DEVELOPING PRECISION MEDICINES FOR THE TREATMENT OF CANCER

Corporate Presentation – May 2023

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 ziftomenib, tipifarnib 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.

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INVESTMENT HIGHLIGHTS

Targeted Oncology	Advancing a pipeline of novel therapies, forging new scientific and clinical paths to give patients a better chance for long-term durable remissions
Proprietary Pipeline	**Menin Inhibitor Program (ziftomenib)** • Potential to address 35% or more of acute leukemias • Encouraging safety, tolerability and clinical activity observed in relapsed/refractory AML patients • 30% CR rate among 20 patients with NPM1 mutations treated at RP2D • Enrollment ongoing in Phase 2 registration-directed trial in NPM1-mutant AML • First combination study with standards of care expected to begin in 1H 2023
	Farnesyl Transferase Inhibitor Programs (tipifarnib & KO-2806) • Durable responses as a monotherapy in recurrent/metastatic HRAS-mutant HNSCC patients • Proof of mechanism demonstrated in combination with alpelisib in PIK3CA-dependent HNSCC • Preclinical data support potential to prevent emergence of resistance to targeted therapies • FDA clearance of IND for KO-2806, next-generation FTI; on track to initiate Phase 1 study in 2H 2023
Strong Financials	• $25 million strategic equity investment from Bristol Myers Squibb • $406 million in cash as of March 31, 2023* provides runway into Q4 2025

* Cash, cash equivalents and short-term investments

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DRUG CANDIDATE PIPELINE

PROGRAM	CLINICAL TRIAL	PLANNED	STUDY STARTUP	PHASE 1	REGISTRATION DIRECTED
ZIFTOMENIB Menin Inhibitor	**KOMET-001** Monotherapy (Relapsed/ refractory)	NPM1-mutant acute myeloid leukemia (AML)			
		Non-NPM1-m / Non-KMT2A-r AML			
		KMT2A-rearranged ALL			
	KOMET-007 Combinations with ven/aza, 7+3 (Relapsed/ refractory, frontline)	NPM1-mutant AML			
		KMT2A-rearranged AML			
	KOMET-008 Combinations with gilteritinib, FLAG-IDA, LDAC (Relapsed/ refractory)	NPM1-mutant AML			
		KMT2A-rearranged AML			
TIPIFARNIB Farnesyl Transferase Inhibitor (FTI)	**KURRENT-HN** Combination with alpelisib	PIK3CA-dependent HNSCC			
KO-2806 Next-Generation FTI	**FIT-001** Combinations with targeted therapies	Clear Cell Renal Cell Carcinoma			
		Non-Small Cell Lung Cancer			
		Other Solid Tumors			

KURA ONCOLOGY

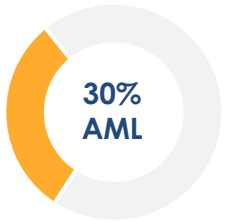
ZIFTOMENIB: MENIN-KMT2A/MLL INHIBITOR IN ACUTE LEUKEMIAS

NPM1-MUTANT AND KMT2A-REARRANGED AML REPRESENT AREAS OF SIGNIFICANT UNMET NEED

No FDA-Approved Targeted Therapies Exist Today

NPM1-mutant AML

~ **6,000** new cases annually in the U.S.[1]



Adult patients with NPM1-mutant AML and select co-mutations and/or relapsed/refractory disease are associated with poor prognosis[2]

5-year Overall Survival ~ 50%[3]

Median Overall Survival in patients with R/R NPM1-m AML is ~ 6.1 mo.[4]

KMT2A-rearranged AML

~ **1,000-2,000** new cases annually in U.S.[1]

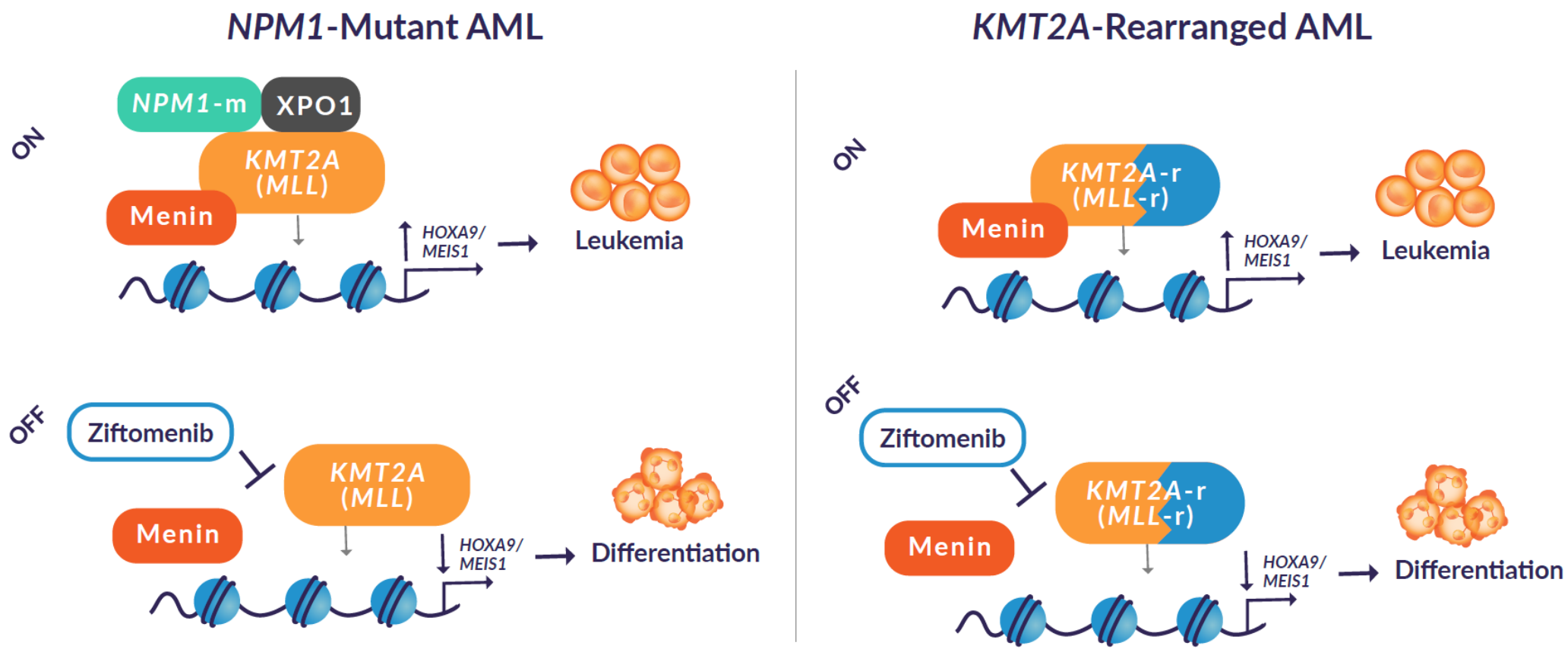
Adult patients with KMT2A-rearranged AML have poor prognosis with high rates of resistance and relapse following current standard of care [5, 6]

5-year Overall Survival < 20%[5]

Median Overall Survival in patients with R/R KMT2A-r AML is 6 mo. following 2L treatment and 2.4 mo. following 3L treatment[5]

[1] SEER statistics for AML in the US, accessed April 2020.
[2] Döhner *et al*. *Blood*. 2017 Jan 26;129(4):424-447.
[3] Angenendt L, *et al*. *J Clin Oncol*. 2019;37(29):2632-2642.
[4] Venugopal S, et al. ASH Abstract 2287, 2021.
[5] Issa GC, *et al*. *Blood Cancer J*. 2021;11(9):162.
[6] Vetro C, *et al*. *Cancer Genet*. 2020;240:15-22.

