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they were made.

Investment Highlights

Targeted Oncology

Advancing targeted oncology drug candidates using a precision medicine approach; fast-to-market strategy; global commercial rights

KO-539

- Novel menin inhibitor with potential to target 35% or more of AML
- Encouraging safety, tolerability and clinical activity in multiple genetically defined subgroups of AML

Proprietary Pipeline

Continued enrollment in Phase 1b expansion cohorts

Tipifarnib

- Breakthrough Therapy* and Fast Track Designations from FDA
- Registration-directed trial in HRAS mutant HNSCC ongoing
- First clinical site activated in Phase 1/2 study with alpelisib in HNSCC

KO-2806

 Next-generation FTI program focused on delaying onset of drug resistance in large solid tumor indications

Strong Financials

\$543.4 million in cash** provides runway into 2024



^{*} For the treatment of patients with recurrent or metastatic HRAS mutant HNSCC with variant allele frequency ≥ 20% after disease progression on platinum-based chemotherapy

^{**} Cash, cash equivalents and short-term investments as of September 30, 2021

Kura Leadership Team and Board of Directors

Proven oncology drug development and commercialization expertise

Leadership Team

Troy Wilson, Ph.D., J.D.

President & Chief Executive Officer

Teresa Bair, J.D.

Chief Legal Officer

Stephen Dale, M.D.

Chief Medical Officer

Kirsten Flowers

Chief Commercial Officer

Kathleen Ford

Chief Operating Officer

Marc Grasso, M.D.

Chief Financial Officer & Chief Business Officer

Board of Directors

Troy Wilson, Ph.D., J.D. (Chairman)

President and CEO, Kura Oncology

Faheem Hasnain (Lead Director)

Chairman and Chief Executive Officer, Gossamer Bio

Helen Collins, M.D.

Former Chief Medical Officer, Five Prime Therapeutics

Thomas Malley

President, Mossrock Capital

Diane Parks

Former Head of U.S. Commercial, Kite Pharma

Carol Schafer

Former Vice Chair, Equity Capital Markets, Wells Fargo

Steven Stein, M.D.

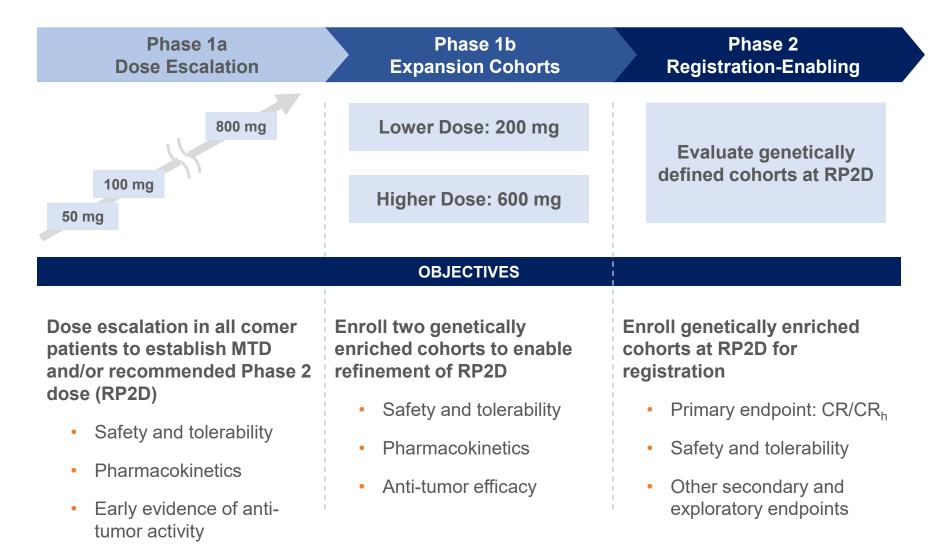
Chief Medical Officer, Incyte

Mary Szela

President and CEO, TriSalus Life Sciences

KOMET-001: Phase 1/2 Clinical Trial of KO-539 in Patients with Relapsed or Refractory AML

