UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): June 14, 2019

KURA ONCOLOGY, INC.
(Exact name of registrant as specified in its charter)

Delaware	**001-37620**	**61-1547851**
(State of incorporation)	**(Commission File No.)**	**(IRS Employer Identification No.)**

3033 Science Park Road, Suite 220	
San Diego, CA	**92121**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (858) 500-8800

N/A
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.0001 per share	**KURA**	**The Nasdaq Global Select Market**

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§ 230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§ 240.12b-2 of this chapter).

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

Item 8.01. Other Events.

On June 14, 2019, Kura Oncology, Inc. (the "Company") issued a press release announcing updated interim data from its ongoing Phase 2 clinical trial of tipifarnib in patients with relapsed or refractory peripheral T-cell lymphomas (the "Updated Data"). A copy of the press release is attached hereto as Exhibit 99.1 and is incorporated herein by reference.

On June 14, 2019, members of the management team of the Company will be holding a conference call and presenting certain materials related to the Company and the Updated Data (the "Conference Call Presentation"). A copy of the Conference Call Presentation is attached hereto as Exhibit 99.2 and is incorporated herein by reference.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits

Exhibit Number	Description
99.1	Press Release dated June 14, 2019.
99.2	Conference Call Presentation of Kura Oncology, Inc. dated June 14, 2019.

Forward-Looking Statements

Certain statements contained in this report are forward-looking statements that involve a number of risks and uncertainties. Words such as "believe," "may," "will," "estimate," "promise," "plan", "continue," "anticipate," "intend," "expect," "potential" and similar expressions (including the negative thereof) are intended to identify forward-looking statements, though not all forward-looking statements necessarily contain these identifying words. For such statements, the Company claims the protection of the Private Securities Litigation Reform Act of 1995. Actual events or results may differ materially from the Company's expectations. Factors that could cause actual results to differ materially from those stated or implied by the Company's forward-looking statements are disclosed in the Company's filings with the Securities and Exchange Commission, including in the section captioned "Risk Factors" in the Company's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2019. These forward-looking statements represent the Company's judgment as of the time of this report. The Company disclaims any intent or obligation to update these forward-looking statements, other than as may be required under applicable law.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: June 14, 2019

KURA ONCOLOGY, INC.

By: /s/ Marc Grasso, M.D.
Marc Grasso, M.D.
Chief Financial Officer and Chief Business Officer

Kura Oncology Announces Positive Phase 2 Trial of Tipifarnib in Peripheral T-Cell Lymphoma

– Primary endpoint achieved with 45% and 42% ORR in AITL and CXCL12+ AITL/PTCL-NOS expansion cohorts –

– PTCL patients with tumors characterized by high CXCL12/CXCR4 expression ratio experienced an ORR of 47% and a clinical benefit rate of 82% –

– 50% CR rate and 75% ORR observed in AITL patients with KIR mutations, a CXCL pathway-associated marker –

– Company believes results support multiple registrational opportunities in relapsed/refractory lymphoma and plans to seek regulatory feedback –

– Management to host conference call today at 8:00 a.m. ET –

SAN DIEGO, June 14, 2019 – Kura Oncology, Inc. (Nasdaq: KURA), a clinical-stage biopharmaceutical company focused on the development of precision medicines for oncology, today announced updated interim data from the ongoing Phase 2 clinical trial of its lead drug candidate, tipifarnib, in patients with relapsed or refractory peripheral T-cell lymphoma (PTCL).

The results, which will be presented during an oral session at 16:45 CET / 10:45 am ET tomorrow at the European Hematology Association (EHA) Annual Congress in Amsterdam, demonstrate ongoing anti-tumor activity and a manageable safety profile in advanced patients with angioimmunoblastic T-cell lymphoma (AITL) as well as non-AITL PTCL. A copy of the presentation is available on the Company's website at www.kuraoncology.com.

"With additional follow up and new patients enrolled in the ongoing Phase 2 study, tipifarnib continues to demonstrate encouraging clinical activity in patients with relapsed or refractory PTCL who have experienced a median of three prior lines of therapy," said Francine Foss, M.D., professor of medicine at the Yale Cancer Center, and a principal investigator in the trial. "Given the grim prognosis for late-stage PTCL patients, these data are exciting because they further validate tipifarnib as a targeted therapy and the potential for CXCL12 pathway biomarkers as effective enrichment strategies in late-stage PTCL patients with few therapeutic options."

The multi-center, single-arm, open-label Phase 2 trial was designed to determine the efficacy, safety and biomarkers of activity of tipifarnib in patients with relapsed or refractory PTCL. Initially, patients were enrolled without selection in the Phase 2 trial. Based upon molecular characterization of the initial patients, the Phase 2 trial was amended to include two expansion cohorts: 1) patients with AITL, an aggressive form of T-cell lymphoma often characterized by high levels of CXCL12 expression (the AITL expansion cohort), and 2) patients with PTCL who lack a single nucleotide variation (rs2839685 A>G) in the 3'-untranslated region of the CXCL12 gene (the CXCL12 SNP+ expansion cohort).