ZIFTOMENIB IS A POTENT AND SELECTIVE ORAL INHIBITOR OF THE MENIN-KMT2A/MLL COMPLEX



Kühn MW, *et al*. *Cancer Discov*. 2016;6(10):1166-1181
Thorsteinsdottir U, *et al*. *Mol Cell Biol*. 2001;21(1):224-234
Patel SS, *et al*. *Curr Hematol Malig Rep*. 2020;15(4):350-359
Brunetti L, *et al*. *Cancer Cell*. 2018;34(3):499-512

KOMET-001: PHASE 1/2 CLINICAL TRIAL OF ZIFTOMENIB IN PATIENTS WITH RELAPSED OR REFRACTORY (R/R) AML

SCREENING

- *NPM1* Mutations (*NPM1*-m)
- *KMT2A* Rearrangements (*KMT2A*-r)
- Other Alterations Associated With The Menin-KMT2A Pathway

PHASE 1
DOSE ESCALATION AND EXPANSION COHORTS (Completed)

- Cohort 1: 200 mg QD
- Cohort 2: 600 mg QD

PHASE 2
REGISTRATIONAL-ENABLING (Ongoing)

600 mg QD

Evaluate patients with NPM1-m R/R AML at recommended Phase 2 dose (RP2D)

OBJECTIVES

Enroll 2 genetically enriched cohorts to determine the optimal RP2D

- Safety and tolerability
- Pharmacokinetics
- Preliminary antitumor activity

Assess evidence of anti-leukemic activity, clinical benefit, and safety/tolerability

- Primary Endpoint:
  - CR / CRh
- Secondary Endpoints:
  - Duration of CR/CRh
  - Transfusion independence
  - CR/CRh MRD negativity
  - Adverse events

ZIFTOMENIB DEMONSTRATES ENCOURAGING SAFETY PROFILE AND TOLERABILITY IN PHASE 1B

≥Gr 3 TEAEs Occurring in >10% Participants
(Regardless of Causal Assessment)

	200 mg	600 mg
NPM1-m	(N = 4)	(N = 20)
	0	0
KMT2A-r	(N = 13)	(N = 16)
Differentiation Syndrome	4 (30.8)	4 (25.0)
Febrile Neutropenia	0	2 (12.5)

Erba *et al*. ASH 2022 #64 (preliminary data as of October 24, 2022)

CHARACTERIZATION OF DIFFERENTIATION SYNDROME WITH ZIFTOMENIB

Any Grade and ≥ Gr3 DS in Phase 1a/b population

	200 mg N = 17, n (%)	600 mg N = 36, n (%)
NPM1-m (all grades)	0/4 (0)	4/20 (20.0)
≥ Gr3	0/4 (0)	1/20 (5.0)
KMT2A-r (all grades)	5/13 (38.5)	6/16 (37.5)
≥ Gr3	4/13 (30.8)	4/16 (25.0)
Patients with DS event at 600 mg ORR: 3/4 (75%) for *NPM1*-m; 1/6 (16.7%) for *KMT2A*-r		

Extramedullary involvement has a significantly higher frequency in patients with KMT2A(MLL) rearrangements vs. all others, including NPM1 mutations[1]

Erba *et al*. ASH 2022 #64 (preliminary data as of October 24, 2022)

[1] *Fianchi et al. Mediterr J Hematol Infect Dis. 2021; 13(1): e2021030; DOI: https://doi.org/10.4084/MJHID.2021.030*

ZIFTOMENIB DEMONSTRATES ENCOURAGING ANTILEUKEMIC ACTIVITY AT 600 MG

Best Overall Response	200 mg	600 mg
NPM1-m Phase 1a + 1b	**(n=6)**	**(n=20)**
CR	**1 (16.7)**	**6 (30.0)**
CR/CRh	1 (16.7)	6 (30.0)
CRc	1 (16.7)	7 (35.0)
MRD negativity	1 (100.0)	3 (42.9)[1]
ORR	2 (33.3)	8 (40.0)
KMT2A-r Phase 1a + 1b	**(n=14)**	**(n=18)**
CR/CRh	0	1 (5.6)
CRc	0	2 (11.1)
MRD negativity	0	2 (100.0)
ORR	0	3 (16.7)

