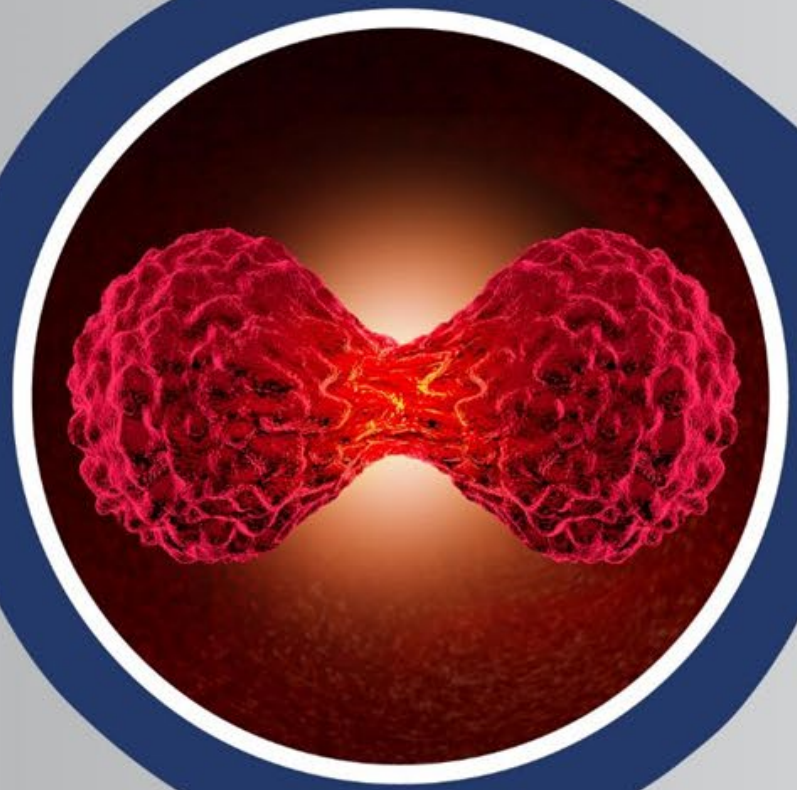

ONCTERNAL therapeutics™

TARGETING CANCER

New Science. New Cancer Therapies. New Hope.

Company Overview – March 2021

FORWARD LOOKING STATEMENTS

This presentation includes forward-looking statements (including within the meaning of §21E of the U.S. Securities Exchange Act of 1934, as amended, and § 27A of the U.S. Securities Act of 1933, as amended). Forward looking statements, which generally include statements regarding goals, plans, intentions and expectations, are based upon current beliefs and assumptions of Oncternal Therapeutics, Inc. ("Oncternal," or the "Company") and are not guarantees of future performance. Statements that are not historical facts are forward-looking statements, and include statements regarding the expected timing for achieving key milestones, including completing and announcing results of clinical trials of the Company's product candidates, the anticipated market potential, duration of patent coverage, ability to obtain and maintain favorable regulatory designations and, potentially, accelerated approval pathways for the Company's product candidates and preclinical programs, and the Company's anticipated cash runway.

All forward looking statements are subject to risks and uncertainties, which include, but are not limited to: uncertainties associated with the clinical development and process for obtaining regulatory approval of Oncternal's product candidates, including potential delays in the commencement, enrollment and completion of clinical trials; inherent risks involved in the commercialization of any product, if approved; the risk that results seen in a case study of one patient likely will not predict the results seen in other patients in the clinical trial; the risk that interim results of a clinical trial do not predict final results and that one or more of the clinical outcomes may materially change as patient enrollment continues, following more comprehensive reviews of the data, as follow-up on the outcome of any particular patient continues, and as more patient data become available; the risk that unforeseen adverse reactions or side effects may occur in the course of developing and testing Oncternal's product candidates; risks associated with the COVID-19 pandemic, which may adversely impact our business operations and clinical trials, including delays in the enrollment of patients; the risk that the regulatory landscape that applies to the development programs for Company's product candidates may change over time; the risk that competitors may develop technologies or product candidates more rapidly than Oncternal, or that are more effective than Oncternal's product candidates, which could significantly jeopardize Oncternal's ability to develop and successfully commercialize its product candidates; the Company's dependence on the success of its product development programs; the risk that Oncternal may be unable to obtain sufficient additional capital to continue to advance the development of its product candidates and preclinical programs; the risk that the benefits associated with orphan drug designation may not be realized, including that orphan drug exclusivity may not effectively protect a product from competition and that such exclusivity may not be maintained; and the risk that, if an orphan designated product, including cirmtuzumab, receives marketing approval for an indication broader than what is designated, it may not be entitled to orphan exclusivity.

Except as required by applicable law, Oncternal undertakes no obligation to revise or update any forward-looking statement. All forward-looking statements in this presentation are current only as of the date on which the statements were made. Additional factors that could cause actual results to differ materially from those expressed in the forward-looking statements are discussed in reports filed with the SEC by Oncternal, including its most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K filed with the SEC.

Cirmtuzumab, TK216 and Oncternal's CAR-T targeting ROR-1 are investigational product candidates or preclinical programs that have not been approved by the U.S. Food and Drug Administration for any indication.

Corporate Highlights

CIRMTUZUMAB: POTENTIALLY FIRST-IN-CLASS MONOCLONAL ANTIBODY TARGETING ROR1

- Ongoing clinical studies in MCL, CLL and breast cancer, and preclinical studies in additional cancer indications
- Interim Phase 1/2 results for cirmtuzumab + ibrutinib in MCL compare favorably to historical single-agent ibrutinib data
- Dialogue with FDA regarding potential accelerated approval study design in MCL

ROR1 CAR-T CELL THERAPY: AGREEMENTS WITH SHANGHAI PHARMA, KAROLINSKA INSTITUTET AND LENTIGEN

- In development to treat hematological malignancies and solid tumors

TK216: TARGETED ETS INHIBITOR

- Two durable complete responses in patients with metastatic relapsed/refractory Ewing sarcoma in ongoing Phase 1/2
- Additional opportunities in ETS-driven tumor indications

MULTIPLE DATA CATALYSTS EXPECTED IN NEXT 12 MONTHS

- Clinical data updates expected in MCL, CLL, breast cancer and Ewing sarcoma
- ROR1 CAR-T cell therapy expected to reach clinic in 2H 2021 in China

EXPERIENCED MANAGEMENT AND BOARD OF DIRECTORS

Experienced Team

ONCTERNAL therapeutics™

James Breitmeyer, MD, PhD
CEO, Founder, Director

Richard Vincent
CFO

Raj Krishnan PhD
CTO

David Hale
Co-founder, Board Chairman

Michael Carter, MD, Ch.B., F.R.C.P.
Director

Daniel Kisner, MD
Director

Bill LaRue
Director

Edwina Baskin Bey, MD
Acting CMO

Gunnar Kaufmann, PhD
CSO

Rosemary Mazanet, MD, PhD
Director

Xin Nakanishi, PhD
Director

Charles Theuer, MD, PhD
Director

Robert Wills, PhD
Director

Robust Pipeline – Novel Product Candidates in Multiple Indications

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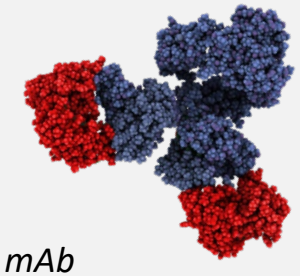
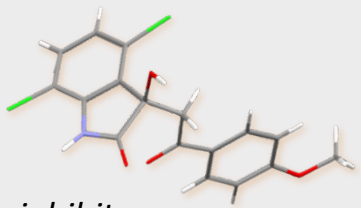
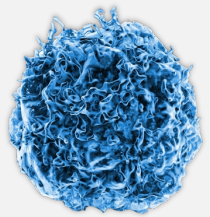
Product Candidate	Indication	Preclinical	Phase 1	Phase 2	Phase 3	Modality
Cirmtuzumab	Mantle Cell Lymphoma (MCL)					*ROR1 mAb*
	Chronic Lymphocytic Leukemia (CLL)					
	Breast Cancer					
TK216	Ewing Sarcoma					*ETS oncoprotein inhibitor*
	Acute Myeloid Leukemia (AML)					
	Prostate Cancer					
ROR1 CAR-T	Heme Cancers					*ROR1 CAR-T cell therapy*
	Solid Tumors					







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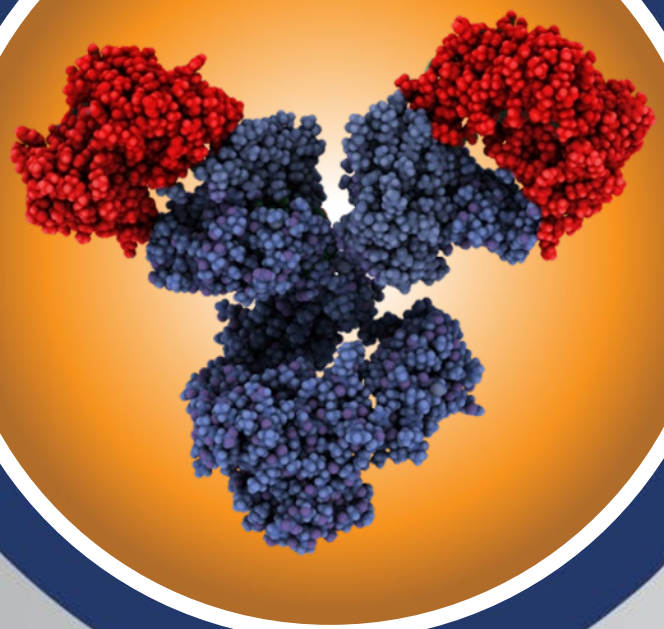


CIRMTUZUMAB

ROR1 monoclonal antibody

ROR1 (Receptor Tyrosine Kinase-Like Orphan Receptor 1) Compelling Tumor-Specific Target