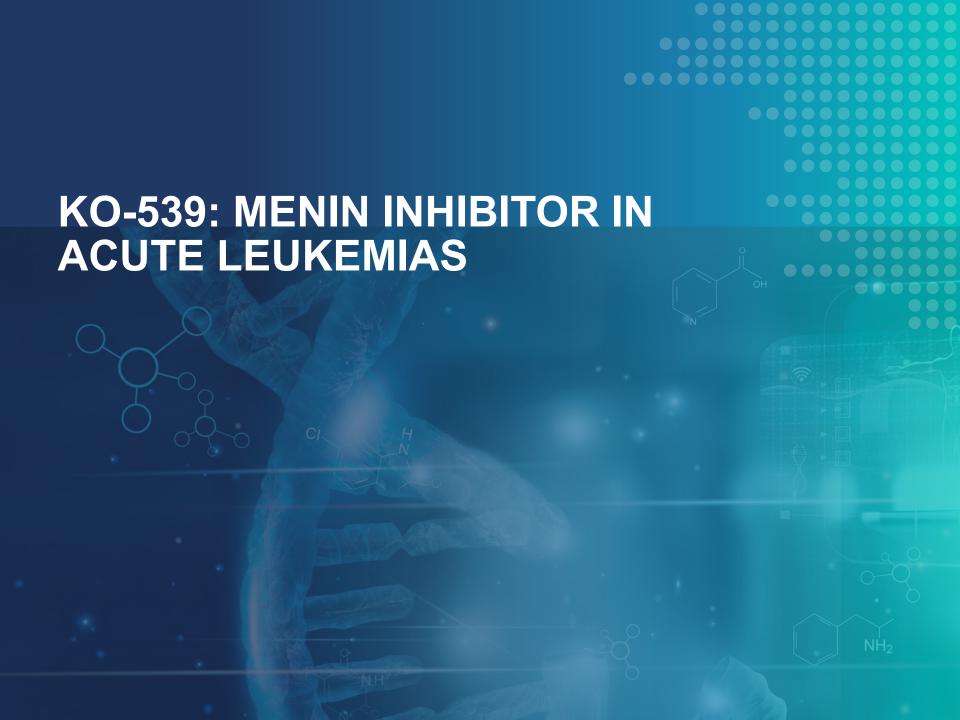




Drug Candidate Pipeline

Program	Preclinical	Phase 1	Phase 2	Registration Directed
KO-539	Acute Myeloid Leukemia (AML) KOMET-001 Trial			
Menin Inhibitor	Enrollment in Phase 1b expansion cohorts ongoing			
	HRAS mutant Head & Neck Squamous Cell Carcinoma (HNSCC) AIM-HN Trial			NSCC)
Tipifarnib	Enrollment in registration-directed trial ongoing			
Farnesyl Transferase Inhibitor	HRAS / PIK3CA* Dependent HNSCC KURRENT Trial			
	• Expect to dose first patient in PI3Kα inhibitor combination study by end of 2021			of 2021
KO-2806 Next-Generation Solid Tumors				
Farnesyl Transferase Inhibitor	IND-enabling studies ong	oing		

6



KO-539: Menin Inhibitor



Potent, selective, reversible, oral inhibitor of menin-KMT2A(MLL) protein-protein interaction for treatment of AML



Novel MOA targeting epigenetic dysregulation leading to differentiation block and anti-tumor activity in 35% or more of AML



Preliminary data from KOMET-001 Phase 1/2 trial show encouraging safety, tolerability and clinical activity in multiple genetically defined subgroups of AML

Focused monotherapy development strategy in multiple genetic subtypes:



- KMT2A(MLL) rearranged (5-10% of AML)
- NPM1 mutant (~30% of AML)
- Other genetic subtypes (e.g., SETD2/RUNX1-mutant AML)

Potential to combine with other targeted therapies and induction chemotherapy in earlier lines of therapy

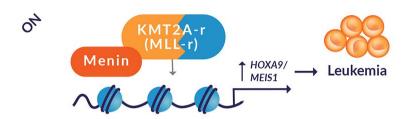


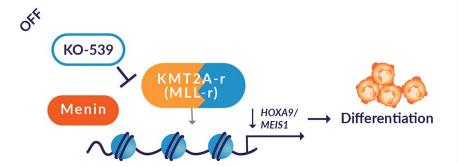
Issued and pending COM patents provide worldwide coverage to 2036



Targeting Menin-KMT2A(MLL) Interaction Provides Potential Therapeutic Intervention into Two Genetic Subsets of AML

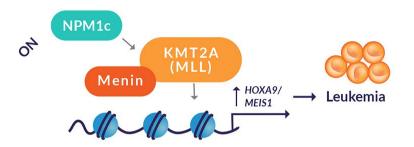
KMT2A-r (MLL-r)

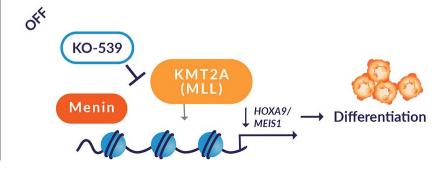




Targeting the menin-KMT2A(MLL) interaction to reverse epigenetic dysregulation in MLL-rearranged AML

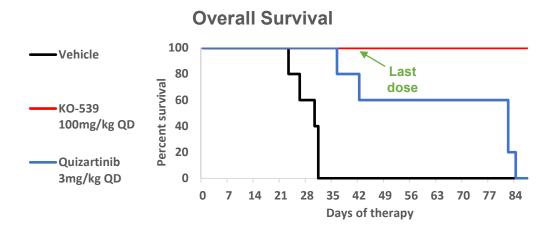
NPM1 Mutant AML





A central role for menin-KMT2A(MLL) interaction in epigenetic dysregulation in NPM1-mutant AML

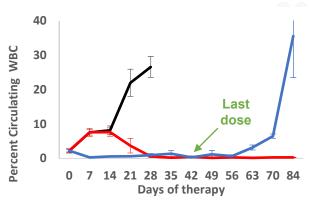
KO-539 Produces Lasting Complete Remissions ••• in a NPM1 / DNMT3A / IDH2 / FLT3-Mutant AML Model