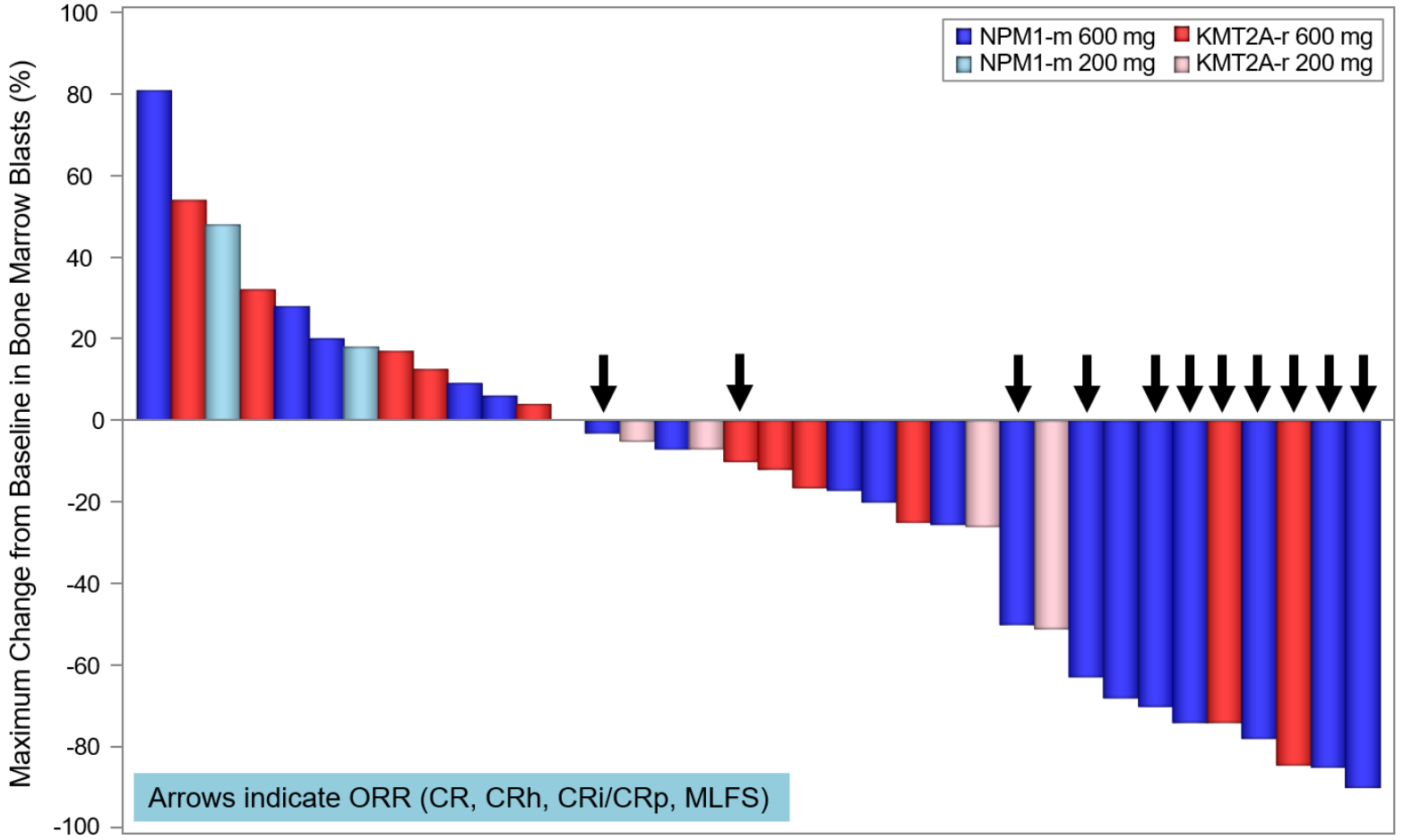
- 2 pts had concurrent *IDH1/2*
- 2 pts had both *IDH1/2* and *FLT3-ITD/TKD*

Of IDH1/2 co-mutants (7), 57% experienced a CR

[1] MRD was assessed for 5/7 CRc patients; 3 of those 5 patients (60%) tested were MRD negative
CRc includes CR, CRh, CRi, CRp
ORR includes CR, CRh, CRi, CRp, MLFS

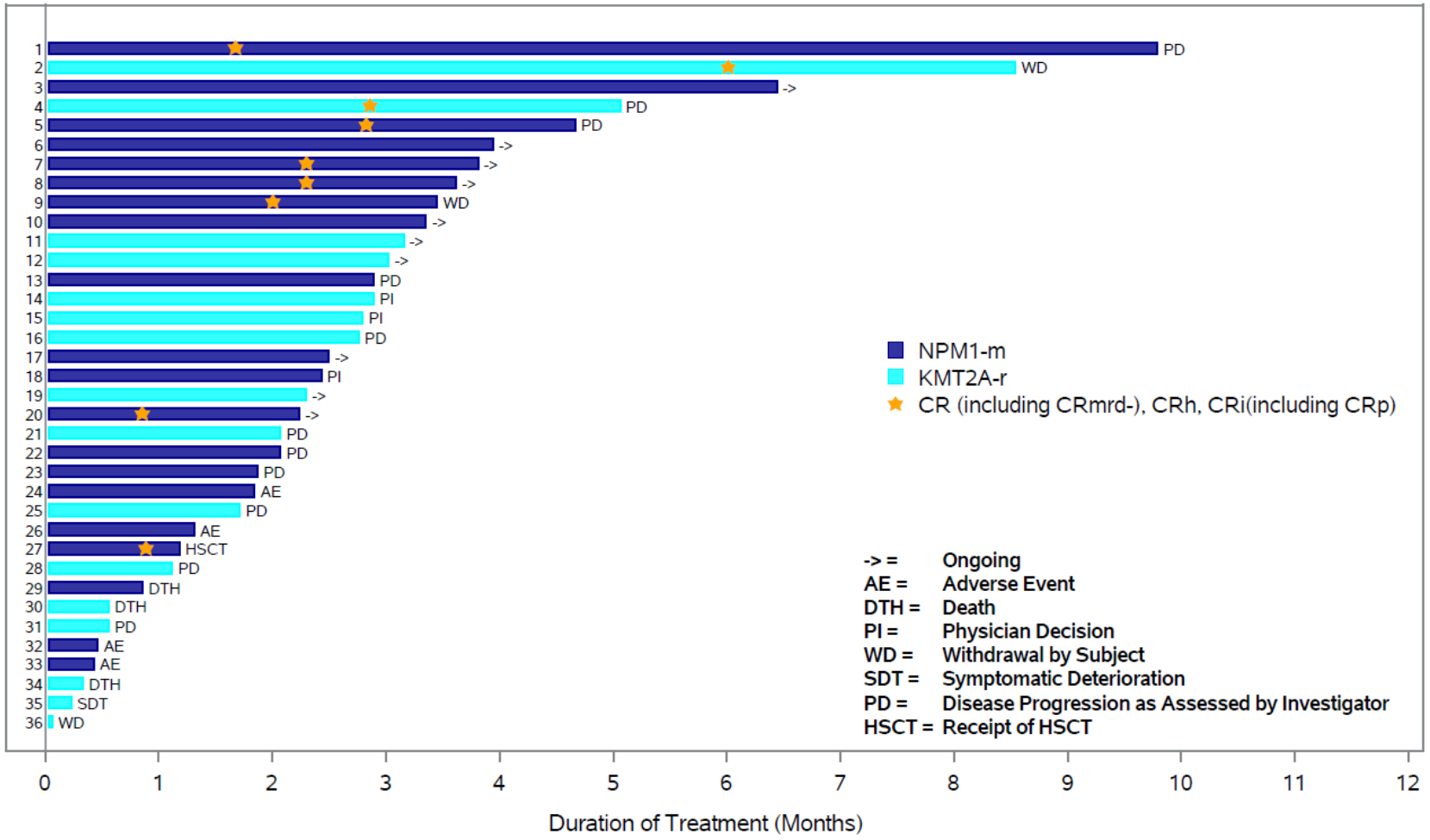
Erba *et al*. ASH 2022 #64 (preliminary data as of October 24, 2022)

DECREASING BONE MARROW BLAST COUNTS CONSISTENTLY REPORTED



Erba *et al*. ASH 2022 #64 (preliminary data as of October 24, 2022)