- Expressed on **most B-cell malignancies**, including
  - Mantle cell lymphoma (MCL), diffuse large B-cell lymphoma (DLBCL), chronic lymphocytic leukemia (CLL)
- Expressed on **many solid tumors**
  - Increased ROR1 expression associated with more aggressive tumors, shorter PFS and OS
- ROR1 activity associated with **aggressive phenotype**
  - Invasion, metastasis, stem cell-like behavior, and resistance to treatment
- Subject of **recent large pharma acquisitions**
  - ROR1-ADCs: Merck (VelosBio), Boehringer (NBE)
- **Oncternal ROR1 pipeline differentiated and advancing**
  - Therapeutic antibody and cell therapy programs

ROR1 Expressed on Multiple Solid and Liquid Tumors

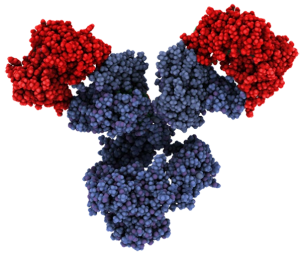
MCL	95%
CLL	95%
Uterus	96%
Lymphoma	90%
Prostate	90%
Skin	89%
Pancreatic	83%
Adrenal	83%
Lung	77%
Breast	75%
Testicular	73%
Colon	57%
Ovarian	54%

Zhang 2012 AJP

Green 2008 Trends Cell Biol. 2008; Matsuda T 2001 Mech Dev.;
Fukuda 2008 PNAS; Hudecek 2010 Blood;
Zhang 2012 Am J Pathology; Zhang 2014 PNAS

Two Development Programs at Oncternal Target ROR1

Cirmtuzumab ROR1 mAb



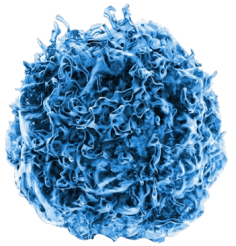
Background

- High-affinity IgG1 humanized ROR1 mAb
- Patent coverage through 2033
- Supported by ~$14M non-dilutive CIRM grant and Pharmacyclics product donation
- Cirmtuzumab is the mAb used in VLS-101 ADC
  - VelosBio spun out in 2018, acquired by Merck in 2020 for $2.75B

Development status

- MCL: lead indication. P2 with ibrutinib (data: ASH 2020)
  - Orphan Drug Designations for MCL and CLL
- CLL: P2 with ibrutinib (data: ASH 2020); P1b with venetoclax
- HER-2 negative breast cancer: P1b with paclitaxel
- Investigating additional ROR1-expressing indications

ROR1 CAR-T & CAR-NK



Background

- CAR utilizing cirmtuzumab scFv for targeting
- ROR1 expression on many tumor types
- Potential safety and efficacy advantages
- VLS-101 data at ASH 2020 reported no off-tumor ROR1 organ toxicities

Development status

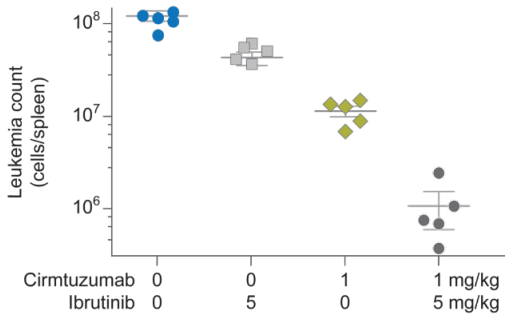
- Collaborations with Shanghai Pharma (China) and Karolinska Institutet. Manufacturing with Lentigen
- First-in-human dosing in China expected 2H 2021

ROR1 = **R**eceptor tyrosine kinase-like **O**rphan **R**eceptor **1**
CIRM = **C**alifornia **I**nstitute for **R**egenerative **M**edicine

Extensive Preclinical Research Supports Evaluation As Combination Therapy, Multiple Tumor Indications and Potential Safety Advantage

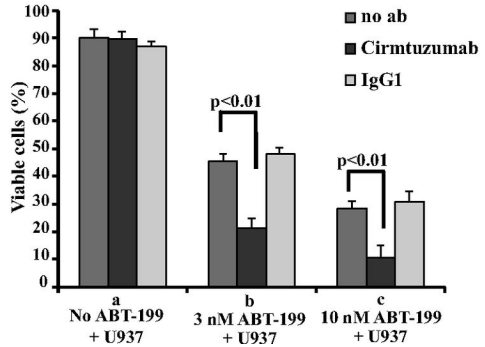
Synergism with Targeted Agents

- Synergistic with ibrutinib in CLL + MCL
  - ROR1-Wnt5a pathway not inhibited by ibrutinib



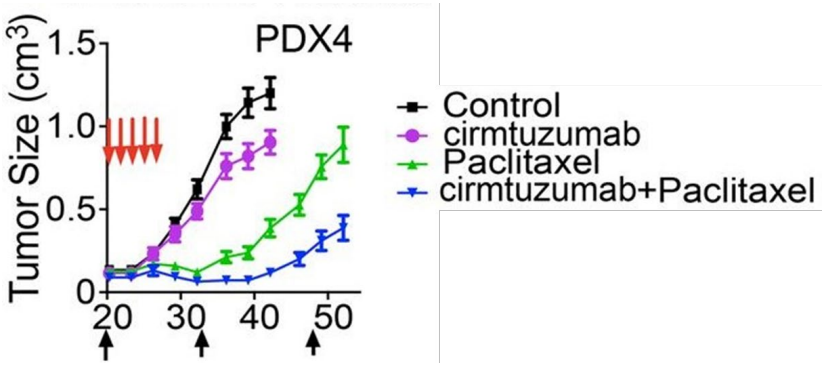
Yu 2017 Leukemia

- Synergistic with venetoclax (ABT-199)



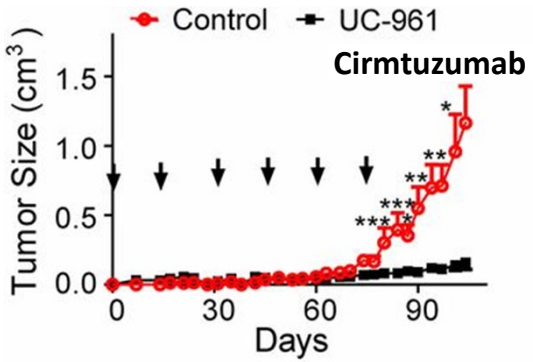
Rassenti 2017 PNAS

Supporting Preclinical Data in Solid Tumors



Cirmtuzumab and paclitaxel are at least additive against TNBC PDX growth, and eliminate tumor forming cells

Zhang 2019 PNAS

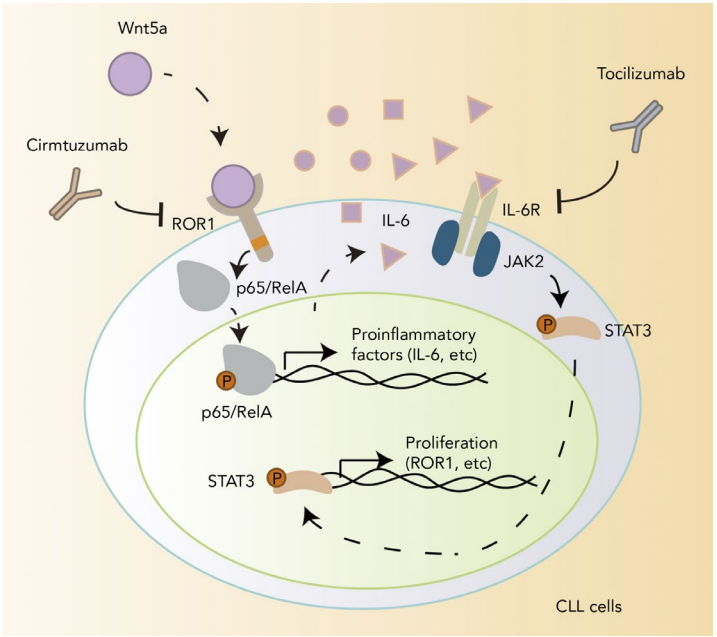


Anti-tumor activity in PDX models of ovarian cancer

Zhang 2014 PNAS

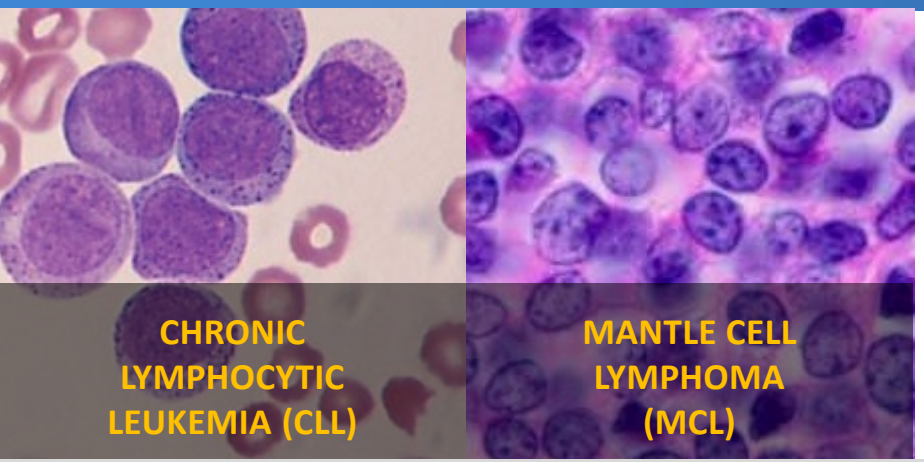
ROR1 Antagonism Suppresses Inflammation in CLL

- Cirmtuzumab blocks pro-inflammatory NF-kB signaling pathway in CLL cells
  - Potential explanation for safety profile observed in patients



Chen 2019 Blood

Phase 1/2 Study of Cirmtuzumab and Ibrutinib in Patients with MCL and CLL



CIRLL Study:

- **C**irmtuzumab and **I**brutinib targeting **R**OR1 for **L**eukemia and **L**ymphoma
- MCL enrollment recently expanded
- Dialogue with FDA regarding potential accelerated approval study design in MCL