As of the May 24, 2019 data cutoff, a total of 50 relapsed/refractory PTCL patients with a median number of three prior regimens have been enrolled in all stages of the Phase 2 trial. Key preliminary findings include:

- The primary efficacy endpoint was achieved in each of the AITL and CXCL12+ expansion cohorts. Sixteen patients were treated in the AITL cohort and 15 in the CXCL12 SNP+ cohort. Among the 11 evaluable patients in the AITL extension cohort, three achieved a complete response (CR) and two achieved a partial response (PR), for an objective response rate (ORR) of 45% (31% ORR on a modified intent-to-treat basis, mITT). Among the 12 evaluable patients in the CXCL12+ expansion cohort, three achieved a CR and two achieved a PR, for an ORR of 42% (33% ORR by mITT). Two of the five responders in the CXCL12+ expansion cohort were AITL patients.
- When all AITL patients (N=23) and all PTCL not otherwise specified (PTCL-NOS) with available rs2839695 data and absence of this 3'UTR variant (N=17) enrolled in all portions were taken into account, ORR were 53%/39% (PPS/mITT) for AITL and 20%/18% for CXCL12 SNP+ PTCL-NOS.
- Thirty-four patients had available gene expression data. Patients with a high ratio of CXCL12 expression to its receptor CXCR4 (N=17) experienced an ORR of 47% and a clinical benefit rate of 82% (CR+PR+SD) with tipifarnib.
- Next-generation sequencing of 16 AITL patients revealed a high rate of mutation/variation (50%) of the killer cell immunoglobulin-like receptors, including KIR3DL2. KIR3DL2 mutation at C336R was concurrent with Q386E and was associated with outcome from tipifarnib therapy. Four of the eight KIR3DL2 C336R/Q386E patients achieved a CR, two achieved a PR and two achieved stable disease (SD) for a CR rate of 50%, an ORR of 75% and a clinical benefit rate of 100%. Furthermore, high KIR3DL2 mutant variant allele frequency KIR3DL2 was predictive of complete response to tipifarnib in AITL. Tumors with KIR3DL2 mutations expressed low levels of CXCL5 and its receptor CXCR1 and CXCR2, a potential mechanism of resistance to tipifarnib.
- Tipifarnib was generally well-tolerated in this Phase 2 trial, with adverse events consistent with its known safety profile. The most frequently observed treatment-related adverse events (grade ^{3} 3) were hematology-related, including thrombocytopenia, neutropenia, leukopenia, anemia, febrile neutropenia and lymphopenia.

“We believe that these data validate our prior observations of tipifarnib as a CXCL12 pathway inhibitor and constitute the first clinical proof-of-concept of farnesyl transferase inhibitors in CXCL12-driven tumors. AITL and related lymphomas encompass approximately one-third of PTCL cases and represent a significant unmet medical need,” said Antonio Gualberto, M.D., Ph.D., Head of Development and Chief Medical Officer of Kura Oncology. “We are also very encouraged by the discovery of KIR3DL2 mutations, the characterization of mechanisms of sensitivity and resistance to tipifarnib in lymphoma, and the development of robust molecular tools for the selection and/or stratification of PTCL patients. These findings are a testimony of the potential for success of our precision medicine approaches.”

Poster Presentation Explores CXCL12 Overexpression in Tipifarnib Responders

Separately, Kura has been evaluating the potential to use CXCL12 pathway biomarkers to enrich for clinical activity in other hematologic malignancies. In addition to AITL, high CXCL12 expression was observed in tumors from other lymphoma patients, including patients with PTCL-NOS, diffuse large B-cell lymphoma (DLBCL) and mycosis fungoides, the most common form of cutaneous T-cell lymphoma (CTCL). Lymphoma patients with CXCL12 reference sequences also appeared to have a higher chance of clinical benefit from tipifarnib treatment. The identification of these CXCL12 reference sequences in responders to tipifarnib across multiple hematologic malignancies will be presented in a poster presentation at 17:30 CET / 11:30 am ET tomorrow at the EHA Annual Congress in Amsterdam. A copy of the poster is also available on the Company’s website at www.kuraoncology.com.

“These data represent the first prospective validation of CXCL12 pathway biomarkers to enrich for clinical activity of tipifarnib in PTCL. We believe these data support the potential to register tipifarnib in both the AITL and PTCL-NOS patient populations, and we look forward to seeking regulatory feedback on next steps for this program,” said Troy Wilson, Ph.D., President and CEO of Kura Oncology. “In addition, based on our growing body of clinical and preclinical data, we believe CXCL12 pathway biomarkers may have the potential to unlock the therapeutic value of farnesyl transferase inhibition across multiple hematologic and solid tumor indications, including DLBCL, acute myeloid leukemia (AML), CTCL and pancreatic cancer.”

Conference Call and Webcast

Kura’s management will host a webcast and conference call at 8:00 a.m. ET today, June 14, 2019 to discuss the results from the Company’s Phase 2 trial of tipifarnib in PTCL. The live call may be accessed by dialing (877) 516-3514 for domestic callers or +1 (281) 973-6129 for international callers and using conference ID #1273055. A live webcast of the call will be available from the Investors and Media section of the Company’s website at www.kuraoncology.com, and will be archived there for 30 days.

About Peripheral T-Cell Lymphoma

PTCL is a rare and diverse group of aggressive lymphomas that develop from white blood cells called NK/T-cells that grow abnormally. The term PTCL is sometimes used to describe a heterogeneous group of T-cell lymphomas. The most common types of PTCL are PTCL-NOS and AITL. Significant advances in the genetic landscape of T-cell and NK-cell neoplasms as the result of genomic studies, as well as the introduction of more powerful diagnostic technologies have led to revisions in the classification and introduction of new entities. Many of the same genetic changes observed in AITL are also observed in cases of PTCL-NOS that manifest a T follicular helper (TFH) phenotype. This common genotype/phenotype has led to follicular T-cell lymphoma (FTCL) and AITL being unified under a common heading. Cases of nodal PTCL with TFH phenotype are now included in the same grouping as well. As a result, patients with the PTCL-NOS phenotype are increasingly being characterized as having AITL and/or related tumors.