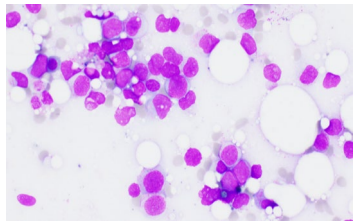
CLINICAL ACTIVITY OF ZIFTOMENIB OPTIMAL AT 600 MG ORAL, DAILY DOSING



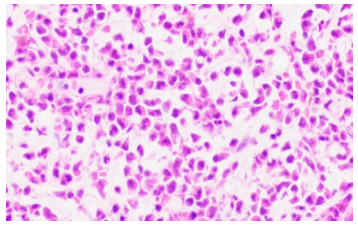
Preliminary data as of October 24, 2022

ZIFTOMENIB INDUCES RAPID AND EXTENSIVE DIFFERENTIATION OF NPM1-MUTANT LEUKEMIA

61 yo male with NPM1-m, FLT3-ITD, and IDH2 AML *Baseline bone marrow blasts: 75%*	
Prior therapies	7+3, Midostaurin, HiDAC, gilteritinib
Initiated ziftomenib at 600 mg	
DS during C1	Bone pain, ↓BP WBC ↑58K
Response	• MLFS after Cycle 1 • CR after Cycle 3



Baseline Bone Marrow
Cellular BM (40%) with 75% blasts consistent with relapsed AML



Cycle 1 Day 28 ziftomenib
Hypercellular BM (>95%) with striking granulocytic hyperplasia and <1% blasts

Erba *et al*. ASH 2022 #64 (preliminary data as of October 24, 2022)

EVIDENCE OF CLINICAL BENEFIT IN PATIENTS WITH NPM1-MUTANT AML

44 yo female with NPM1-m, DNMT3A and IKZF1 AML Baseline bone marrow blasts: 14%	
Prior therapies	Cytarabine + anthracycline NOS; mitoxantrone, etoposide + cytarabine; HiDAC+ fludarabine + melphalan; **1st SCT** + cyclophosphamide; lenalidomide + bortezomib; decitabine + venetoclax + gilteritinib; ASP1235; busulfan + fludarabine; **2nd SCT** + methotrexate
Initiated ziftomenib at 200 mg	
No DS	Experienced TRAEs of Gr4 lipase increased and Gr3 pancreatitis at C2D28; Gr3 pulmonary embolus during C17
Response	• CRmrd- after Cycle 1 • CRmrd- maintained and currently at Cycle 31

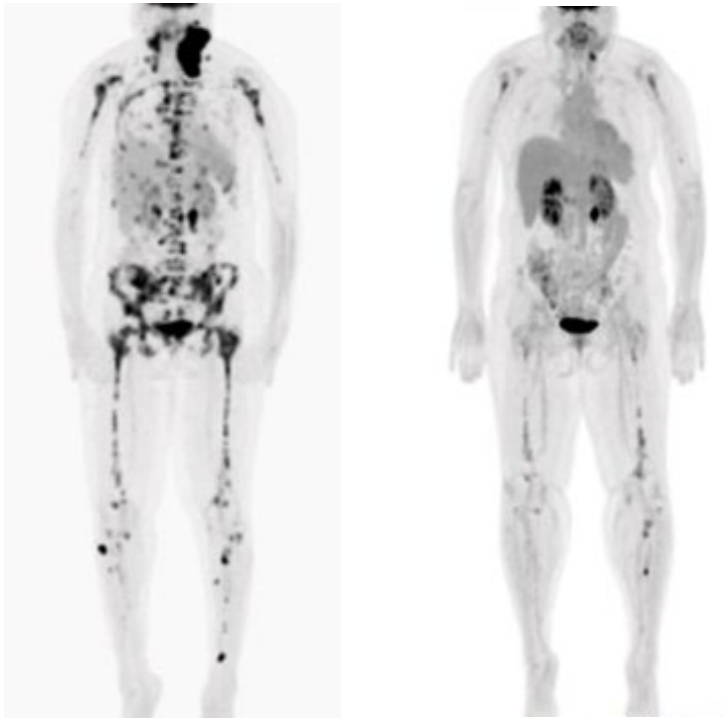
22 yo male with *NPM1*-m AML Baseline bone marrow blasts: 90%	
Prior therapies	Cytarabine + idarubicin (7+3)
Initiated ziftomenib at 600 mg	
DS during Cycle 1 (Gr2; non-serious)	Non-cardiac chest and bone pain; ↓ fibrinogen (89 from 456 at baseline)
Response	• CRmrd- after Cycle 1 • Transplant scheduled

Preliminary data as of October 24, 2022

EVIDENCE OF CLINICAL BENEFIT: EXAMPLE OF A KMT2A-REARRANGED NON-RESPONDING PATIENT

47 yo female with KMT2A-r, TERT and BRAF AML Baseline bone marrow blasts: 52%	
Prior therapies	ddAC + paclitaxel, CPX-35, SCT, Aza, FLAG Ida-ven, DLI, RT - gums
Initiated ziftomenib at 200 mg	
DS during C1	Muscle and EMD pain, ↑temp, ↓BP, WBC ↑ 5.2
Response	• Bone marrow blasts 2% end of Cycle 2 • Best overall response for the patient of SD due to residual extramedullary disease

Baseline **After 2 cycles**



Erba *et al*. ASH 2022 #64 (preliminary data as of October 24, 2022)

SUMMARY: KOMET-001 PHASE 1 CLINICAL TRIAL OF ZIFTOMENIB

Ziftomenib demonstrates an encouraging safety profile and tolerability

- Reported events most often consistent with features and manifestations of underlying disease
  - No evidence of drug-induced QTc prolongation
  - Differentiation syndrome, an on-target effect, manageable with mitigation strategy

Clinical activity of ziftomenib monotherapy is optimal at the 600 mg daily dose

- Positive *NPM1*-m benefit/risk balance with pronounced activity and 30% CR rate (n=20)
- High levels of ziftomenib tissue penetration likely drive clearance of extramedullary disease
- Designation of 600 mg as the recommended Phase 2 dose following positive Type C meeting with FDA

Monotherapy data supportive of combination strategies

- No predicted adverse drug-drug interactions
- Optimization of *KMT2A*-r benefit/risk planned via rational combination strategies, to maximize patients' time on treatment
- Oral, QD dosing allows for convenient administration and combination with standards of care