STUDY DESIGN

PART 1 (in CLL & MCL)	PART 2 (in CLL & MCL)	PART 3 (in CLL)
DOSE-FINDING COHORT • Cirmtuzumab at 2/4/8 & 16 mg/kg and 300 & 600 mg per dose • Ibrutinib added after one month (420 mg CLL, 560 mg MCL qd po)	**DOSE-EXPANSION COHORT** • Confirm Recommended Dosing Regimen (RDR) of cirmtuzumab (600 mg) + ibrutinib at approved dose (420 mg CLL, 560 mg MCL)	**RANDOMIZED EFFICACY** • Cirmtuzumab + ibrutinib vs ibrutinib • Primary endpoint: Complete Response rate
Enrolled	***MCL Phase 2 enrolling*** *CLL enrolled*	*Enrolled*

- Funded by CIRM
- Collaboration with UC San Diego and CIRM
- Ibrutinib from Pharmacyclics/Abbvie

CIRLL Trial Cirmtuzumab + Ibrutinib: Best Overall Response in MCL and CLL

Data Update at ASH 2020 – MCL ORR Increased to 87%

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		Evaluable patients	Best ORR** (CR & PR)	CR	PR	Clinical Benefit (CR, PR, SD)
MCL	Part 1	12	83% 10/12	58% 7/12	25% 3/12	100%
MCL	Part 2	3	100% 3/3	0	100% 3/3	100%
MCL	Parts 1&2	34	91% 31/34	3% 1/34	88% 30/34 (26 PR, 4 PR-L)	100%
CLL	Part 3	15 Cirmtuzumab + Ibrutinib	93% 14/15	0	93% 14/15 (12 PR, 2 PR-L)	100%
CLL	Part 3	7 ibrutinib	100% 7/7	0	100% 7/7	100%

*Evaluable patients for efficacy are those who have completed treatment and have had the planned 3 month post cirmtuzumab + ibrutinib combination therapy imaging studies or had documented or clinical PD following 28 days of therapy. **Includes both confirmed and unconfirmed best responses. For CLL: iwCLL criteria were used. For MCL, Cheson 2007/2014 was used. For MCL, data include one complete metabolic remission (CMR); blinded review of bone marrow biopsy was indeterminant for tumor involvement. Note: One Part 2 MCL patient (PR) met criteria for a CR with a morphologically normal marrow but with minimal marrow disease by flow. All ASH 2020 data presented herein as of Oct 30, 2020.

Lee 2020 ASH

MCL Patient Characteristics and Swimmer Plot

Cirmtuzumab + Ibrutinib Data Update at ASH 2020

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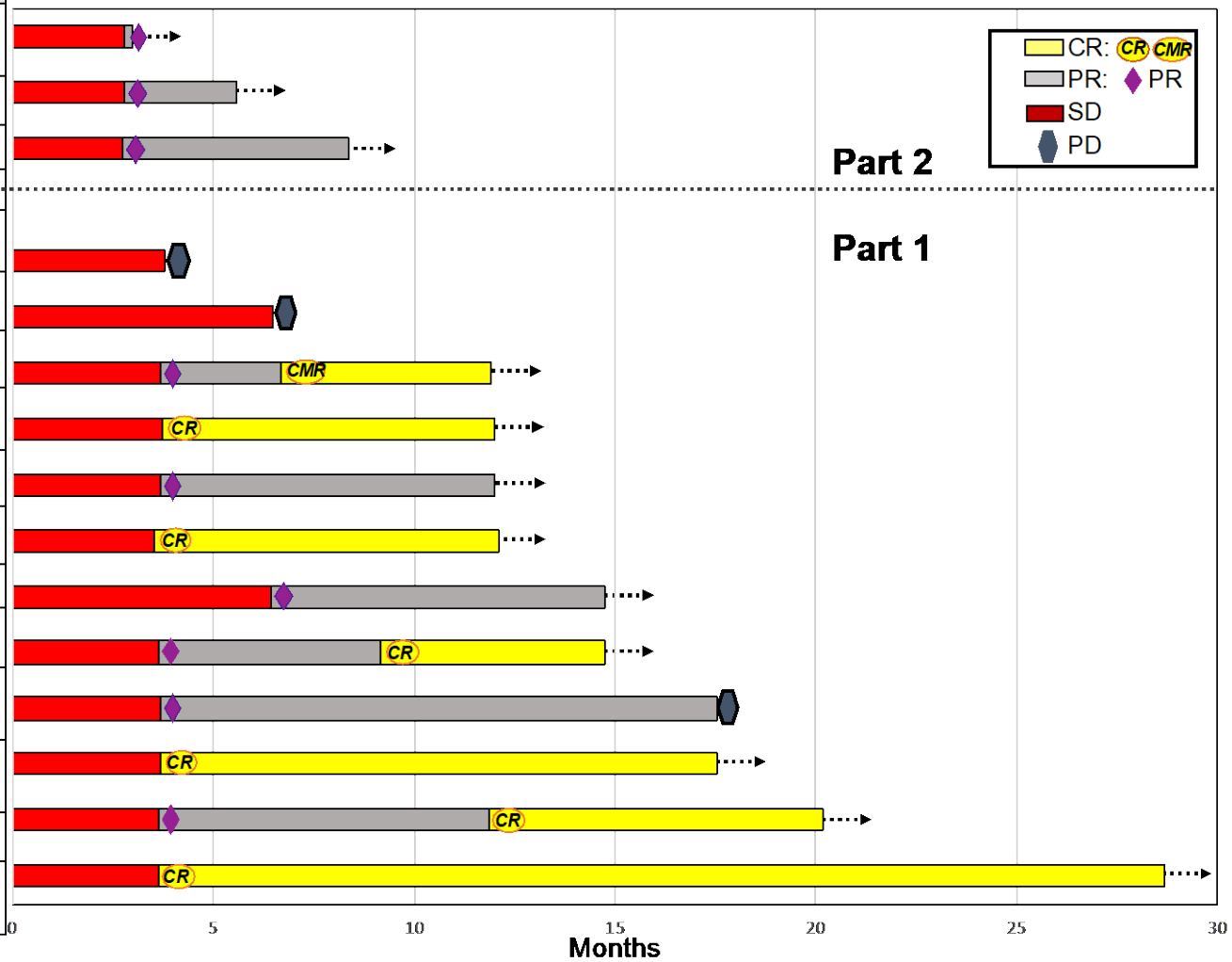
Resp to Cirm	# Prior Tx	Prior Treatment Regimens	MCL Variant / Ki67	MIPIb Score at SCR	Bulky >5cm LD	Cirm Dose	Change Tumor Size
PR	2	R-CHOP/ Lenalidomide; Rituximab/High dose Cytarabine/Lenalidomide	KI67 20%	Int. 6.2	Yes	600 mg	-97%
PR	1	R-HyperCVAD and R-Methotrexate/Cytarabine	Blastoid KI67 95%	High 8.1	Yes	600 mg	-64%
PR	1	Rituximab	KI67 50%	High 6.6		600 mg	-66%
SD*	2	RCHOP/ITMTX, R-hyperCVAD	Pleo. KI67 90%	High 7.1	(4.8cm)	8 mg/kg	-79%
SD	2	RCHOP, R-DHAP	KI67 10%	High 6.7		16 mg/kg	-11%
CMR	2	RCHOP; R-BEAM/Auto-SCT	KI67 10%	High 6.8		2 mg/kg	-100%
CR	2	R/Ibrutinib (10mths); R-HyperCVAD	Pleo. KI67 70%	High 7	Yes	8 mg/kg	-97%
PR	2	R/Ibrutinib (10mths); R-HyperCVAD	KI67 40%	High 6.6		4 mg/kg	-54%
CR	2	R/Ibrutinib (7mths); R-HyperCVAD	Nodular KI67 30%	Int. 5.8		16 mg/kg	-100%
PR	1	R/Ibrutinib	NA	Int. 5.7 No KI-67	Yes	8 mg/kg	-91%
CR	4	R/hyperCVAD, RCHOP, RICE, BEAM/Auto-SCT	Ki67 ~30%	Int. 5.8		16 mg/kg	-95%
PR	3	Benda/R, R/AraC/Cisplt/Dex, BEAM/ Auto-SCT	KI67 60%	High 7.8		4 mg/kg	-78%
CR	4	RCHOP/HDMTX/R, R/velcade/ITMTX, Auto-SCT, CAR-T	Nodular Ki67 ~15%	Low 5.5		4 mg/kg	-100%
CR	1	RCHOP (Plus RT to orbits)	Blastoid KI67 75%	High 7.6		2 mg/kg	-77%
CR	5	RCHOP, BEAMR/ Auto-SCT, Benda/R/Allo-SCT, ICE-R, R	Diffuse KI67 20%	High 7	Yes	2 mg/kg	-100%



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Note: Part 1 patients started Ibrutinib on Day 28, and Part 2 patients, on Day 0. Bars represent activity of patients on treatment to last response assessment; arrows indicate pt continues on treatment. Time to first response: 87% (13/15) CR/PR and 57% (4/7) CR occurred by the first evaluation after starting combined cirmtuzumab/ibrutinib.

Note: Rule et al., 2017 Br J Haem: ORR 66% and CR rate 20% for ibrutinib in MCL population with similar number of prior lines of therapy (pooled analysis across three third-party clinical studies).