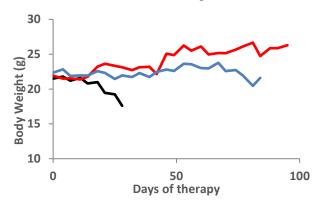
- 100% (10/10) of animals treated with single-agent KO-539 cleared their leukemia and became long-term survivors
- Tumor growth inhibition was durable no leukemia was detectable in blood or bone marrow two months after cessation of dosing
- KO-539 was well tolerated at tested dose levels
- Comparator compound (FLT3 inhibitor) was initially active, but all animals eventually relapsed

AM7577

CD45+ Human AML Blasts



Tolerability



KO-539 Demonstrates Encouraging Early Clinical Activity

Clinical or biological activity reported in six of eight efficacy-evaluable patients

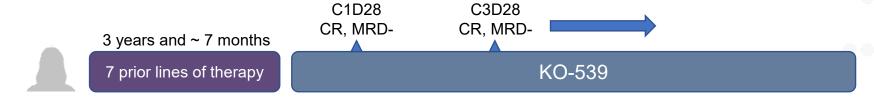
	KOMET-	001 (n=12)	
Dose	Mutational Profile	# of Prior Regimens	Clinical Activity
	RUNX1, SRSF2, ASXL1, TET2, STAG2, BCOR, PTPN11	3	Decreased peripheral blasts
	EZH2, DNMT3A, FAT3, RET	3	Progressive disease
400 mg	NPM1	2	Not efficacy evaluable at time of data cut
	DNMT3A, CUX1, ASXL1, IDH2, CBL, U2AF1, RUNX1	5	Not efficacy evaluable at time of data cut
	NPM1, DNMT3A, KMT2D	7	Complete remission, MRD-
	NPM1, FLT3-ITD, TET2, CUX1	4	Morphological leukemia-free state
200 mg	U2AF1, TET2, p53, DNMT3A, PTPN11	4	Stable disease
200 mg	IDH2, SRSF2, DNMT3A, CBL	3	Progressive disease
	TP53, PICALM (MLLT10)	3	Not efficacy evaluable
	KMT2A-r	4	Not efficacy evaluable
100 mg	SETD2, RUNX1	2	Complete remission, MRD+
50 mg	KMT2A-r	2	Decreasing hydrea requirement

Case Study – SETD2, RUNX1 Mutant AML



	Patient Characteristics
Demographics	69-year-old male
Mutational profile	SETD2, RUNX1
Prior lines of therapies	2 (decitabine; CD33/CD3 bispecific antibody)
KO-539 dose	100 mg, escalated to 200 mg during cycle 7
# of KO-539 cycles	8
CYP3A4 inhibitor	Yes (fluconazole)
Baseline bone marrow blasts	56%
Clinical activity	Complete remission, MRD+ (0.8% blasts)
Grade ≥3 TRAEs	Gr. 3 deep vein thrombosis

Case Study - NPM1, DNMT3A, KMT2D, FLT3-TKD Mutant AML



	Patient Characteristics
Demographics	44-year-old female
Mutational profile	NPM1, DNMT3A, KMT2D, FLT3-TKD
Prior lines of therapies	7 (incl. decitabine+venetoclax, gilteritinib, itacitinib, fludarabine, bortezomib)
KO-539 dose	200 mg
# of KO-539 cycles	3+ (on treatment)
CYP3A4 inhibitor	Yes (posaconazole)
Baseline bone marrow blasts	14%
Clinical activity	Complete remission, MRD- (0% blasts)
Grade ≥3 TRAEs	Gr. 4 lipase increased, Gr. 3 pancreatitis, Gr. 3 neutrophil count decreased

13

Continuous Daily Dosing of KO-539 Has Been Well-Tolerated with a Favorable Safety Profile

- ➤ No dose discontinuations due to treatment-related adverse events (AEs)
- ➤ No evidence of QT prolongation or other clinically significant ECG changes

Treatment-related AEs (N=12)	Grade ≥ 3 (all)	Grade 1,2 (≥ 10%)
Pancreatitis	1* (8.3%)	0%
Lipase increased	1* (8.3%)	0%
Neutrophil count decreased	1* (8.3%)	0%
Tumor lysis syndrome	1 (8.3%)	0%
Deep vein thrombosis	1 (8.3%)	0%
Nausea	0%	3 (25%)
Rash	0%	2 (16.7%)
Diarrhea	0%	2 (16.7%)

^{*} Pancreatitis, increased lipase and decreased neutrophil count were observed in an NPM1 mutant AML patient who went on to achieve a complete remission (CR) with no measurable residual disease (MRD) after seven prior regimens

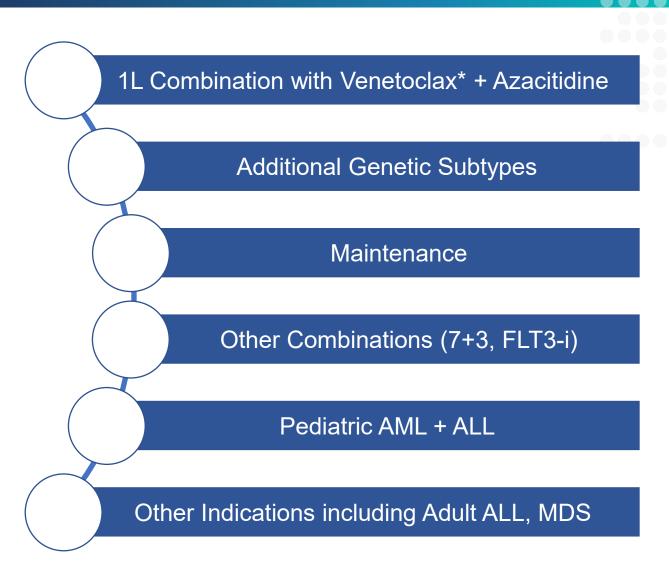
Summary of Preliminary Data from KOMET-001