Recently, the U.S. Food and Drug Administration (FDA) approved ADCETRIS® (brentuximab vedotin) in combination with chemotherapy for previously untreated systemic ALCL or other CD30-expressing PTCL, including AITL and PTCL-NOS. This was the first FDA-approved frontline treatment for PTCL. Previously approved therapies in relapsed or refractory PTCL were based on single-arm clinical trials of 130 patients or fewer with response rates in the range of 25-27% and limited duration of clinical benefit in unselected populations.

About CXCL12

CXCL12 is a stroma-derived chemokine that promotes the progression of lymphoma as well as other hematological and solid tumors carrying the CXCR4 receptor. Results from ancillary studies show that high CXCL12 expression is a negative prognostic factor for standard-of-care PTCL therapy. Approximately 50% of the AITL patients and 35% of the non-AITL patients in Kura’s Phase 2 trial of tipifarnib in PTCL overexpressed CXCL12.

About Tipifarnib

Kura Oncology’s lead drug candidate, tipifarnib, is a potent, selective and orally bioavailable inhibitor of farnesyl transferase in-licensed from Janssen in December 2014. Previously, tipifarnib was studied in more than 5,000 cancer patients and showed compelling and durable anti-cancer activity in certain patient subsets; however, no molecular mechanism of action had been determined that could explain its clinical activity across a range of solid tumor and hematologic indications. Leveraging advances in next-generation sequencing as well as emerging information about cancer genetics and tumor biology, Kura is seeking to identify those patients most likely to benefit from tipifarnib. In November 2018, following an end of Phase 2 meeting with the FDA, Kura initiated its first registration-directed trial of tipifarnib in patients with recurrent or metastatic HRAS mutant head and neck squamous cell carcinoma (HNSCC).

In 2018, the U.S. Patent and Trademark Office issued new patents for tipifarnib as a method of treating patients certain CXCL12-expressing cancers, including PTCL, and as a method of treating patients with AITL. Both patents expand protection for tipifarnib, providing exclusivity in the United States to 2037.

About Kura Oncology

Kura Oncology is a clinical-stage biopharmaceutical company committed to realizing the promise of precision medicines for the treatment of cancer. The Company's pipeline consists of small molecule drug candidates that target cancer signaling pathways where there is a strong scientific and clinical rationale to improve outcomes by identifying those patients most likely to benefit from treatment. Kura's lead drug candidate is tipifarnib, a farnesyl transferase inhibitor, for which the Company is conducting a registration-directed trial of tipifarnib in recurrent or metastatic patients with HRAS mutant HNSCC. In addition, tipifarnib is being evaluated in multiple other Phase 2 clinical trials in solid tumor and hematologic indications. Kura's pipeline also includes KO-947, an ERK inhibitor, currently in a Phase 1 dose-escalation trial, and KO-539, a menin-MLL inhibitor, which is anticipated to enter into a Phase 1 clinical trial in mid-2019. For additional information about Kura, please visit the Company's website at www.kuraoncology.com.

Forward-Looking Statements

This news release contains certain forward-looking statements that involve risks and uncertainties that could cause actual results to be materially different from historical results or from any future results expressed or implied by such forward-looking statements. Such forward-looking statements include statements regarding, among other things, the efficacy, safety and therapeutic potential of Kura's product candidate tipifarnib, and progress and expected timing of Kura's drug development programs and clinical trials. Factors that may cause actual results to differ materially include the risk that compounds that appeared promising in early research or clinical trials do not demonstrate safety and/or efficacy in later preclinical studies or clinical trials, the risk that Kura may not obtain approval to market its product candidates, uncertainties associated with performing clinical trials, regulatory filings and applications, risks associated with reliance on third parties to successfully conduct clinical trials, the risks associated with reliance on outside financing to meet capital requirements, and other risks associated with the process of discovering, developing and commercializing drugs that are safe and effective for use as human therapeutics, and in the endeavor of building a business around such drugs. You are urged to consider statements that include the words "may," "will," "would," "could," "should," "believes," "estimates," "projects," "promise," "potential," "expects," "plans," "anticipates," "intends," "continues," "designed," "goal," or the negative of those words or other comparable words to be uncertain and forward-looking. For a further list and description of the risks and

uncertainties the Company faces, please refer to the Company's periodic and other filings with the Securities and Exchange Commission, which are available at www.sec.gov. Such forward-looking statements are current only as of the date they are made, and Kura assumes no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise.

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Exhibit 99.2

KURA ONCOLOGY

Developing Precision Medicines
for the Treatment of Cancer

EHA Data Review

June 14, 2019

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-947 and KO-539, 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," "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; 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.

Agenda for Today's Call

1) Introduction / Background
2) Data from Positive Phase 2 Trial of Tipifarnib in PTCL – EHA 2019
3) Opportunities to Expand to Additional CXCL12-Driven Indications
4) Upcoming Milestones
5) Q & A

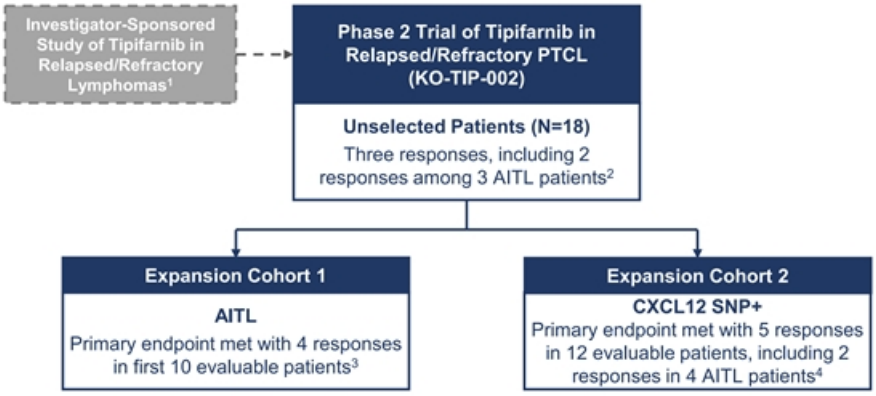
Kura Oncology – Key Themes

- Targeted therapies remain an essential category for new drug development in oncology
  - Enhanced clinical benefit in selected patient populations
  - Displacement of existing therapies and becoming part of the standard of care in a population of high unmet need
- Rationale for understanding “exceptional responders” in the clinic
  - Leverage technology toward comprehensive tumor profiling
  - Identification of biomarkers to enrich for clinical activity
  - Improved understanding of mechanisms of sensitivity and resistance
- A successful precision medicine based approach permits
  - Strategies for accelerated development and registration
  - Label expansion to other biomarker-guided populations
  - Extension to earlier lines of therapy through displacement or combination