R/R MCL: Tumor Reduction and Progression-Free Survival

Cirmtuzumab + Ibrutinib Data Update at ASH 2020

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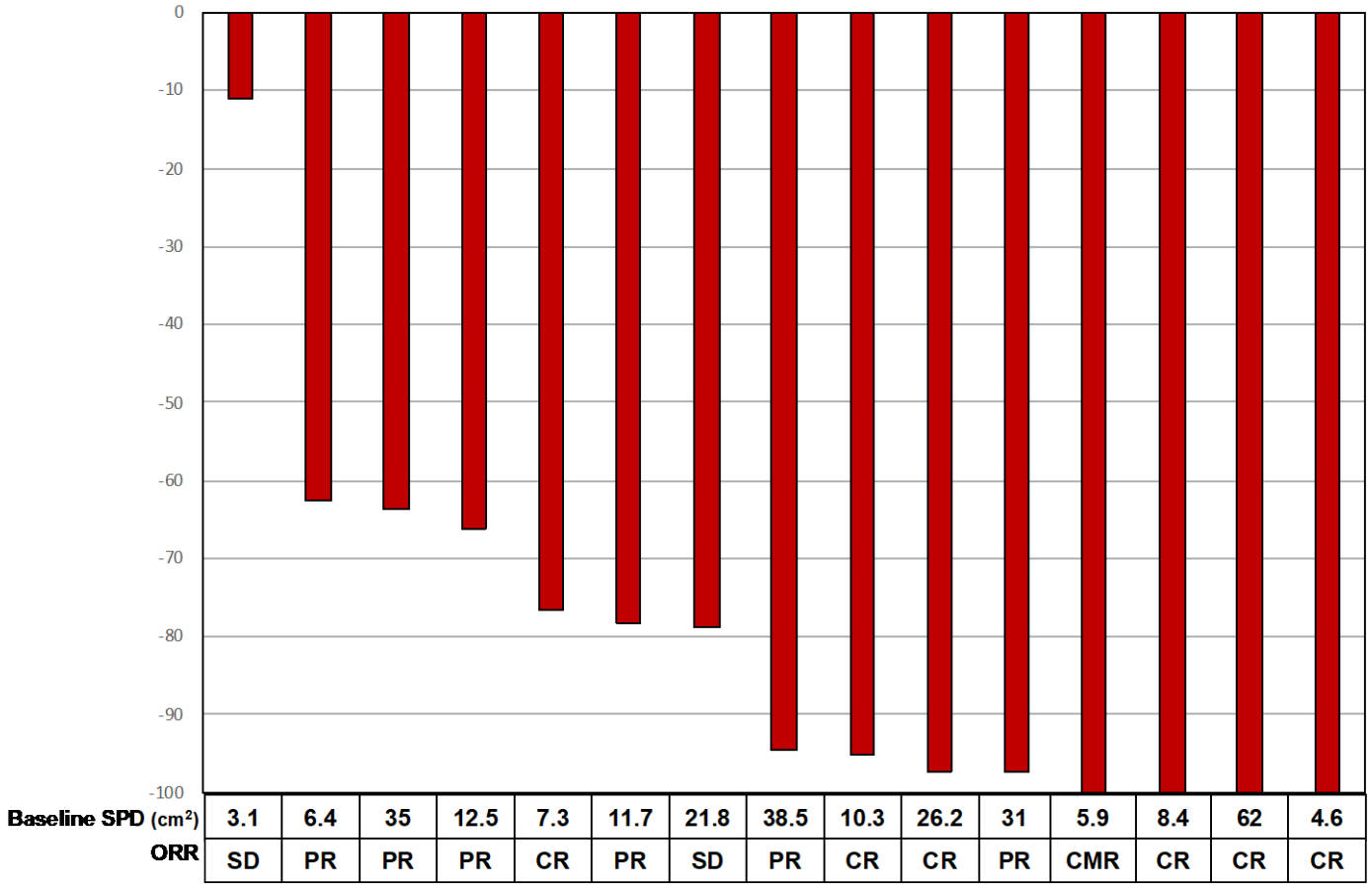
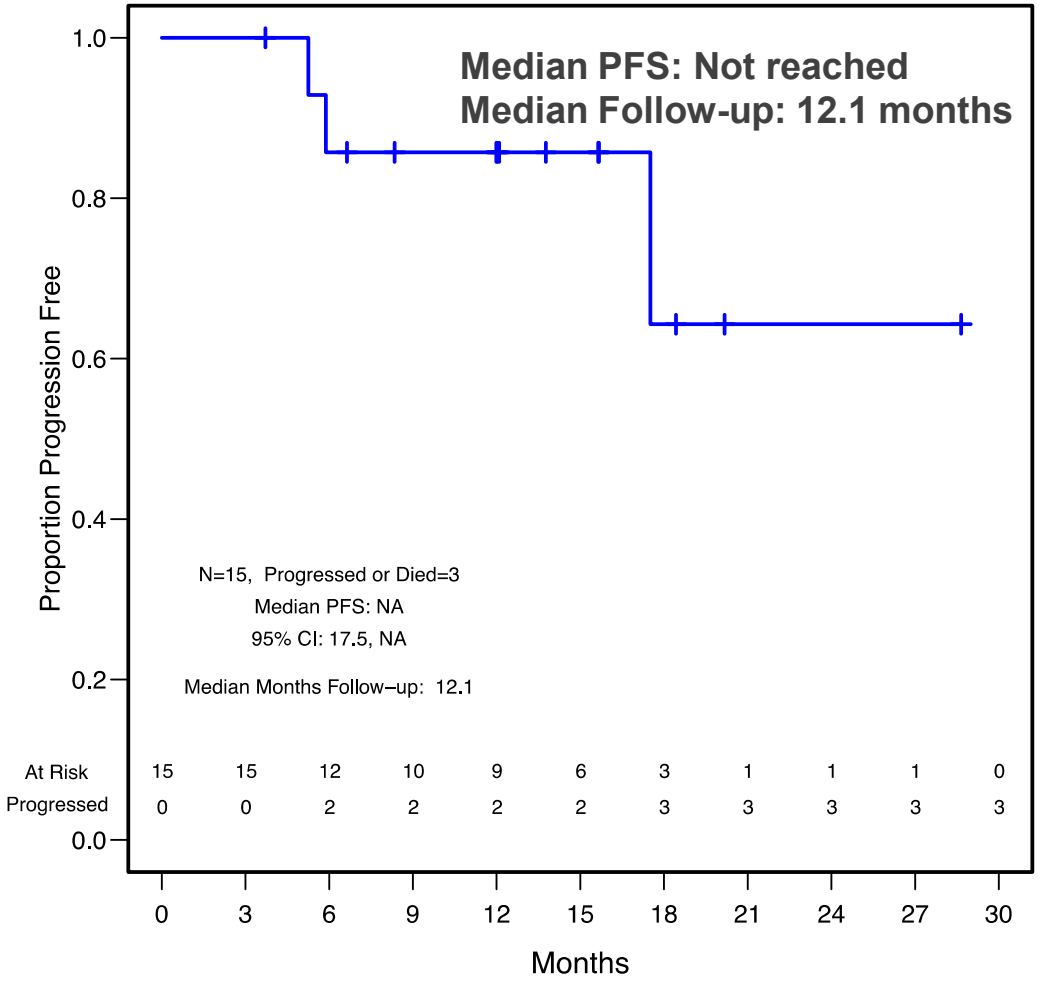
Best Tumor Reduction (SPD cm²)



Baseline SPD (cm²)	3.1	6.4	35	12.5	7.3	11.7	21.8	38.5	10.3	26.2	31	5.9	8.4	62	4.6
ORR	SD	PR	PR	PR	CR	PR	SD	PR	CR	CR	PR	CMR	CR	CR	CR

Progression-Free Survival



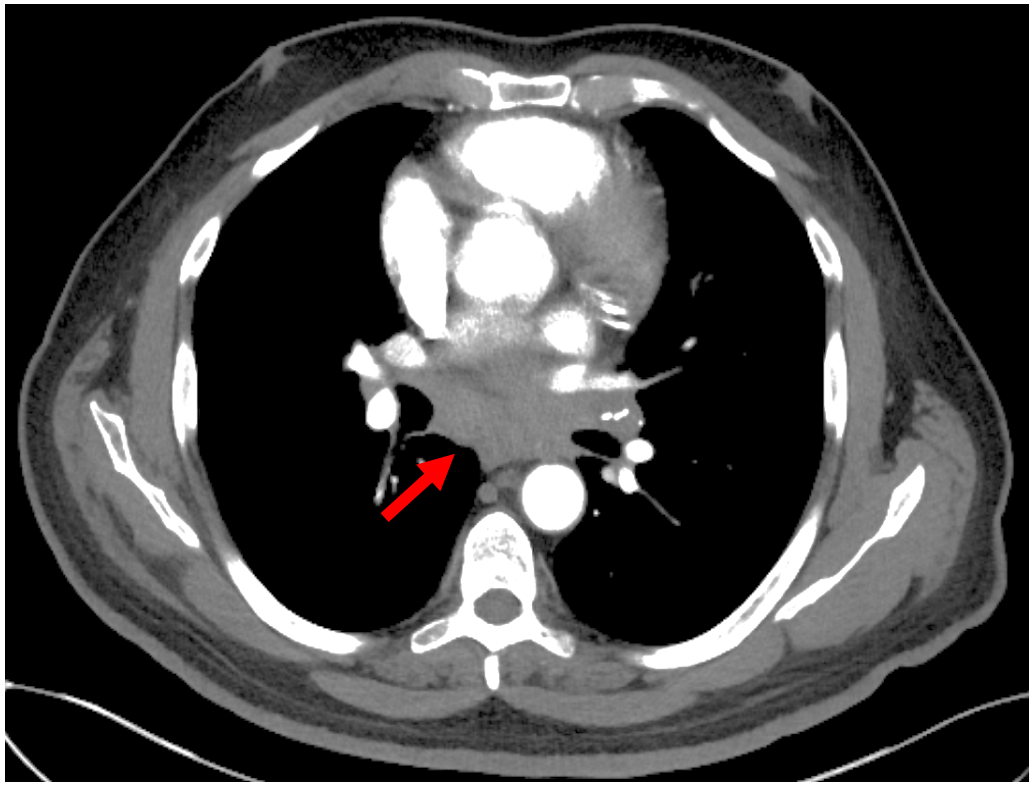
Note: Rule et al., 2017 Br J Haem: median PFS 12.8 months for ibrutinib in MCL population with similar number of prior lines of therapy (pooled analysis across three third-party clinical studies).