- KO-539 is a potent and selective inhibitor of the menin-KMT2A/MLL complex
- KO-539 has been well tolerated with a favorable safety profile to date
 - Observed toxicities appear to be reversible and manageable
 - No evidence of QTc prolongation
- KO-539 demonstrates encouraging signs of clinical activity in multiple genetically defined subgroups of AML
- KO-539 pharmacokinetics and clinical activity do not appear to be affected by co-administration of a CYP3A4 inhibitor
- Currently enrolling Phase 1b expansion cohorts comprised of patients with NPM1-mutant or KMT2A-rearranged relapsed/refractory AML

Multiple Expansion Opportunities in Acute Leukemias



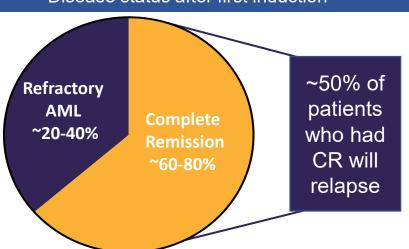
R/R NPM1 and KMT2A(MLL)-r AML



Despite Many Available Treatments in AML, Overall Prognosis Remains Poor, Especially in R/R Setting

Disease status after first induction¹

<10% of patients with R/R AML are alive at 3 years²



R/R AML Treatment	ORR	mOS
Targeted Therapies	27-34%	8.4-9.3 months ³
Chemotherapies	23-26%	3.5-5.6 months ⁴⁻⁵

NPM1-Mutant AML

Estimated **6,000** new cases in the U.S. per year⁶

(~30% of AML)

Known co-mutations confer **worse prognosis**⁷ and represent rational combination approaches

KMT2A(MLL)-Rearranged AML

Estimated **1,000-2,000** new cases in the U.S. per year⁶

(5-10% of AML)

NCCN guidelines denote that MLL-r confers **poor prognosis**⁸

¹ Megías-Vericat JE, et al. Ann Hematol. 2018;97(7):1115-1153.

² Bose P, et al. Curr Treat Options Oncol. 2017;18(3):17.

³ DeWolf S, Tallman MS. Blood. 2020 Aug 27;136(9):1023-1032.

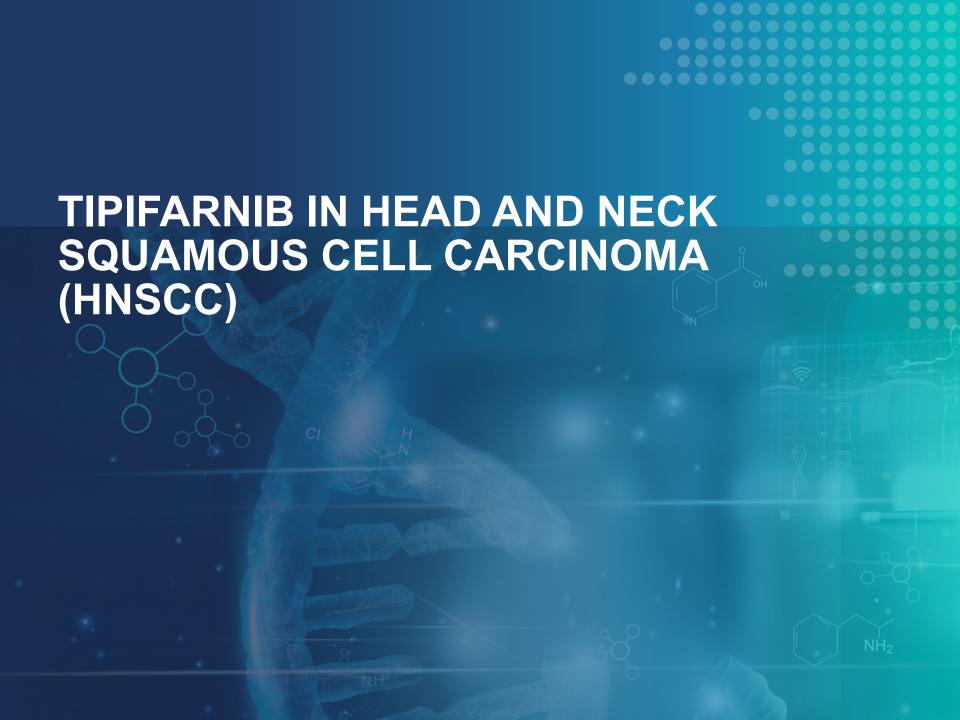
⁴Roboz *et al.* J Clin Oncol. 2014 Jun 20;32(18):1919-26.