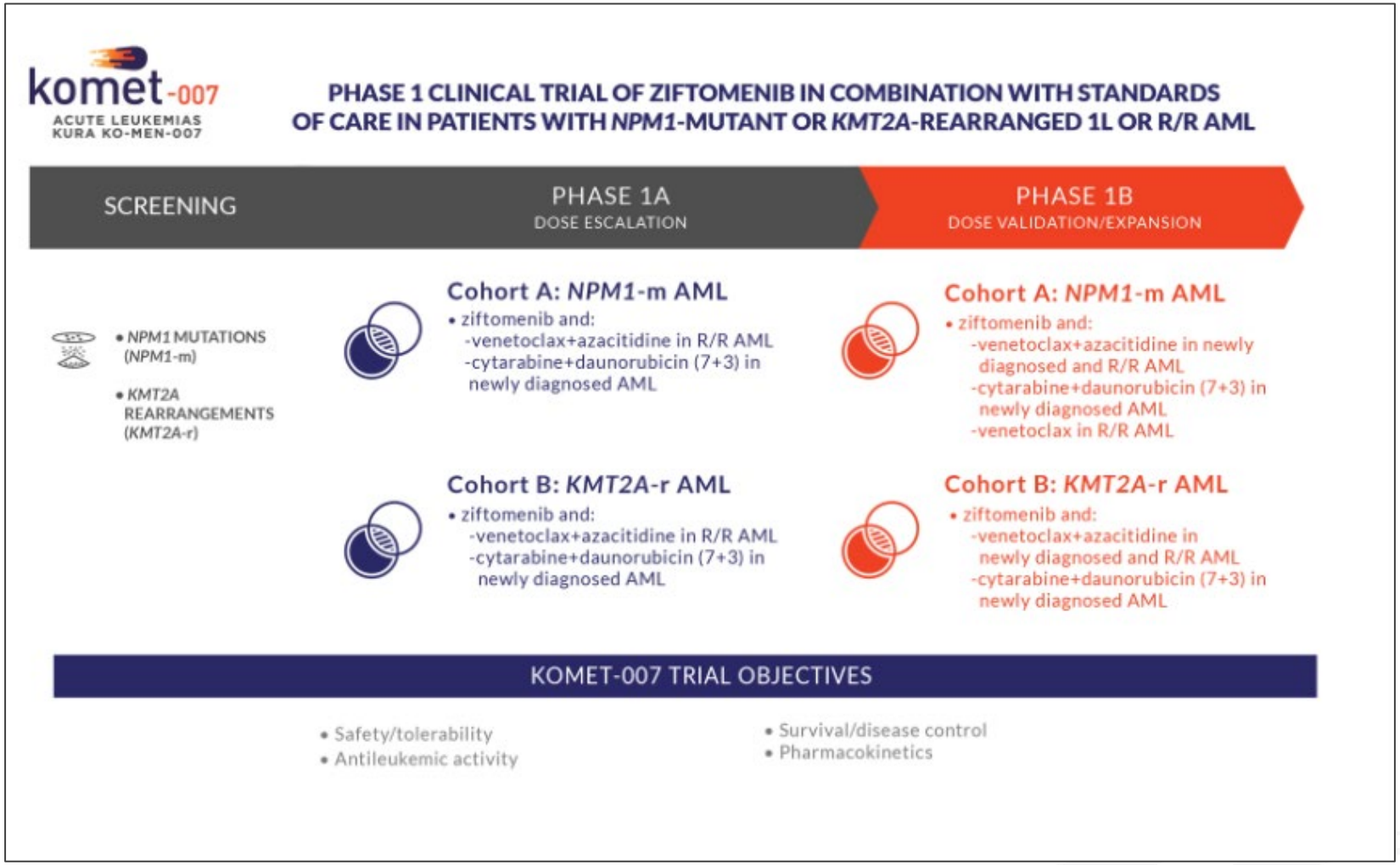
Abstract with Updated Data Accepted for Presentation at EHA in June 2023

Erba *et al*. ASH 2022 #64 (preliminary data as of October 24, 2022)

ZIFTOMENIB CLINICAL DEVELOPMENT PATH

DEVELOPMENT APPROACH	STUDY STARTUP / PHASE 1 / REGISTRATION DIRECTED	TRIAL
MONOTHERAPY (Relapsed/refractory)	NPM1-mutant acute myeloid leukemia (AML) Non- NPM1-m/KMT2A-r AML KMT2A-rearranged ALL	komet-001 ACUTE LEUKEMIAS KURA KO-MEN-001
COMBINATIONS WITH VENETOCLAX + AZACITIDINE, CYTARABINE + DAUNORUBICIN (7+3) (Relapsed/refractory, frontline)	NPM1-mutant AML KMT2A-rearranged AML	komet-007 ACUTE LEUKEMIAS KURA KO-MEN-007
COMBINATIONS WITH GILTERITINIB, FLAG-IDA, LDAC (Relapsed/refractory)	NPM1-mutant AML KMT2A-rearranged AML	komet-008 ACUTE LEUKEMIAS KURA KO-MEN-008
POST-TRANSPLANT MAINTENANCE	NPM1-mutant AML KMT2A-rearranged AML	**Investigator-sponsored studies**
COMBINATION WITH FLA	Pediatric AML & ALL	
COMBINATION WITH BV-DAM	Pediatric ALL	

KOMET-007: PHASE 1 COMBINATION TRIAL OF ZIFTOMENIB WITH STANDARDS OF CARE IN PATIENTS WITH AML

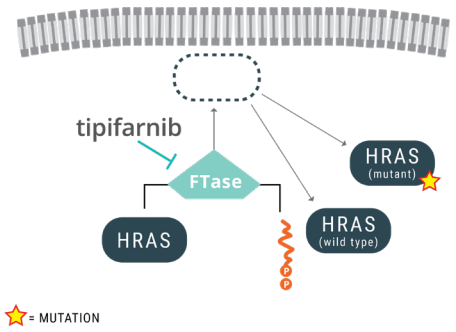


KURA ONCOLOGY

FARNESYL TRANSFERASE INHIBITOR PROGRAMS

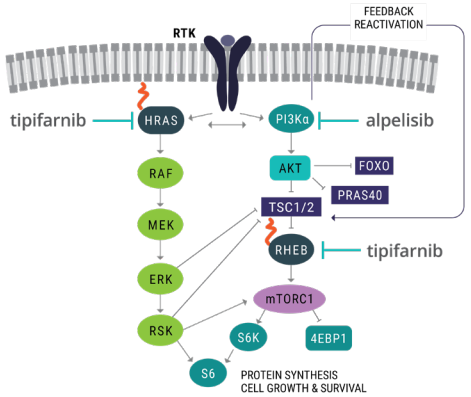
EVOLUTION IN THE THERAPEUTIC APPLICATIONS OF FARNESYL TRANSFERASE INHIBITORS

Direct Inhibition of Oncogenic Proteins



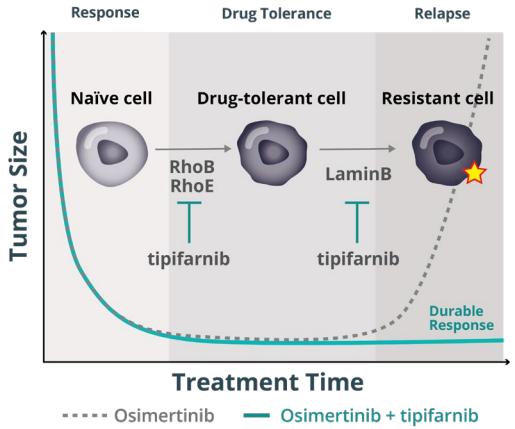
- Monotherapy activity in tumors with uniquely farnesylated oncoproteins
  - HRASm HNSCC