Discovery of Tipifarnib as a First-in-Class CXCL12 inhibitor that Achieved Clinical POC

Witzig *et al.* EHA 2019 #S869	• **AITL and CXCL12 3'UTR SNP cohorts achieved clinical POC** • **Validation of robust clinical markers of sensitivity to tipifarnib** • **Definition of patient subsets with exceptional activity (AITL/KIR3DL2 mutant) and broader target population (CXCL12 3'UTR SNP)**
Gualberto *et al.* EHA 2019 #PS1002	• **Potential farnesylated targets that correlate with CXCL12 expression in AML**
Gualberto *et al.* AACR 2019 #CT191	• Retrospective analysis of patient samples from initial Phase 2 trial • CXCL12 expression associated with clinical activity in DLBCL and CTCL
Gualberto *et al.* ASCO GI 2019 #275	• Retrospective analysis identifies activity of tipifarnib in pancreatic Phase 3 trial using clinical surrogates of CXCL12 expression
Witzig *et al.* ASH 2018 #2937	• Tipifarnib reported to downregulate CXCL12 ex-vivo; AITL and CXCL12 3'UTR SNP cohorts designed to test prospectively the CXCL12 hypothesis • AITL cohort achieved clinical proof-of-concept • Tumor CXCL12 expression enriches for clinical activity in AITL (and PTCL NOS)
Witzig *et al.* ASH 2017 #2788; Gualberto *et al.* ASH 2017 #3957	• Identification of AITL histology, SNP in the 3'-UTR of CXCL12 gene and CXCL12/CXCR4 levels associated with clinical activity in T cell lymphoma • CXCL12 and bone marrow homing define tipifarnib's activity in AML
Witzig *et al.* 2011 *Blood* 118(18):4882	• Exploratory Phase 2 trial in relapsed and refractory lymphomas • No genetic selection but observed activity in PTCL patients

PTCL / AITL Trial Design



- Multi-center, single-arm, open-label Phase 2 trial designed to determine the efficacy, safety and biomarkers of tipifarnib in patients with relapsed or refractory PTCL
- Based upon molecular characterization of first 18 patients, trial amended to include two expansion cohorts:
  1) Patients with AITL, an aggressive form of T-cell lymphoma often characterized by high levels of CXCL12 expression
  2) Patients with PTCL who lack a single nucleotide variation in the 3'-untranslated region of the CXCL12 gene (CXCL12+)
- Expansion cohorts: Tipifarnib 300 mg twice daily (bid) on days 1-21 of 28-day treatment cycles

[1] Witzig *et al.* 2011 Blood 111:4882-89 | [2] Witzig *et al.* ASH 2017 #2788 | [3] Witzig *et al.* ASH 2018 #2937 | [4] Witzig *et al.* EHA 2019 #S869

Tipifarnib in Relapsed or Refractory Angioimmunoblastic T-cell Lymphoma (AITL) and CXCL12+ Peripheral T-cell Lymphoma (PTCL): Preliminary Results from an Open-Label, Phase 2 Study

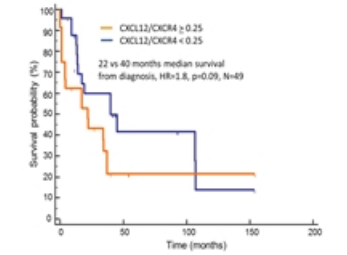
Thomas Witzig[1], Lubomir Sokol[2], Won Seog Kim[3], Francine Foss[4], Eric Jacobsen[5], Fatima de la Cruz Vicente[6], Dolores Caballero[7], Ranjana Advani[8], Jose Maria Roncero Vidal[9], Ana Marin Niebla[10], Antonia Rodriguez Izquierdo[11], Raquel Oña Navarrete[12], Maria Jose Terol[13], Eva Domingo-Domenech[14], Marta Rodriguez[15], Miguel Piris[15], James Bolognese[16], Matthew R Janes[17], Francis Burrows[18], Linda Kessler[18], Vishnu Mishra[18], Robert Curry[19], Michael Kurman[19], Catherine Scholz[19] and Antonio Gualberto[19]

[1]Mayo Clinic, Rochester, MN USA
[2]H. Lee Moffitt Cancer Center & Research Institute, Tampa, FL USA
[3]Samsung Medical Center, Seoul, South Korea
[4]Yale University School of Medicine, New Haven, CT USA
[5]Dana-Farber Cancer Institute, Boston, MA USA
[6]Hospital Universitario Virgen del Rocío, Sevilla, Spain
[7]Hospital Universitario de Salamanca, Salamanca, Spain
[8]Stanford University Medical Center, Stanford, CA USA
[9]Institut Català d'Oncologia, Girona, Spain
[10]Vall D'Hebron Institute of Oncology, Barcelona, Spain
[11] Hospital Universitario 12 de Octubre, Madrid, Spain
[12] MD Anderson Cancer Center, Madrid, Spain
[13] Hospital Clinico Universitario de Valencia, Valencia, Spain
[14] Institut Catala d'Oncologia, Barcelona, Spain
[15] Fundación Jiménez Díaz, Madrid, Spain
[16] Cytel, Cambridge, MA USA
[17] Wellspring Biosciences, Inc., San Diego, CA USA
[18] Kura Oncology, Inc., San Diego, CA USA
[19] Kura Oncology, Inc., Cambridge, MA USA