⁵ Perl et al. Engl J Med. 2019 Oct 31;381(18):1728-1740.

⁶ SEER statistics for AML in the US, accessed April 2020

⁷ Döhner et al. Blood. 2017 Jan 26;129(4):424-447

⁸ NCCN. AML Guidelines (version 3.2020). Accessed May 2020



Tipifarnib in HRAS Mutant HNSCC



Unique MOA targets farnesylation, an essential modification required for activity of the HRAS mutant oncoprotein

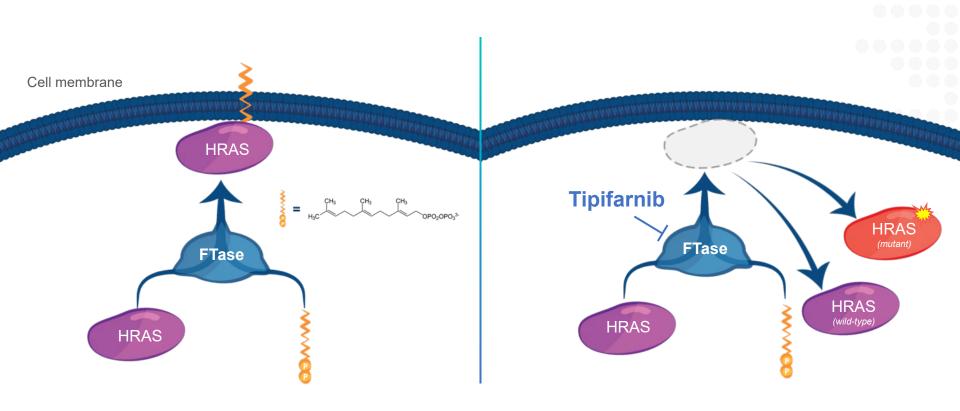
- Phase 2 data demonstrates treatment response of 55% ORR, 5.6 months PFS and 15.4 months OS in advanced recurrent and metastatic HRAS mutant HNSCC patients¹
- Favorable safety and tolerability profile supports broad use in advanced patients as well as expansion to earlier therapeutic settings
- Breakthrough Therapy² and Fast Track Designations from FDA; potential for accelerated approval
- Novel mechanism and well tolerated profile could enable use in combination with standard of care, including immune therapy, targeted therapies and chemotherapy
 - Issued and pending patents provide exclusivity to 2036 in major markets



Ho, et al. J Clin Oncol. 2021 Mar 22; JCO2002903. doi: 10.1200/JCO.20.02903. Online ahead of print.

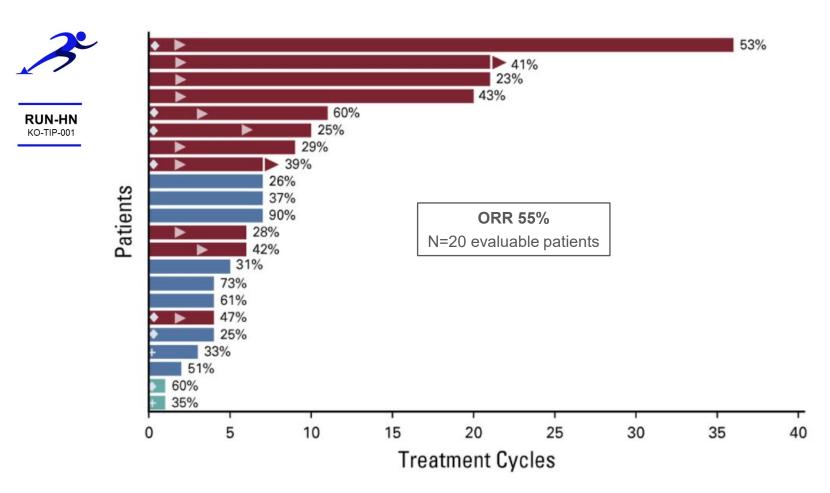
² For the treatment of patients with recurrent or metastatic HRAS mutant HNSCC with variant allele frequency ≥ 20% after disease progression on platinum-based chemotherapy

Tipifarnib Inhibits Farnesylation – An Essential Modification Required for HRAS Activity



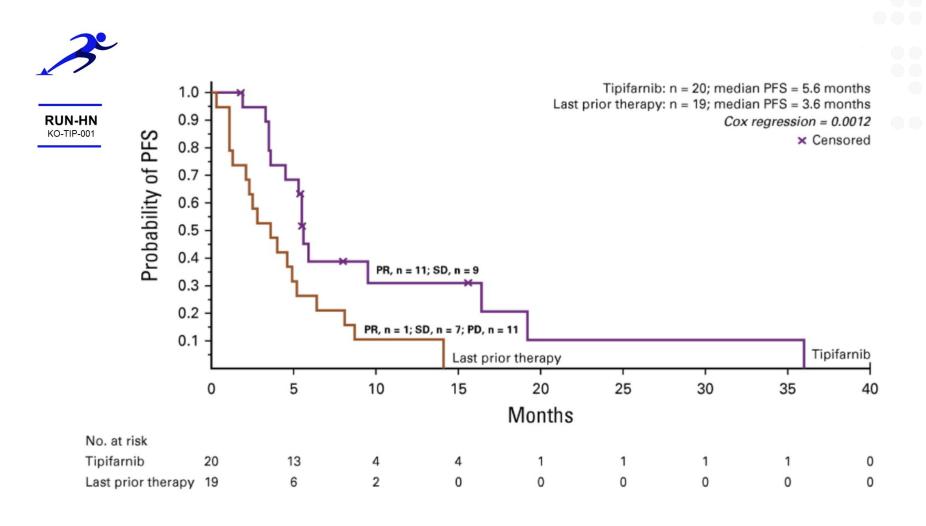
- Tipifarnib inhibits farnesylation and signaling activity of the HRAS oncoprotein
- Farnesylation is essential for HRAS signal transduction activity
- HRAS mutations drive proliferation and resistance mechanisms in solid tumors
- Incidence of HRAS mutations in HNSCC is approximately 4-8% and varies by region