Lee 2020 ASH

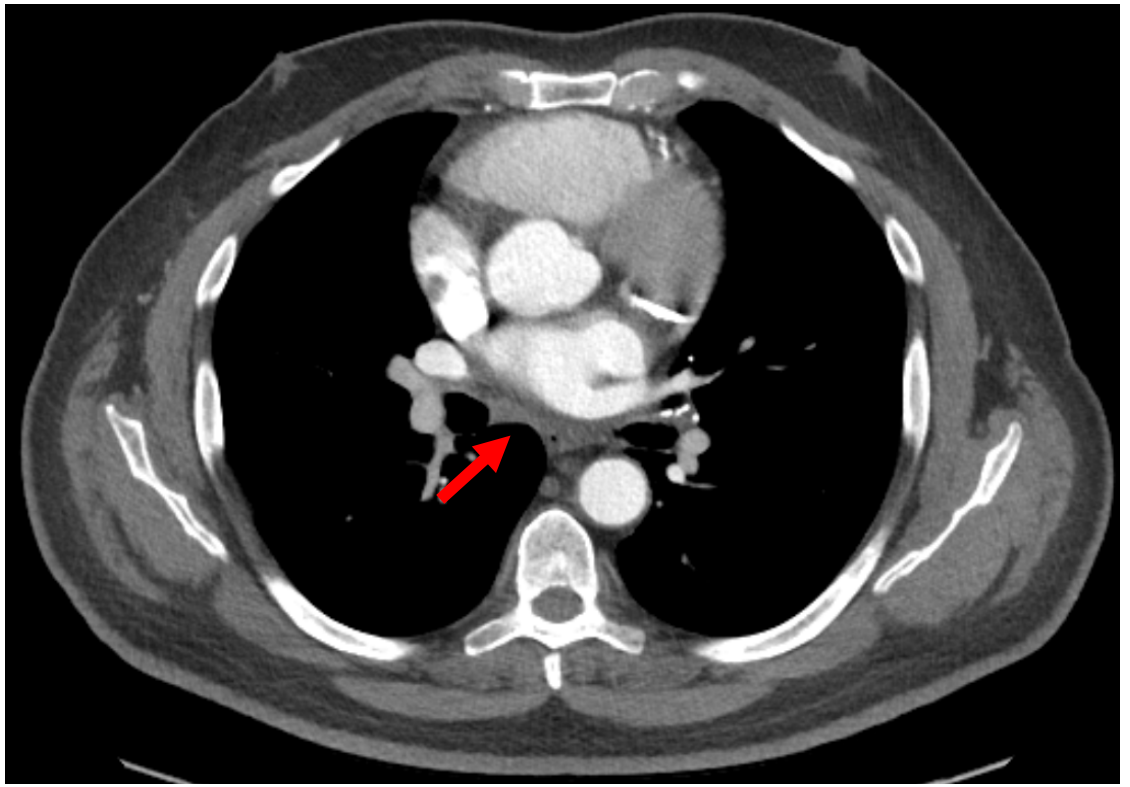
Case Study: Durable Complete Response in Patient with R/R MCL in Clinical Trial of Cirmtuzumab and Ibrutinib

- 65-year-old male initially diagnosed in 2016 with MCL stage IV including involvement of bilateral orbits
- Initial treatment: radiation therapy and R-CHOP
- Recurred and enrolled onto Part 1 Cirmtuzumab/Ibrutinib study in 2019 at the 2mg/kg dose level
- High risk factors: Blastoid subtype; Ki-67: 75%; High MIPIb score 7.6
- After <4 mos treatment, achieved a PR and after 12 mos, a CR
- Continues on therapy now >20 months and tolerating treatment well

Pretreatment



<4 months Post Cirmtuzumab/Ibrutinib



Lee 2020 ASH

Cirmtuzumab + Ibrutinib Interim Clinical Results in MCL (ASH 2020) Compare Favorably to Historical Single-Agent Ibrutinib Data

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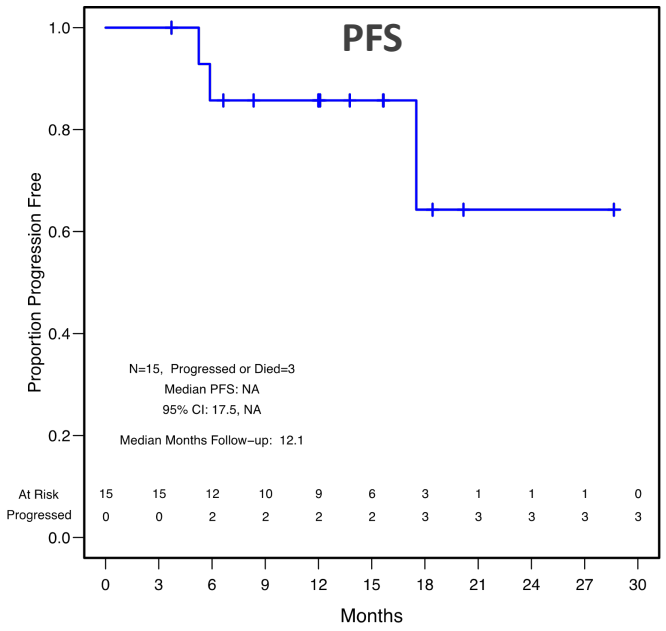
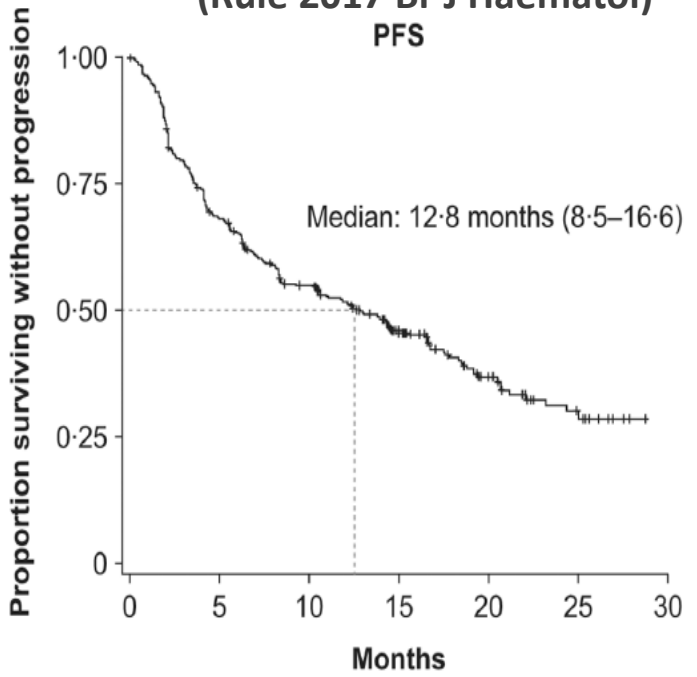
Cirmtuzumab + ibrutinib (Lee 2020 ASH)



Single-agent ibrutinib (Rule 2017 Br J Haematol)



Baseline characteristics	**Median lines of prior therapy**	**2 (73.3%** with >1 prior lines)	**2 (73.2%** with >1 prior lines)
	Median follow-up	12.1 months	24-25 months
Clinical outcomes	**Median PFS**	Not reached. 95% CI: (**17.5 months - NA**)	12.8 months. 95% CI: (**8.5 – 16.6 months**)
	ORR	**87%**	**66%**
	CR	**47%**	**20%**

Note: Data presented are from separate studies and such data may not be directly comparable due to differences in study protocols, conditions and patient populations. Accordingly, cross-trial comparisons may not be reliable predictors of the relative efficacy or other benefits of the combination of cirmtuzumab and ibrutinib compared to single-agent ibrutinib.