Overcoming Drug Resistance



- FTI suppresses feedback reactivation of mTOR signaling, a mechanism of innate resistance
  - PIK3CAm HNSCC
  - KRAS G12Cm tumors

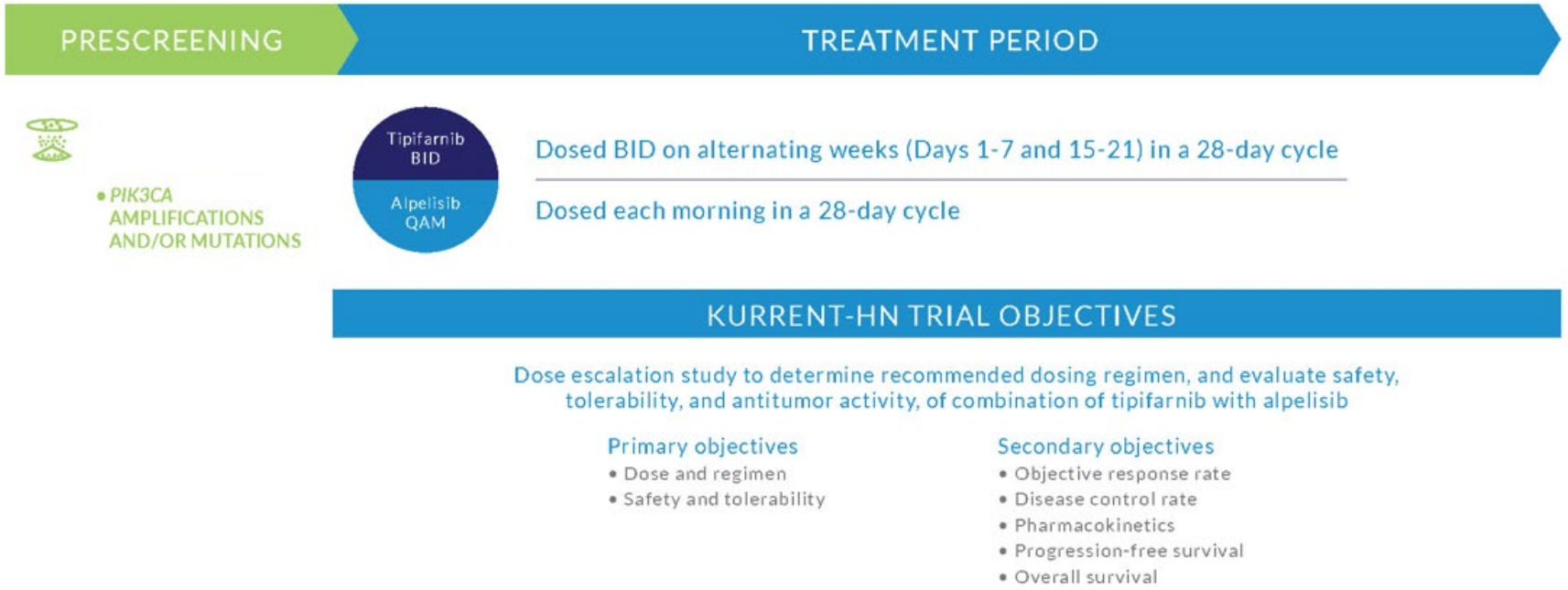
Preventing Emergence of Resistance



- Highly-active targeted drugs drive NSCLC cells into a farnesylation-dependent drug-tolerant state, a mechanism for acquired resistance
  - EGFRm NSCLC

Figarol *et al.* AACR 2022 #7934

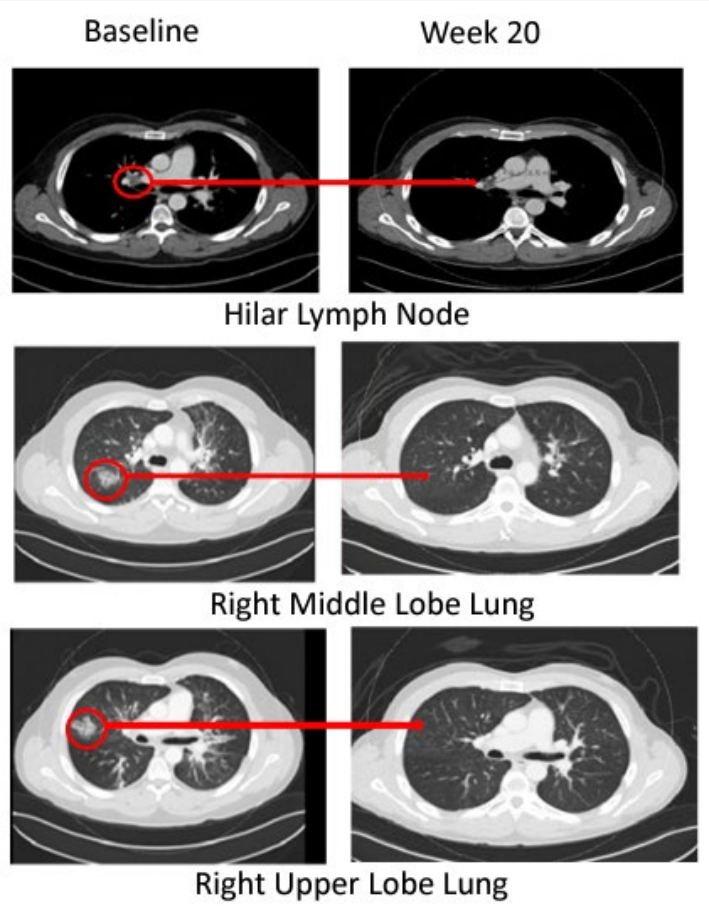
KURRENT-HN: PHASE 1/2 COMBINATION TRIAL OF TIPIFARNIB AND ALPELISIB IN PATIENTS WITH HNSCC



Phase 1 clinical trial of tipifarnib and alpelisib in patients with recurrent/metastatic *PIK3CA*-amplified and/or *PIK3CA*-mutated HNSCC

- Clinical collaboration to evaluate tipifarnib in combination with alpelisib for the treatment of patients with HNSCC whose tumors have PIK3CA mutation and/or amplification
- Under the collaboration, Kura sponsors the trial and supplies tipifarnib and Novartis supplies alpelisib