Durable Anti-Tumor Activity with Tipifarnib as a Monotherapy in Patients with HRAS Mutant HNSCC

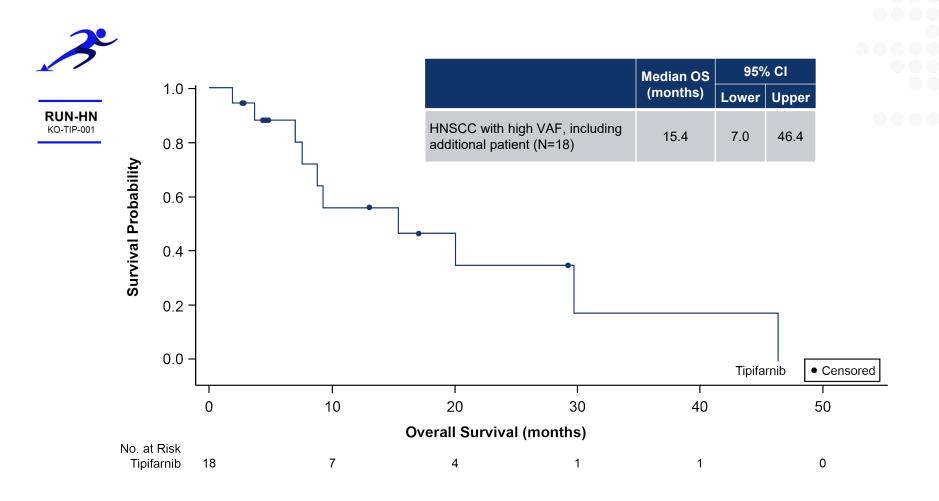


Red, PR; blue, SD; green, not evaluable for efficacy; diamond, patient initiated treatment at 600 mg twice a day; cross, patient withdrew consent; arrow in bar, start of response; arrow, active treatment. Numbers at the end of the bars represent VAF for each patient.

Progression-Free Survival with Tipifarnib and Last Prior Therapy in Patients with HRAS Mutant HNSCC



Overall Survival in Patients with HRAS Mutant HNSCC



Registration Strategy in HRAS Mutant HNSCC

AIM-HN: Registration-directed trial of tipifarnib in HRAS mutant HNSCC

- Recurrent or metastatic patients after one prior line of platinum therapy
- Now open in > 100 clinical sites in the U.S., Europe and Asia
- Amended trial to enroll all HRAS mutant HNSCC patients regardless of variant allele frequency
- Intended to support an NDA seeking accelerated approval*



SEQ-HN: Prospective observational cohort of HNSCC

- Matched case-control study designed to:
 - Understand natural history of HRAS mutant HNSCC patients and their outcomes after first line therapy compared to wild-type controls
 - Enable identification of patients for potential enrollment into AIM-HN
- May support potential FDA labelling discussions, post-approval commitments and commercial considerations



24

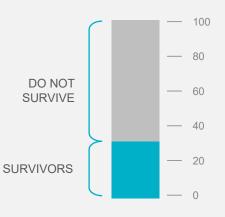
Tipifarnib Has the Potential to be the First Small **Molecule Targeted Therapy for HNSCC Patients**

Globally, ~885,000 people develop head and neck cancer annually and ~450,000 die of HNSCC each year¹ 60,000+ cases of HNSCC per year in the U.S.²

Head and neck squamous cell carcinoma ranks as the 7th leading cancer worldwide³



Only ~1/3 of patients with advanced diagnosis survive 5 years⁴



Outcomes with currently available therapies (including I-O therapy) are poor⁵

First line: 10-15 mo Second line: 5-8 mo **PFS**

First line: 3-5 mo Second line: 2-3 mo ORR

First line: 20-36% Second line: 13-16%

¹ Bray et al. CA Cancer J Clin. 2018;68(6):394-424

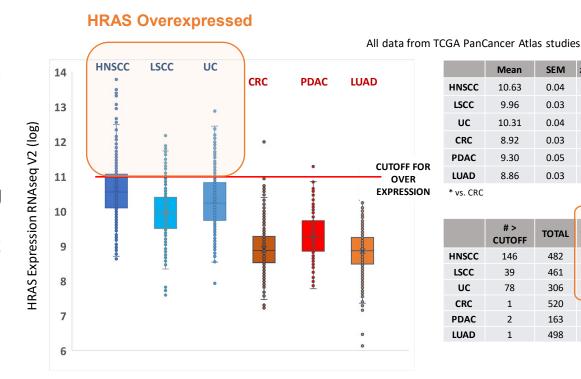
² Cramer et al. Nat Rev Clin Oncol. 2019 Nov;16(11):669-683 | ACS Cancer Facts and Figures 2020