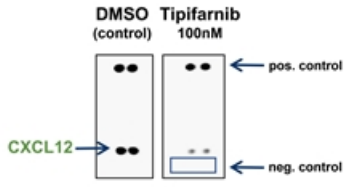
24th Congress of the European Hematology Association, Abstract S869

Tipifarnib is a CXCL12/CXCR4 Pathway Inhibitor

- **Key characteristics of CXCL12**
  - Expressed primarily by immune cells, endothelial cells and stromal fibroblasts that constitute the tumor microenvironment
  - CXCL12 and its receptors (CXCR4, CXCR7) are key factors linking cancer cells with the tumor microenvironment
- **High CXCL12 expression defines poor prognosis in PTCL**
  - 50% of AITL and 35% of PTCL-NOS have high CXCL12 expression
  - Trend for worse prognosis in AITL and PTCL-NOS patients with tumors with high CXCL12 expression[1]
- **Tipifarnib is a CXCL12/CXCR4 pathway inhibitor**
  - Tipifarnib downregulates CXCL12 secretion ex-vivo in stroma cultures
  - Expression of uniquely farnesylated proteins (RHOE and PRICKLE2) is strongly correlated with CXCL12 expression, suggesting potential CXCL12-related tipifarnib targets[2]
  - Resistance to tipifarnib potentially mediated by CXCR2 and its ligands (CXCL1, CXCL5, CXCL8) in myeloid indications[3]



Trend for poor prognosis with high CXCL12 expression (adjusted to CXCR4) in AITL and PTCL NOS pts



Tipifarnib downregulates the secretion of CXCL12 ex-vivo in CD1 mouse bone marrow cultures

[1] Witzig 2018 *Blood* 132:2937 | [2] Gualberto EHA 2019 #PS1002 | [3] Gualberto *Blood* 2017 130:3957

Proof of Concept for Tipifarnib in wt CXCL12 3'UTR PTCL

	wt CXCL12 3'UTR Cohort: All pts		wt CXCL12 3'UTR Cohort: AITL pts		wt CXCL12 3'UTR Cohort: PTCL-NOS pts	
Total treated	15		4		11	
Total efficacy evaluable	12		3		9	
Overall Best Response						
Complete Response (CR)	3		2		1	
Partial Response (PR)	2		-		2	
Stable Disease (SD)	6		-		6	
Progressive Disease (PD)	1		1		-	
Not efficacy evaluable (NE)	3		1		2	
	PPS[1]	mITT	PPS[1]	mITT	PPS[1]	mITT
Overall Response Rate[1] (CR + PR)	**41.7%**	**33.3%**	**66.7%**	**50%**	**33.3%**	**27.3%**
95% CI	18.1 – 70.6	14.2 - 60.6	13.5 - 98.3	9.8 - 90.2	9.8 - 68.4	7.9 - 59.9
Clinical Benefit Rate[1] (CR + PR + SD)	**91.7%**	**73.3%**	**66.7%**	**50%**	**100%**	**81.8%**
95% CI	63.4 - 99.6	46.5 - 90.3	13.5 - 98.3	9.8 - 90.2	68.4 - 100.0	50.0 - 96.7

[1] Per protocol set – prespecified primary analysis population includes all pts who received at least 1 dose of tipifarnib and have 1 post-baseline tumor measurement

Preliminary data as of 24 May 2019

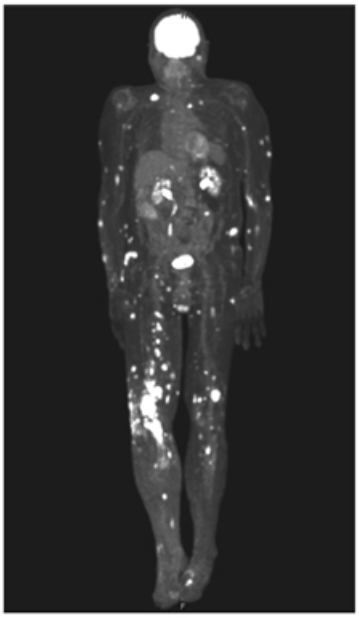
Enrichment by wt CXCL12 3'UTR PTCL-NOS

	All PTCL-NOS wt CXCL12 3'UTR[1]		All PTCL-NOS Variant CXCL12 3'UTR[2]
Total treated	17		6
Total efficacy evaluable	15		6
Overall Best Response			
Complete Response (CR)	1		-
Partial Response (PR)	2		-
Stable Disease (SD)	10		-
Progressive Disease (PD)	2		6
Not efficacy evaluable (NE)	2		-
	PPS[3]	mITT	PPS/mITT
Overall Response Rate (CR + PR)	**20%**	**17.6%**	**0%**
95% CI	5.7 - 46.5	5.0 - 41.7	0 - 40.6
Clinical Benefit Rate (CR + PR + SD)	**86.7%**	**76.5%**	**0%**
95% CI	60.6 - 97.6	51.1 - 91.5	0 - 40.6