CLL: Tumor Reduction and Progression-Free Survival

Cirmtuzumab + Ibrutinib Data Update at ASH 2020

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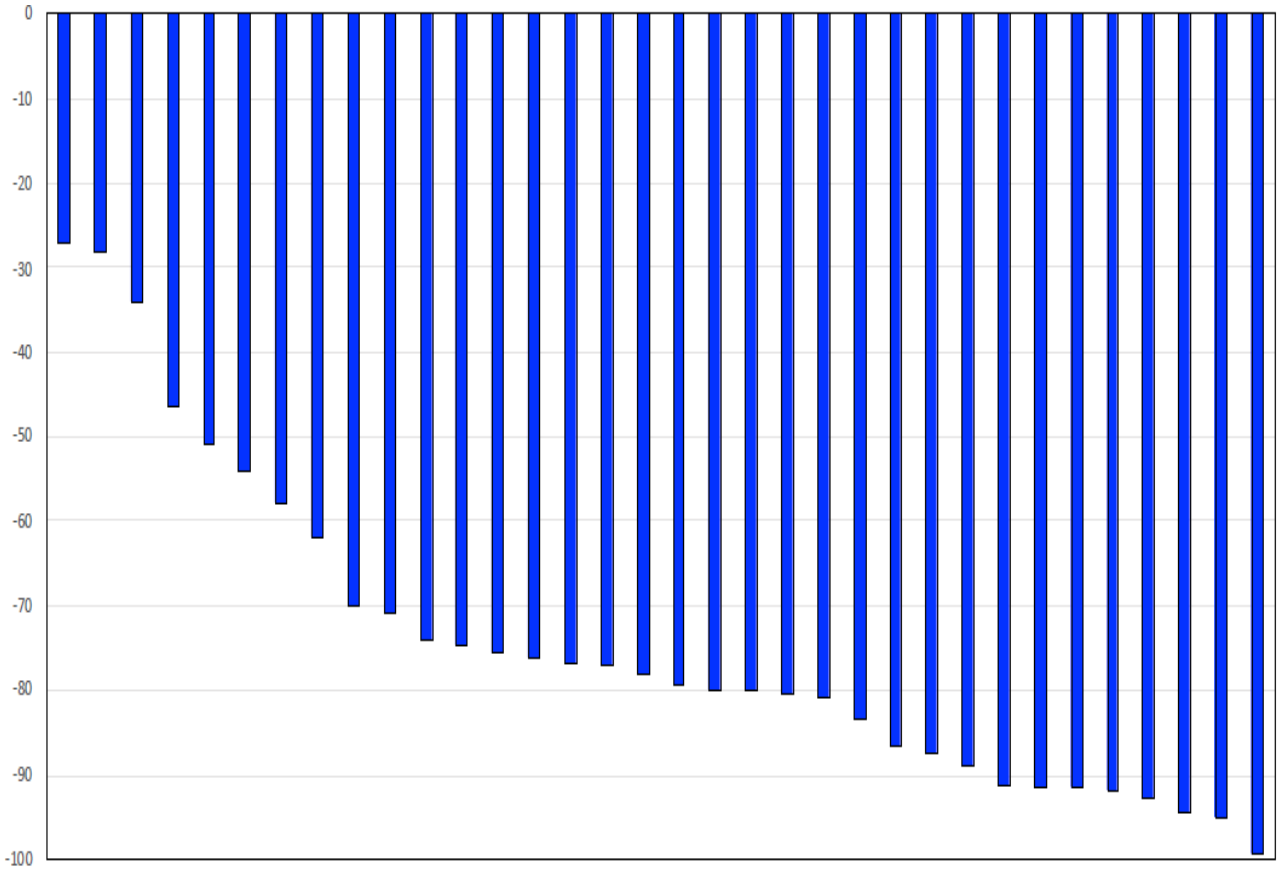
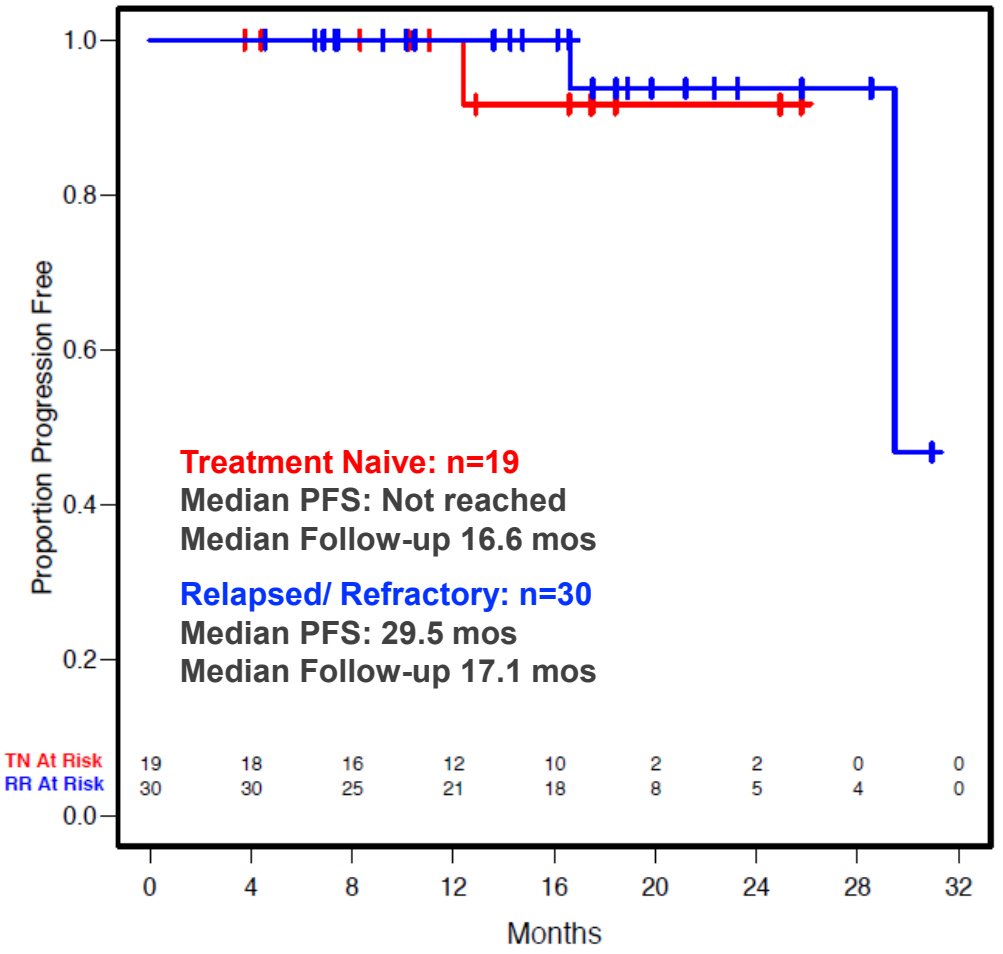
Best % Tumor Reduction
CLL Parts 1 & 2



Progression-Free Survival
CLL Parts 1-3



Lee 2020 ASH

CIRLL Trial Cirmtuzumab + Ibrutinib: Summary

Data Update at ASH 2020

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MCL:

- **Clinical activity compares favorably to published single-agent ibrutinib data***
  - ORR 87% (12/15), CR rate 47% (7/15)
  - All CRs durable for 5 - 25+ months. No progressions reported after CR
  - Median PFS not reached after median follow-up of 12.1 months
- **Encouraging clinical activity in high-risk sub-populations**
  - Prior SCT or CAR-T (n=5): **100%** ORR (4 CR, 1 PR)
  - Ki-67 levels ≥30% (n=9): **89%** ORR (4 CR, 4 PR)
  - Intermediate/high MIPI (n=14): **86%** ORR (6 CR, 6 PR)
  - Prior ibrutinib (n=4): **100%** ORR (2 CR, 2 PR)

CLL/SLL:

- **The combination of cirmtuzumab plus ibrutinib is a well-tolerated and active regimen in CLL**
  - ORR 92% (45/49), Clinical Benefit 100% (49/49)
  - One patient achieved CR durable for >17 months off all therapy
  - Median PFS for treatment-naïve CLL: not reached after median follow-up of 16.6 months
  - Median PFS for r/r CLL: 29.5 months after median follow-up of 17.1 months

- **Adverse events reported for cirmtuzumab + ibrutinib -- typical for ibrutinib alone**
  - No dose limiting toxicities or discontinuations due to cirmtuzumab
  - No Grade 3 or higher common adverse events attributed to cirmtuzumab alone

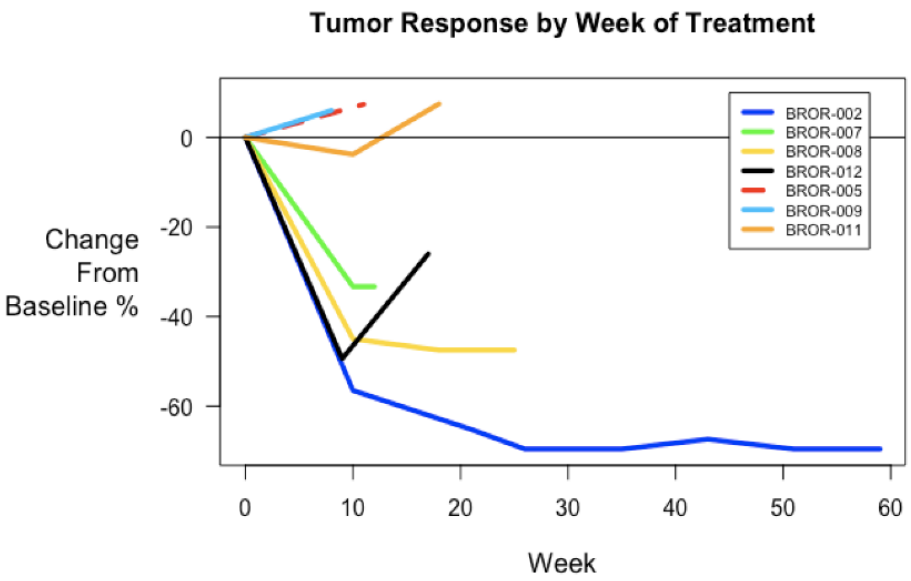
*Historical data with single-agent ibrutinib in MCL population with similar distribution of prior lines of therapy reported overall ORR 66% and CR rate 20% (Rule et al. 2017 Br J Haem); such data may not be directly comparable due to differences in study protocols, conditions and patient populations.

Lee 2020 ASH

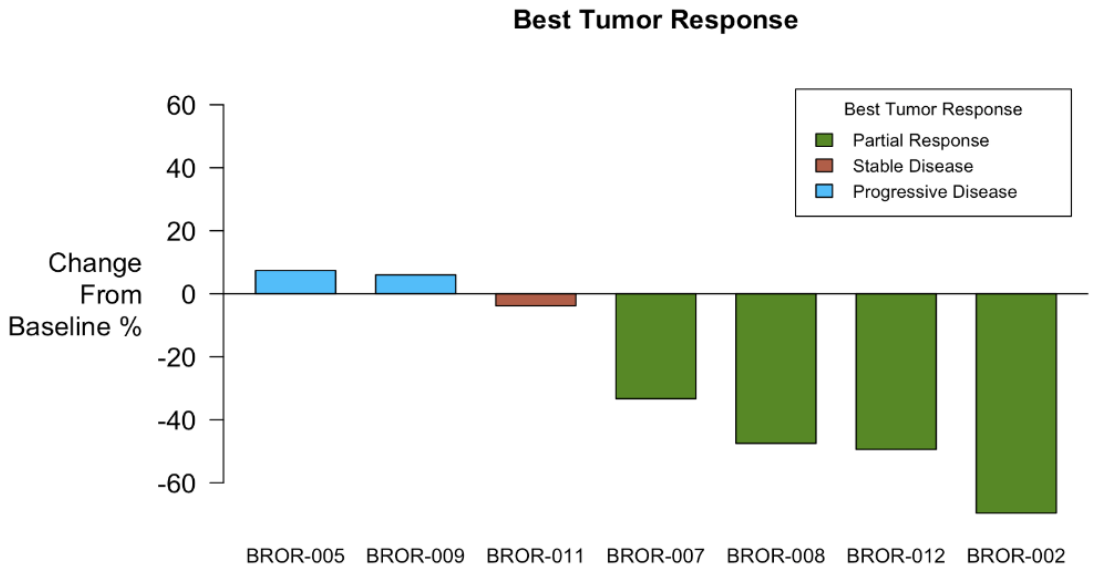
HER2-negative Breast Cancer: Interim Phase 1 Data Cirmtuzumab + Paclitaxel Presented at SABCS 2019: ORR 57%

ONCTERNAL therapeutics™

% Tumor Volume Reduction by Week of Therapy



Best Tumor Volume Response by Patient ORR = 57% (4/7)



Shatsky 2019 SABCS
(data cutoff November 27, 2019)

Historical reported weekly paclitaxel ORR ~30%(1)

(1) Weekly paclitaxel ORR: 21% - Miller 2007 NEJM, 32-42% - Seidman 2008 JCO, 32% - Kim 2017 Lancet Oncol , 29% - Schmid 2019 JCO. Disclaimer: Results not based on head-to-head clinical studies. The results from historical trials not directly comparable and do not imply a clinical benefit of cirmtuzumab + paclitaxel over paclitaxel alone.