³ Siegel et al. CA Cancer J Clin. 2020;70(1):7-30

⁴ National Cancer Institute. Introduction to head & neck cancer. https://training.seer.cancer.gov/head-neck/intro/. Accessed March 4, 2019 ⁵ N Engl J Med. 2008 Sep 11;359(11):1116-27 | Keytruda & Opdivo package inserts | J Clin Oncol. 2007 Jun 1;25(16):2171-7 | J Clin Oncol. 2012 30:15_suppl, 5574-5574

HRAS Dependent Tumors Represent a Significant Subset of HNSCC with Distinct Biology

- Several independent studies cluster HRAS mutant HNSCCs as part of a larger subset¹
- TCGA cohort shows overexpression of HRAS gene in 25-30% of HNSCC²
- Average HRAS expression in HNSCC is 5-10x higher than in other tumor types
- Together with HRAS mutant tumors, HRAS-overexpressing **HNSCC** may represent a significant subset of HRAS dependent tumors with distinct biology that is targeted by tipifarnib





z-score*

24.96

19.75

21.56

NA

6.37

1.13

% HIGH

30.3

8.5

25.5

0.2

1.2

0.2

SEM

0.04

0.03

0.04

0.03

0.05

0.03

TOTAL

461

306

520

163

498

Mean

10.63

9.96

10.31

8.92

9.30

8.86

CUTOFF

146

39

78

1

2

HNSCC

LSCC

UC

CRC

PDAC

LUAD

* vs. CRC

HNSCC

LSCC

UC

CRC

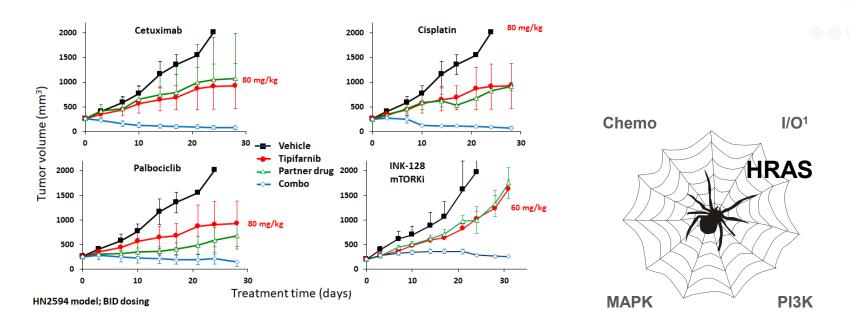
PDAC

LUAD

² International Cancer Genome Consortium (2013), Nat. Commun., 4:2873

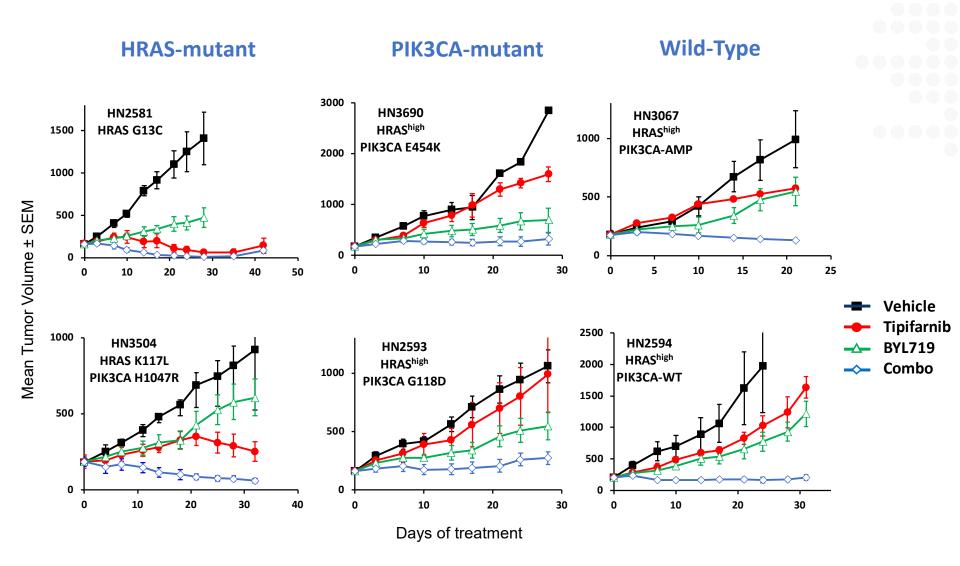
HRAS is a Central Resistance Mechanism to Other Therapies in PDX Models of HRAS Dependent HNSCC

 Tipifarnib displays additive or synergistic anti-tumor activity with a range of other drugs in HRAS-overexpressing patient-derived xenograft (PDX) models



• HRAS represents a key node at the center of HNSCC tumor biology, driving resistance to other therapies and reinforcing the potential for combination strategies with tipifarnib