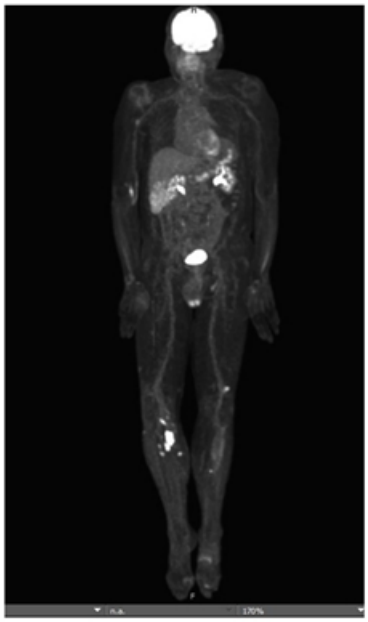
[1] All PTCL-NOS wt CXCL12 3'UTR includes all PTCL-NOS pts with CXCL12 rs2839695 A/A genotype enrolled in all portions of the trial.
[2] Includes PTCL-NOS pts with CXCL12 rs2839695 A/G or G/G genotype (enrolled in the original protocol stages 1 and 2)
[3] Per protocol set – prespecified primary analysis population includes all pts who received at least 1 dose of tipifarnib and have 1 post-baseline tumor measurement

Preliminary data as of 24 May 2019

Tumor Reduction in PTCL-NOS, wt CXCL12 3'UTR



Baseline



End of Cycle 2

- 77 yo male with PTCL-NOS Stage IV
- CHOP x 5 with initial response then progression in skin
- At baseline visit had multiple skin nodules biopsy proven relapsed PTCL
- After two cycles of tipifarnib patient had near CR

Proof of Concept for Tipifarnib in AITL

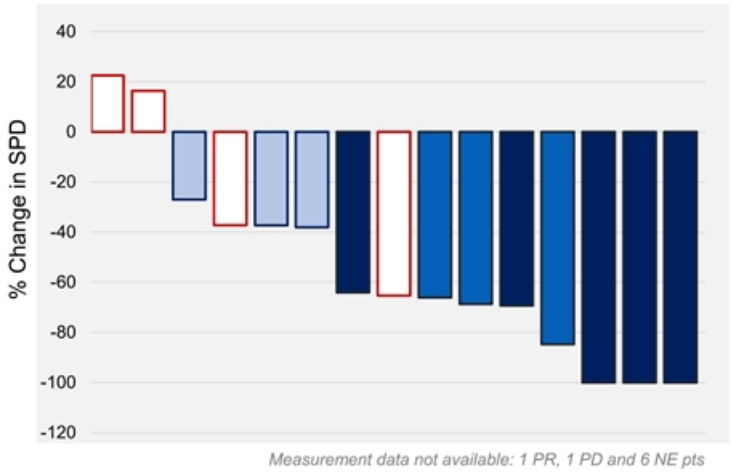
	AITL Cohort		All AITL [1]	
Total treated	16		23	
Total efficacy evaluable	11		17	
Overall Best Response				
Complete Response (CR)	3		5	
Partial Response (PR)	2		4	
Stable Disease (SD)	3		3	
Progressive Disease (PD)	3		5	
Not efficacy evaluable (NE)	5		6	
	PPS[2]	mITT	PPS[2]	mITT
Overall Response Rate (CR + PR)	**45.4%**	**31.3%**	**52.9%**	**39.1%**
95% CI	20.0 - 74.4	13.2 - 56.6	28.2 - 74.7	20.7 - 61.3
Clinical Benefit Rate (CR + PR + SD)	**72.7%**	**50.0%**	**70.6%**	**52.2%**
95% CI	40.1 - 92.1	27.2 - 72.8	45.6 - 87.6	32.0 - 72.6

[1] All AITL includes all AITL pts enrolled in all portions of the trial: original protocol (stages 1 and 2), AITL cohort and wt CXCL12 3'UTR cohort.
[2] Per protocol set – prespecified primary analysis population includes all pts who received at least 1 dose of tipifarnib and have 1 post-baseline tumor measurement.

Preliminary data as of 24 May 2019

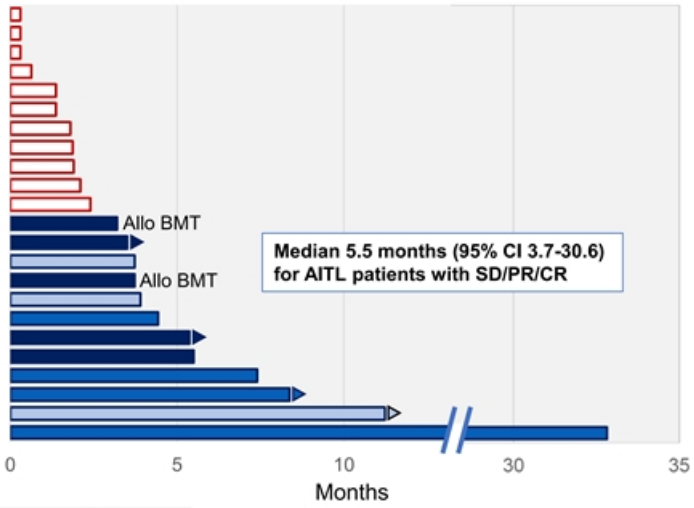
AITL: Tipifarnib treatment resulted in durable clinical responses and enabled subsequent transplant in patients achieving a CR