DURABLE CLINICAL RESPONSE OBSERVED IN PATIENT WITH PIK3CA-DEPENDENT HNSCC

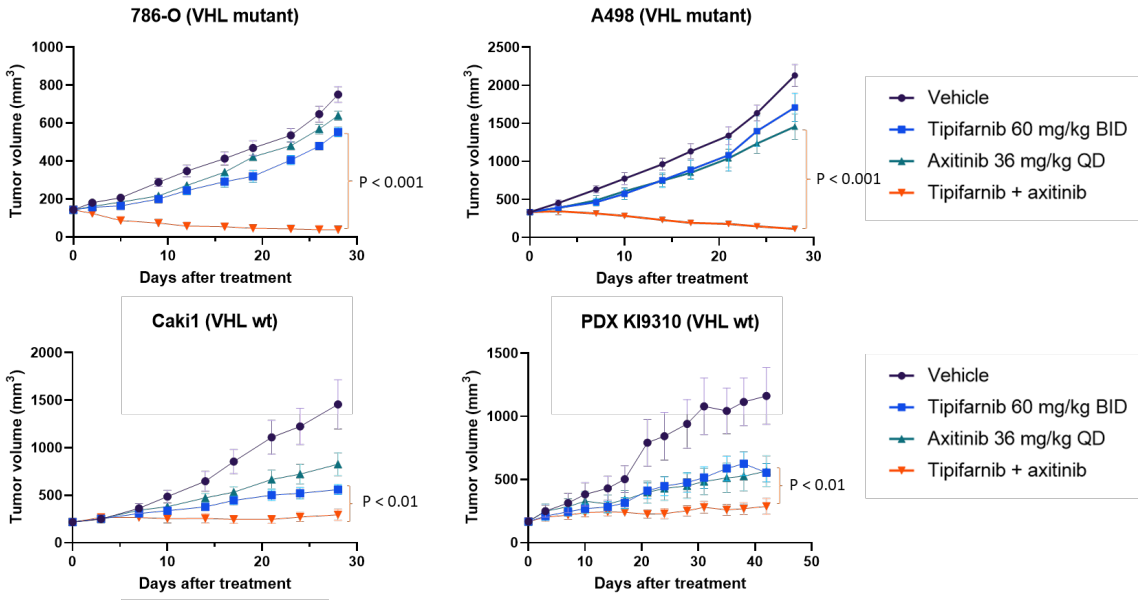


- 35yo, male, nonsmoker, HPV16 positive
- SCC of tonsil Stage III cT4N2M0; PD-L1 CPS = 60
- Prior Treatments
  - CDDP/rad for 1 mo (Nov-Dec2019), BOR UNK
  - Cemiplimab/ISA101b (Jun-Nov2021), BOR PD
- PIK3CA R88Q mutation (44%) and HRAS OE (3+ staining in 100% of tumor cells) by IHC from May 2021 biopsy
- DL1 tipifarnib, DL2 alpelisib; completed 6 cycles
- G1/2 TRAE, G3 lipase elevation; presented clinical benefit and improvement in respiratory symptoms
- 81% reduction in target lesions after 1 cycle of treatment
- 84% reduction in target lesions after 3 cycles (BOR)
- Continued on-study for >27 weeks maintaining QoL

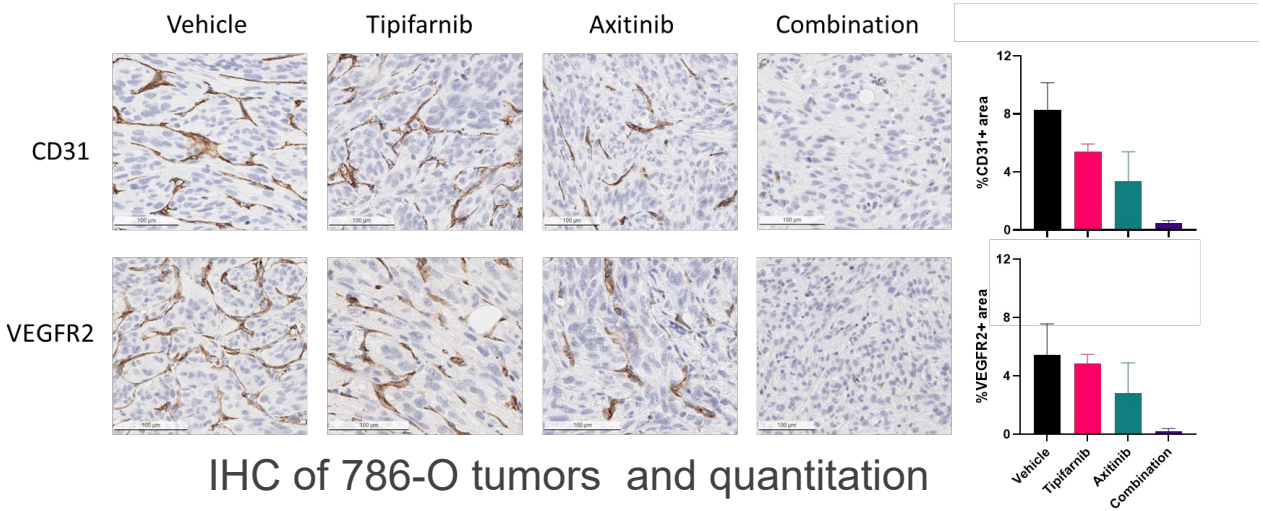
Soifer H et al, ENA 2022 PB041; Data cut as of 14Sep2022; Preliminary raw data

COMBINATIONS OF TIPIFARNIB AND TYROSINE KINASE INHIBITOR DEMONSTRATE SYNERGISTIC ACTIVITY IN ccRCC CDX & PDX MODELS

Tipifarnib-axitinib combination causes tumor regression or stasis in ccRCC models