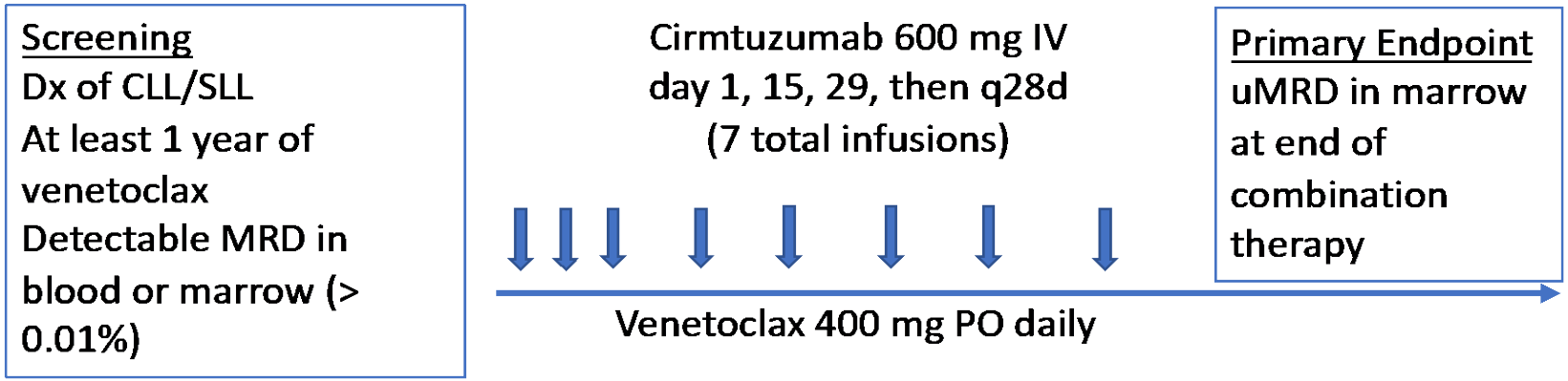
HER2-negative breast cancer

SABCS 2019 presentation of interim data

- Investigator sponsored trial at UC San Diego, Barbara Parker & Rebecca Shatsky
- Patients with HER2 negative, metastatic or locally-advanced unresectable breast cancer
- 600 mg cirmtuzumab monthly + 80 mg/m^2 paclitaxel weekly
- No DLTs or discontinuations
- Adverse events consistent with paclitaxel profile
- PK consistent with half-life of 30 days

Cirmtuzumab Consolidation for Treatment of CLL Patients with Detectable MRD on Venetoclax

- Investigator-sponsored, single-center two-stage study to determine the efficacy of cirmtuzumab in patients with measurable disease on venetoclax for at least 1 year who have detectable disease (MRD > 0.01% in the blood or marrow)
- Following 6 months of cirmtuzumab + venetoclax, patients are assessed for MRD in the blood/marrow.



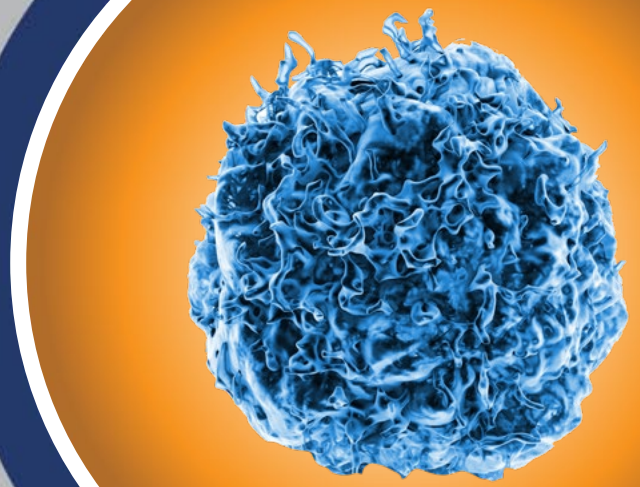
Primary Feasibility Endpoint:
Undetectable MRD (uMRD) rate after Cirmtuzumab + Venetoclax

Secondary and Exploratory Endpoints: Safety, time to next treatment, gene expression changes

Main inclusion criteria:
- CLL or SLL
- Detectable CLL (> 0.01% CLL cells in the blood or marrow)
- Must have received at least 12 months of venetoclax. (may be receiving venetoclax at the time of screening and study entry.)

Statistical Considerations
- Success rate of 25% uMRD considered compelling.
- Success rate of < 5% would be considered not compelling.
- n =16, 80% power to reject H_0, $\alpha < 5\%$

ClinicalTrials.gov Identifier: NCT04501939
uMRD = Undetectable Minimal Residual Disease



ROR1 CAR-T Program

CAR-T Cell Therapy Targeting ROR1 Addresses Two Common Challenges

ONCTERNAL therapeutics™

Current CAR-T Cell Therapy Weaknesses

Treatment failures

- Resistance to CAR-T therapy, frequently due to mutations, downregulation or loss of the non-essential target antigen
  - For example: CD19, BCMA

Safety concerns

- CAR-T cell therapy safety issues related to activation by normal cells expressing the target antigen

Strengths of Targeting ROR1

Potential for fewer antigen negative relapses

- ROR1 expression associated with aggressive tumor phenotype
- ROR1 mutation or loss might render cancer cells less aggressive and susceptible to chemotherapy

Potential safety advantages

- No crossreactivity of cirmtuzumab to normal human tissues in IND-enabling studies
- No serious adverse events related to cirmtuzumab-only observed in clinical studies
- ROR1 ADC VLS-101 no unusual organ toxicity*

*Wang 2020 ASH presentation

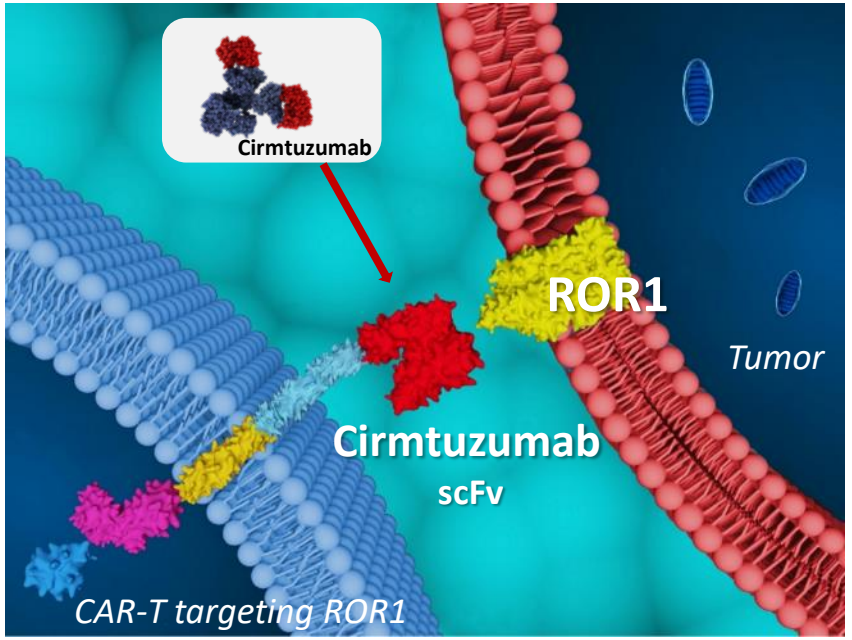
ROR1 CAR-T: Program Overview

DEVELOPMENT STATUS

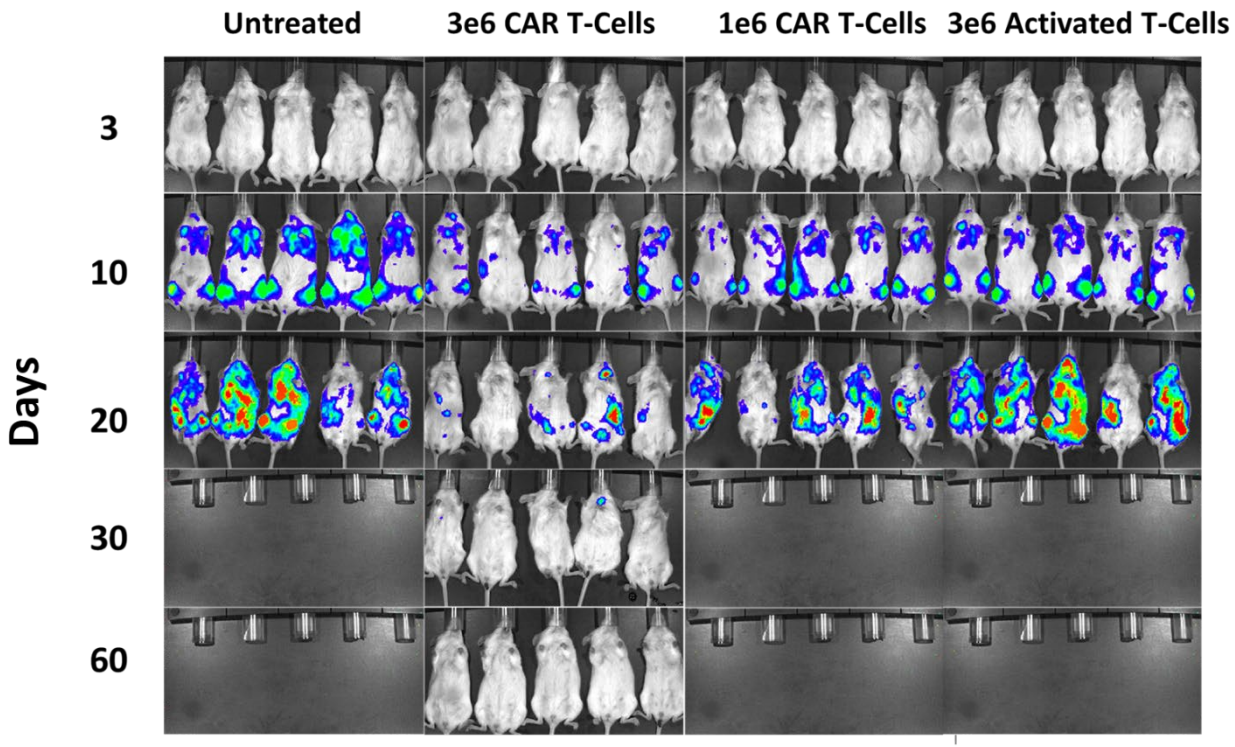
- Utilizing cirmtuzumab scFv as targeting component
- Preclinical data in hematologic and solid tumor models
- IND-enabling activities initiated
- **Karolinska** Institutet R&D collaboration for ROR1-targeting CAR-T and CAR-NK cell therapies
- Agreement with **Lentigen** for lentivirus production and manufacturing
- **Shanghai Pharma** collaboration for first-in-human study in China (2H 2021)