Maximum Change in Tumor Burden



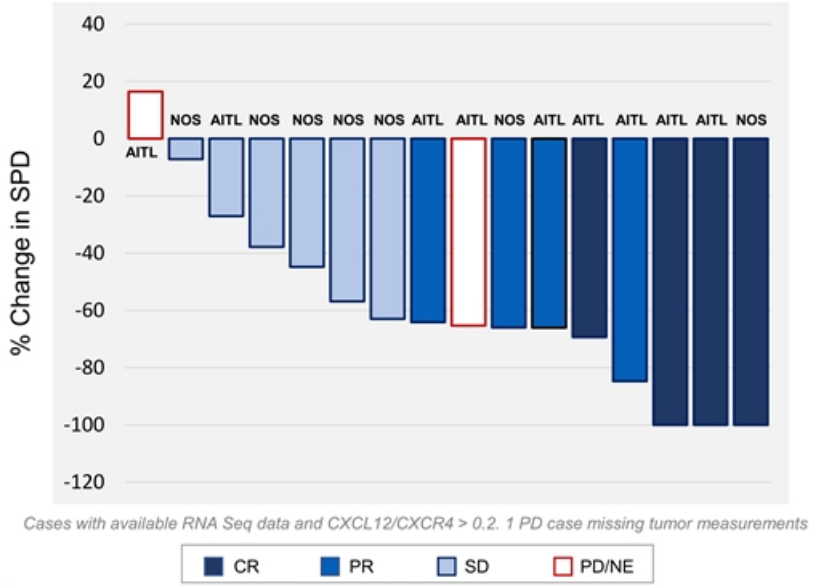
Measurement data not available: 1 PR, 1 PD and 6 NE pts

Time on Treatment



Preliminary data as of 24 May 2019

Tipifarnib is Active in High CXCL12 Expressing AITL and PTCL NOS Tumors



Cases with available RNA Seq data and CXCL12/CXCR4 > 0.2. 1 PD case missing tumor measurements

sample	HISTOL	RESP	CXCL12/CXCR4
6	AITL	PR	7.42
28	AITL	CR	2.4
34	AITL	PD/NE	
36	NOS	SD	1.3
17	NOS	SD	0.85
32	AITL	PD/NE	
37	NOS	SD	0.6
1	AITL	CR	0.48
30	AITL	PR	0.4
7	AITL	PD/NE	
18	NOS	SD	0.40
12	NOS	CR	0.37
2	AITL	CR	0.36
3	AITL	PR	0.35
16	NOS	SD	0.30
31	NOS	PR	0.28
5	AITL	SD	0.28
8	AITL	PD/NE	0.19
23	NOS	PD/NE	0.18
40	NOS	PD/NE	0.17
19	NOS	PD/NE	0.16
4	AITL	PR	
26	ALCL	PD/NE	0.14
41	NOS	SD	0.1
10	AITL	PD/NE	0.12
11	AITL	PD/NE	0.12
20	NOS	PD/NE	0.10
25	NOS	PD/NE	0.08
33	AITL	SD	0.1
21	NOS	PD/NE	0.05
29	AITL	CR	
13	NOS	PD/NE	0.03
9	AITL	PD/NE	0.03
24	NOS	PD/NE	0.03

Tipifarnib targets CXCL12 and is active in tumors with high CXCL12 expression[1].

However, high CXCL12 could not explain all the activity/resistance to tipifarnib in AITL.

Molecular screenings were conducted to identify other drivers of the activity of tipifarnib in AITL.

[1] N = 34 tumors with available CXCL12 expression data.

Preliminary data as of 24 May 2019

High Activity of Tipifarnib in AITL with KIR3DL2 mutations

- CXCL12 and CXCL5 drive, respectively, sensitivity and resistance to tipifarnib.
- AITL expresses high levels of CXCL12 and is sensitive to tipifarnib.
- AITL also expresses CXCL5; however, ~50% of AITL carry mutations of KIR3DL2, express low levels of CXCL5 and are highly sensitive to tipifarnib (50% CR rate).
- High Allele Frequency of KIR3DL2 mutation predicted complete response to tipifarnib treatment (ROC AUC=0.94, p<0.0001).
- AITL patients carrying KIR3DL2 mutations experienced a better outcome with tipifarnib treatment than with prior SOC treatment.

Best Response to Tipifarnib (N=16 AITL with sequenced tumors)

	KIR3DL2 Mutant	KIR3DL2 Wild Type
N	8	8
Overall Best Response		
Complete Response (CR)	4	-
Partial Response (PR)	2	2
Stable Disease (SD)	2	-
Progressive Disease (PD)	-	6
Not evaluable (NE)	-	-
Overall Response Rate (CR + PR)	**75%**	**25%**
95% CI	35.9 - 95.4	4.6 - 64.1
Clinical Benefit Rate (CR + PR + SD)	**100%**	**25%**
95% CI	64.1 - 100.0	4.6 - 64.1

KIR data analyses to be presented at 15-ICML: Gualberto et. al. Abstract 156-P

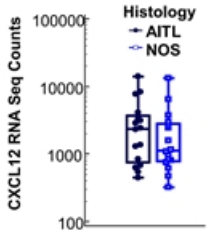
Preliminary data as of 24 May 2019

Drivers of Tipifarnib's Activity in AITL

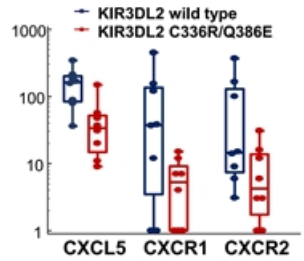
Overall high CXCL12 expression in AITL, Low CXCL5 expression in KIR3DL2 mutant AITL

Genetics

High CXCL12 expression in AITL histology

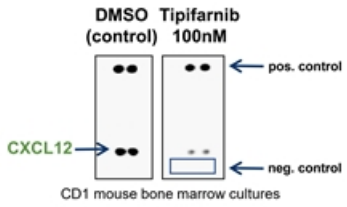


Low CXCL5 expression in KIR3DL2 mutant AITL

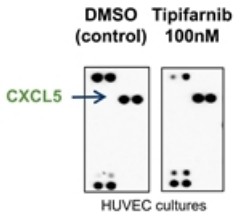


Mechanism of Action

Tipifarnib downregulates CXCL12 secretion



Tipifarnib does not inhibit CXCL5 secretion



Activity

	AITL	KIR3DL2 Mutant
N		8
Overall Best Response		
Complete Response (CR)		4
Partial Response (PR)		2
Stable Disease (SD)		2
Progressive Disease (PD)		-
Not evaluable (NE)		-
Overall Response Rate		**75%**
Clinical Benefit Rate		**100%**