Tipifarnib enhances the anti-angiogenic activity of axitinib *in vivo*

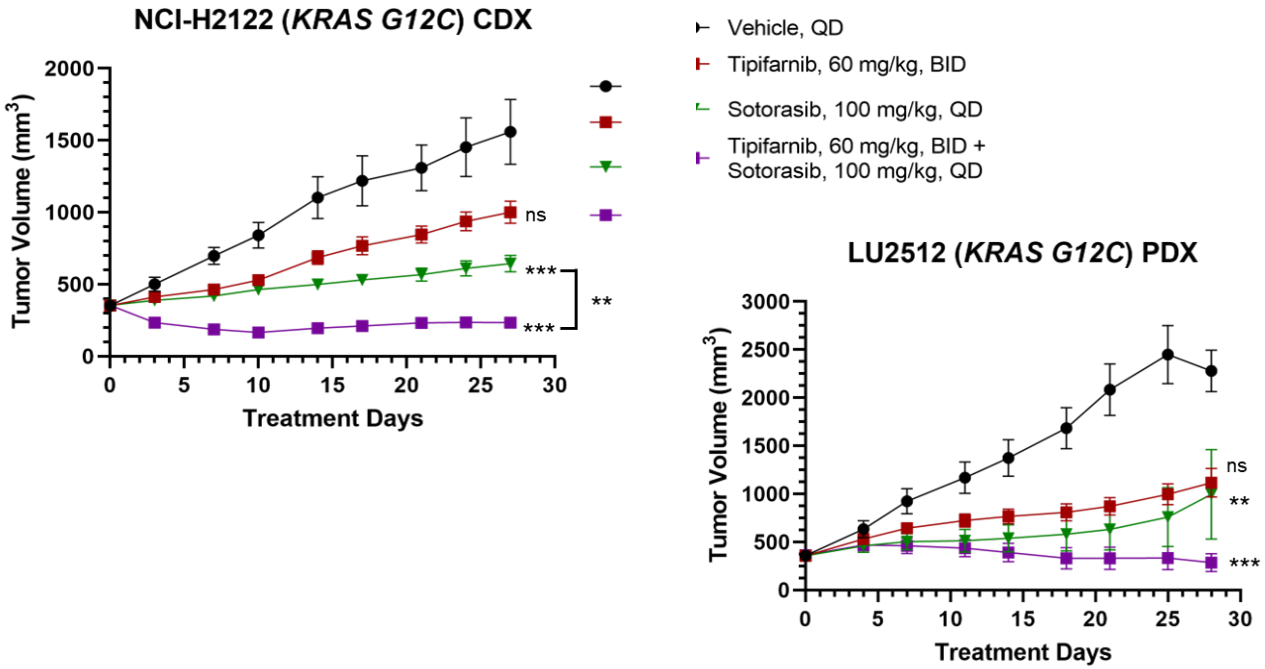


IHC of 786-O tumors and quantitation

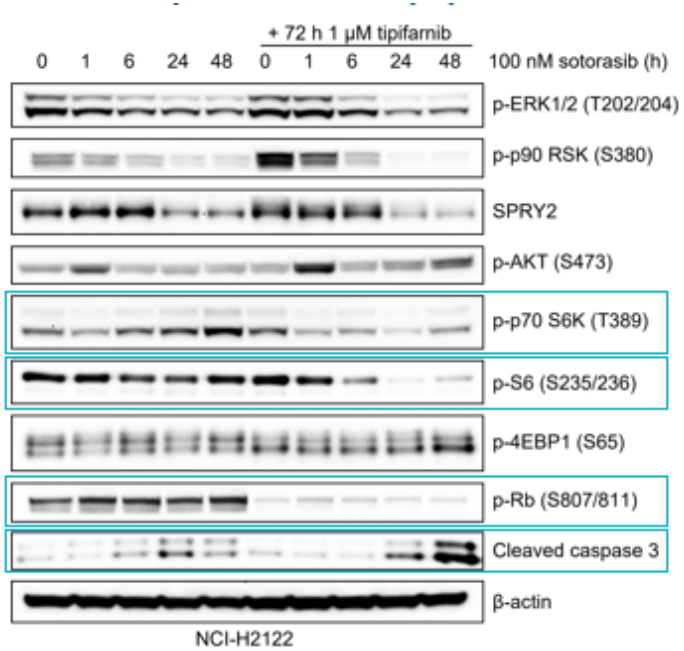
- Tipifarnib enhances the anti-angiogenic activity of axitinib *in vivo,* as observed by decreased expression of endothelial cell markers in 786-O tumors.
- The combination of tipifarnib and axitinib holds potential for the treatment of ccRCC. Studies are ongoing to define the basis of the synergy of the combination.

COMBINATION WITH TIPIFARNIB WITH KRAS^{G12C} INHIBITOR TO PREVENT ADAPTIVE RESISTANCE

Combination of tipifarnib with a KRAS^{G12C} inhibitor causes tumor regression in patient-derived and cell-derived NSCLC xenografts

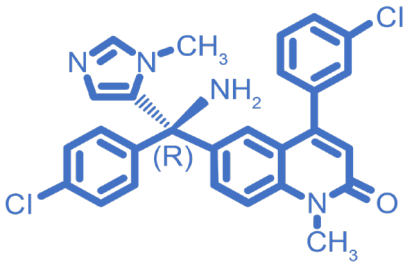


Combination of tipifarnib with a KRAS^{G12C} inhibitor suppresses mTOR signaling reactivation and promotes apoptosis



- Tipifarnib suppresses the feedback reactivation of mTOR signaling at the level of p-S6 (S235/236) that occurs after single-agent KRAS^{G12C} inhibitor treatment.

NEXT-GENERATION FARNESYL TRANSFERASE INHIBITOR (FTI)



Tipifarnib

Potency: Good
Selectivity: Excellent
Dose: 600 mg
Frequency: BID

KO-2806

Improved potency, pharmacokinetic and physicochemical properties

- FTIs represent an attractive therapeutic and commercial opportunity in oncology with compelling options in combination with other targeted therapies
- KO-2806 is a potent next-generation FTI designed to improve upon potency, pharmacokinetic and physicochemical properties of earlier FTI drug candidates
- IND application cleared by FDA; on track to initiate Phase 1 study of KO-2806 in 2H 2023

FIT-001 PHASE 1 FIRST-IN-HUMAN CLINICAL TRIAL OF KO-2806 IN PATIENTS WITH ADVANCED SOLID TUMORS

PART 1A (MONOTHERAPY) DOSE ESCALATION	PART 1B (COMBINATION) DOSE ESCALATION	PART 2 (COMBINATION) DOSE EXPANSION

OBJECTIVES

Primary

- Evaluate the safety and tolerability of KO-2806 (dose escalation)
- Determine the MTD/HPDD and/or the OBAD of KO-2806 (dose escalation)
- Define the RP2D of KO-2806 (dose expansion)
- Evaluate the antitumor activity of KO-2806 in combination therapy (dose expansion)

Secondary

- Evaluate the safety and tolerability of KO-2806 (dose expansion)
- Evaluate the preliminary antitumor activity of KO-2806 (dose escalation)
- Characterize the PK of KO-2806 when administered as monotherapy, and the PK of KO-2806 and the combination agent, when administered in combination therapy (dose escalation and expansion)

FORECASTED MILESTONES & FINANCIAL HIGHLIGHTS

PROGRAM	MILESTONE	ESTIMATED TIME OF ACHIEVEMENT
ZIFTOMENIB **Menin Inhibitor**	Dose first patients in KOMET-007 combination trial	1H 2023
	Present updated data from Phase 1 KOMET-001 trial in NPM1-mutant R/R AML	June 2023
	Dose first patients in KOMET-008 combination trial	2H 2023
TIPIFARNIB **Farnesyl Transferase Inhibitor (FTI)**	Determine optimal biologically active dose in KURRENT-HN trial	Mid-2023
KO-2806 **Next-Generation FTI**	Dose first patients in FIT-001 dose-escalation trial	2H 2023
Financial Highlights Nasdaq: KURA	$406M in cash as of March 31, 2023*	
	Shares outstanding as of March 31, 2023: 68.4M basic; 11.2M options, RSUs & warrants	

* Cash, cash equivalents and short-term investments

DEVELOPING PRECISION MEDICINES FOR THE TREATMENT OF CANCER

Corporate Presentation – May 2023