Combinations of Tipifarnib and Pl3Kα Inhibitor Demonstrate Robust Activity in HNSCC PDX Models



Combinations of Tipifarnib and Pl3Kα inhibitors Have Broad Therapeutic Potential in HNSCC

- HRAS-MAPK and PI3K-mTOR are complementary pathways in HNSCC
 - Overexpression of WT HRAS reported to induce resistance to PI3Kα inhibition
 - HRAS is reported to preferentially activate PI3K (vs. KRAS; vs. MAPK)
- HRAS mutation/over expression and PIK3CA mutations/amplifications account for up to 50% of HNSCC¹
 - PIK3CA mutations/amplification: 30-40% (25% estimated overlap with HRAS overexpressing tumors)
 - HRAS overexpression: 20-30%
 - HRAS mutations: 4-8% (83% overexpress HRAS)
- Preclinical data is supportive of the combination; enhanced activity observed in both HRAS mutant/overexpressed and PIK3CA mutant/amplified populations of HNSCC



KURRENT: Phase 1/2 Combination Trial of Tipifarnib and Alpelisib in Patients with HNSCC





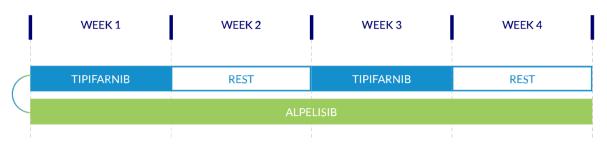
End of trial is defined as approximately 1 year from C1D1 of the last study patient enrolled.

All patients followed for survival status after coming off trial

Cx = Cycle x; CxDy = Cycle x Day y; DLT = dose-limiting toxicity.

INITIAL DOSE REGIMEN

SIMULTANEOUS DOSING: 28-DAY CYCLE



- Clinical collaboration to evaluate tipifarnib in combination with alpelisib for the treatment of patients with HNSCC whose tumors have HRAS overexpression and/or PIK3CA mutation and/or amplification
- · Under the collaboration, Kura will sponsor the trial and supply tipifarnib, and Novartis will supply alpelisib
- First clinical site activated; expect to dose first patient by end of 2021

Tipifarnib / FTI Patent Exclusivity

Layered patent strategy provides patent exclusivity to 2036 in major markets

Proprietary Biomarkers and Methods

- Multiple issued U.S. patents covering biomarker-guided indications provide patent exclusivity to 2036 with the potential to obtain a patient term extension of up to five years
- Additional patent applications pending in the U.S. and foreign countries for tipifarnib in other biomarkers and disease indications
- · U.S. patents cover use of "a farnesyl transferase inhibitor"

Combinations

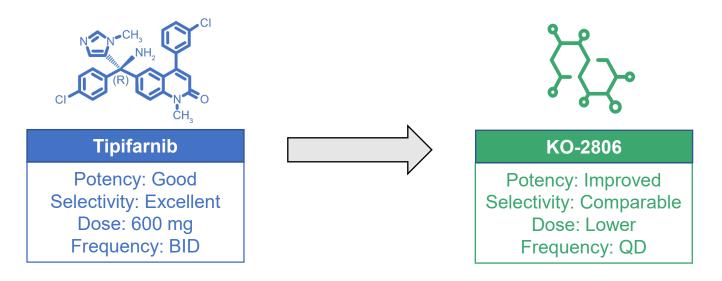
- · Patents cover combinations of tipifarnib with other agents
- Additional patents possible with specific agents, doses, schedules, etc.

Novel FTI Program

- Researching FTIs with superior properties to tipifarnib
- Expect composition of matter IP for KO-2806 and intellectual property covering other new discoveries

Next-Generation Farnesyl Transferase Inhibitor (FTI)

KO-2806 nominated as development candidate for IND-enabling studies



- FTIs represent an attractive therapeutic target and commercial franchise in oncology with compelling opportunities in combination with other targeted therapies
- Goal is to develop a next-generation FTI with improved potency, pharmacokinetic and physicochemical properties
- Intend to direct next-generation FTI program at delaying onset of drug resistance in large solid tumor indications
- IND-enabling studies ongoing; expect to submit IND application for KO-2806 by end of 2022

Forecasted Milestones & Financial Highlights

Program	Milestone	Status
	Initiate Phase 1b expansion cohorts	✓
KO-539 Menin Inhibitor	Complete enrollment of 24 patients in Phase 1b expansion cohorts	By Q1 2022
	Determine recommended Phase 2 dose	By Q1 2022
Tipifarnib	Enrollment in AIM-HN registration-directed study	Ongoing
Farnesyl Transferase Inhibitor	Dose first patient in PI3Kα inhibitor combination study	By end of 2021
KO-2806	Nominate Development Candidate for IND studies	✓
Next-Generation Farnesyl Transferase Inhibitor	Submit IND application for KO-2806	By end of 2022

Financial
Highlights*
Nasdag: KURA

Cash, cash equivalents and short-term investments: \$543.4M*

Shares outstanding: 66.5M basic; 6.9M options, RSU's & warrants



DEVELOPING PRECISION MEDICINES FOR THE TREATMENT OF CANCER