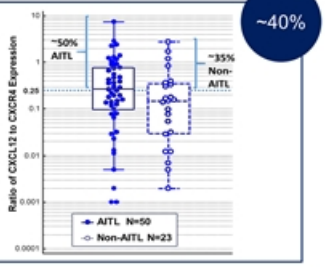
N= 32 AITL/NOS cases with response, NGS and RNA Seq data

Conclusions

- The AITL and wt CXCL12 3'UTR cohorts met pre-specified statistical hypotheses supporting proof-of-concept for tipifarnib in PTCL.
- Tipifarnib is active in AITL pts and in PTCL-NOS pts with wt CXCL12 3'UTR
  - AITL: 53% ORR (all subjects, PPS)
  - PTCL-NOS with wt CXCL12 3'UTR: 20% ORR (all subjects, PPS).
- KIR3DL2 and CXCL12 genotype provide robust tools for the selection/stratification of patients:
  - CXCL12 genotype may enrich for CXCL12 expression and tipifarnib activity, particularly in PTCL-NOS (86.7% Clinical Benefit Rate for PTCL-NOS patients with wt CXCL12 3'UTR).
  - KIR3DL2 C336R/Q383E mutations may enrich for low CXCL5 expression and anti-tumor activity in AITL (75% ORR, 50% CR rate).
  - Approximately 50% of AITL carry KIR3DL2 mutations and 70% of PTCL carry reference (wild type) CXCL12 3'UTR rs2839695 sequences.
- TEAEs were consistent with the known safety profile of tipifarnib.
  - Treatment with tipifarnib 300 mg bid days 1-21 every 28-days was generally well tolerated. The majority of Grade ≥ 3 TEAEs were hematological events managed with best supportive care.
- These results suggest that further evaluation of tipifarnib in biomarker defined subsets of PTCL and CTCL would be of interest.

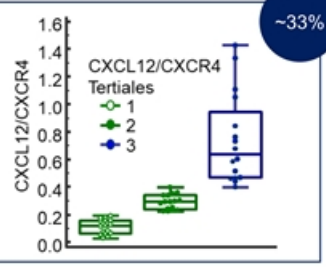
Tipifarnib Has Potential to Expand to Additional CXCL12-High Populations

PTCL / AITL[1] ~40%



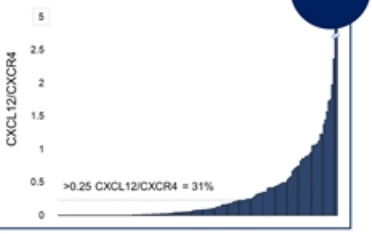
Est. Annual U.S. Incidence: 3,950[5]

DLBCL[2] ~33%



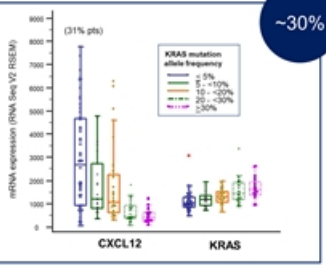
Est. Annual U.S. Incidence: 27,650[5]

AML[3] ~30%



Est. Annual U.S. Incidence: 21,450[6]

PANCREATIC[4] ~30%



Est. Annual U.S. Incidence: 56,770[6]

[1] Witzig ASH 2018 #2937 | [2] Kura Oncology ASH 2018 Data Review | [3] Gualberto ASH 2017 #3957 | [4] Gualberto AACR 2019 #CT191 | [5] Teras *et al.* 2016 *CA Cancer J Clin.* Nov 12;66(6):443-459 | [6] American Cancer Society | Incidience not adjusted for CXCL12-high subset

Key Takeaways

- POC achieved in AITL and wt CXCL12 3'UTR extension cohorts
- AITL and related lymphomas represent approximately one-third of PTCL cases
- KIR3DL2 and CXCL12 genotype provide additional robust tools for the selection/stratification of PTCL patients
- Approximately 50% of AITL carries KIR3DL2 mutations and 70% of PTCL carries reference (wild type) CXCL12 3'UTR rs2839695 sequences
- Company believes results support multiple potential pathways to registration in AITL/PTCL and plans to seek regulatory feedback
- Potential for CXCL12 variations/mutations to predict clinical activity in additional indications, including DLBCL, AML and pancreatic cancer

Anticipated Milestones & Financial Highlights

Program		Milestones	Status
Tipifarnib Farnesyl Transferase Inhibitor	HRAS Mutant Indications	Initiation of registration-direct1ed trial in HNSCC	✓
		Additional data from Phase 2 trial in HNSCC and other SCCs	2H 2019
	CXCL12 Pathway Indications	Patents for tipifarnib in AITL and CXCL12+ PTCL/AML	✓
		Proof-of-concept in AITL	✓
		Positive Phase 2 trial in PTCL	✓
		Additional data from Phase 2 trial in CMML	2019
KO-947 ERK Inhibitor		Potential biomarker of activity in squamous cell carcinomas	✓
		Data from Phase 1 dose-escalation trial	2019
KO-539 Menin-MLL Inhibitor		FDA clearance of IND application	✓
		Initiation of Phase 1 trial	Mid-2019

Financial Highlights	
	Nasdaq: KURA
	Shares outstanding: 38.2M basic, 4.3M options*
	Cash, cash equivalents and short-term investments: $165.5M*

* As of March 31, 2019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