OPPORTUNITY

- Selective targeting strategy across multiple tumor indications based
- First human proof-of-concept in hematological cancers, then expansion into solid tumors

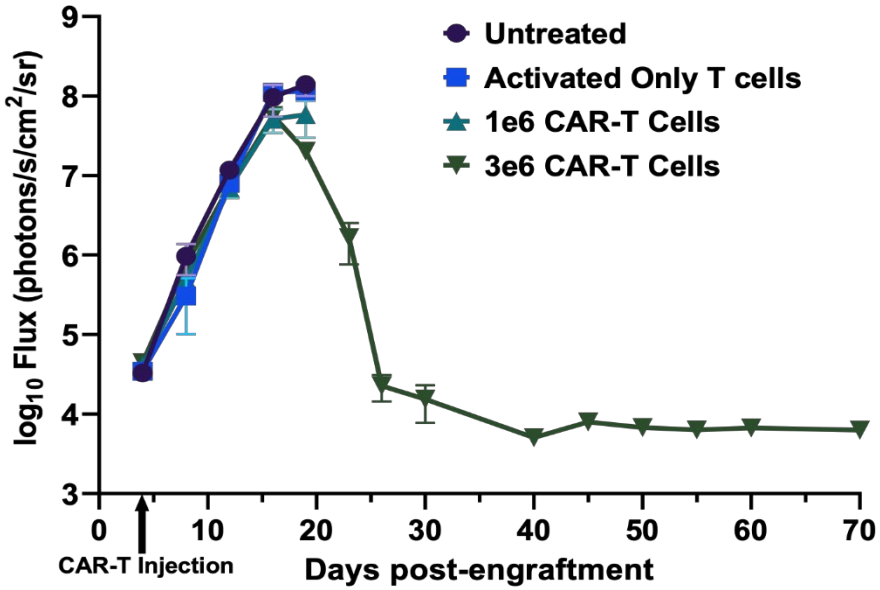


ROR1 CAR-T Cells Showed Potent Anti-Tumor Activity In CLL Preclinical Model



Bioluminescence imaging of mice inoculated with MEC1-ROR1 cells and with ROR1 CAR T-cells. Animals treated with CAR-T cells had reduced disease burden compared to controls.

Prussak 2020 ASCO SITC



Bioluminescence imaging of MEC1-ROR1 cells following treatment with ROR1 CAR-T cells. Mice treated with 3e6 CAR-T reduced the leukemic burden to background levels by day 30 and controlled disease for remainder of study. Animals in the control groups (untreated, ATC or lower 1e6 dose) had to be sacrificed on day 20.

Oncternal's Two-Pronged CAR-T Cell Therapy Development Strategy

ONCTERNAL therapeutics™

1 Demonstrate safety and efficacy of ROR1 CAR-T cell therapy in humans

- Demonstrate evidence of clinical safety and activity
- Reduce technology risk: autologous, heme indication susceptible to CAR-T cell therapy
- Target first-in-human dosing in China in 2H 2021: collaboration with SPH
- If successful, rapidly initiate clinical development in U.S. or Europe

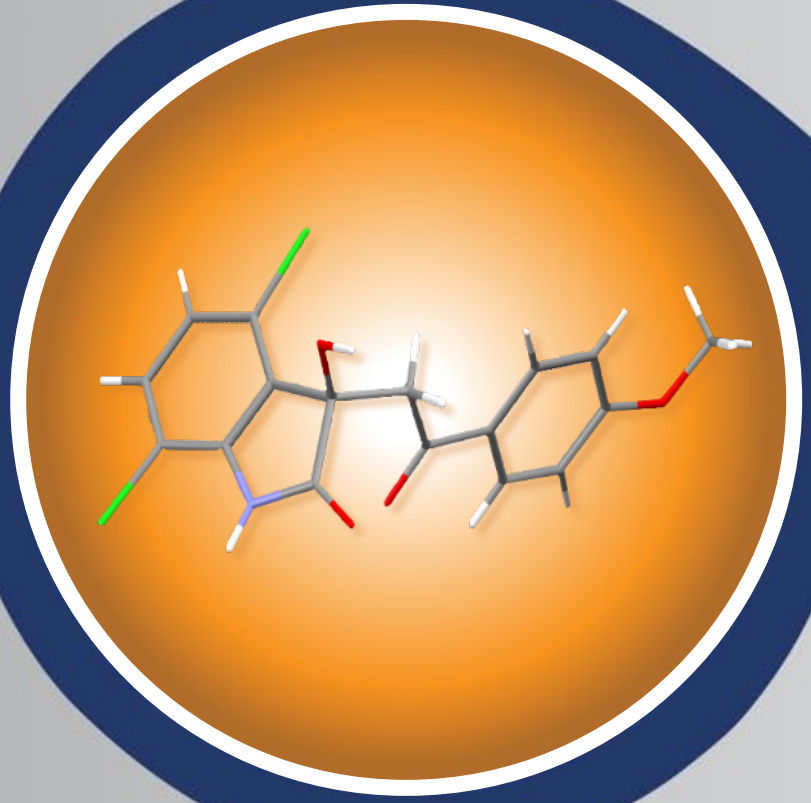
SPH 上海医药 SHANGHAI PHARMA

Karolinska Institutet

2 Develop next-generation cell therapies targeting ROR1

- Introduce cutting-edge cell therapy technologies
- Partnerships
- Allogeneic CAR-T and CAR-NK
- Solid tumors

Lentigen Technology Inc. a Miltenyi Biotec Company



TK216

Targeted ETS Oncoprotein Inhibitor

TK216: First-in-Class Targeted ETS Oncoprotein Inhibitor

OPPORTUNITY

- Fast-to-market strategy in Ewing sarcoma (>95% ETS+)
  - Rare Pediatric Disease Designation, Orphan Drug Designation and Fast Track Status granted by FDA; Potentially Pediatric Voucher eligible
- Significant market potential in other cancers with ETS alterations
- COM patent coverage through 2037

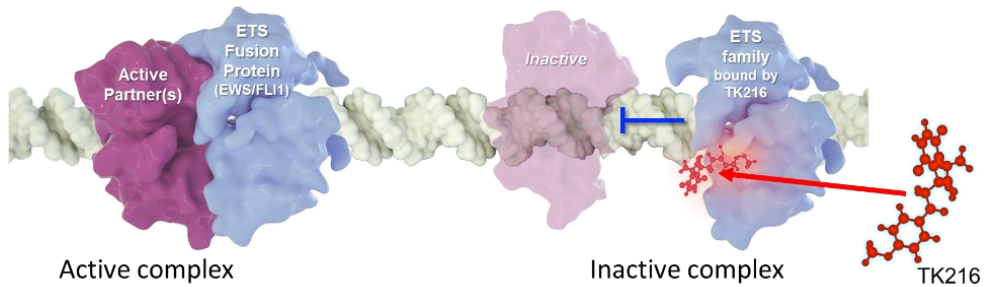
MECHANISM OF ACTION

- Novel small molecule inhibitor of ETS family oncoproteins
  - Designed to prevent/disrupt formation of transcriptionally-active protein complex
- ETS transcription factors regulate many target genes implicated in cancer development and progression

DEVELOPMENT STATUS

- Encouraging activity in ongoing expansion cohort for relapsed/refractory Ewing sarcoma.

ETS = **E**26 **T**ransformation-**S**pecific oncogene family



Erkizan NatureMed 2009
Ludwig 2020 CTOS, efficacy data cutoff 10/16/2020

Unmet Medical Need
Relapsed / Refractory Ewing Sarcoma

- Nearly all Ewing sarcoma driven by translocations of ETS family oncogenes (EWS-FLI1 85-90%, EWS-ERG ~10%)
  - ETS transcription factors regulate many genes implicated in cancer development and progression
- Orphan disease, second most common pediatric bone tumor
  - U.S. incidence ~430 p.a.(1)
  - U.S. prevalence ~4,000 (1)
- Median age at diagnosis 15 years
- No standard second-line treatment and poor prognosis
  - Metastatic EWS: 5-year OS ~30%
  - Recurrent EWS: 5-year OS ~10-15%

ETS = E26 Transformation-Specific oncogene family

(1) Incidence 1.3 per million, prevalence 12 per million – SEER data "ICD-0-3/WHO 2008 Ewing Tumor", accessed January 3, 2020; NCI Ewing Sarcoma Treatment (PDQ), accessed September 11, 2019; Company analysis

Phase 1/2 Study of TK216 in Patients with Relapsed/Refractory Ewing Sarcoma: Early Evidence of Clinical Activity, Enrolling Expansion Cohort

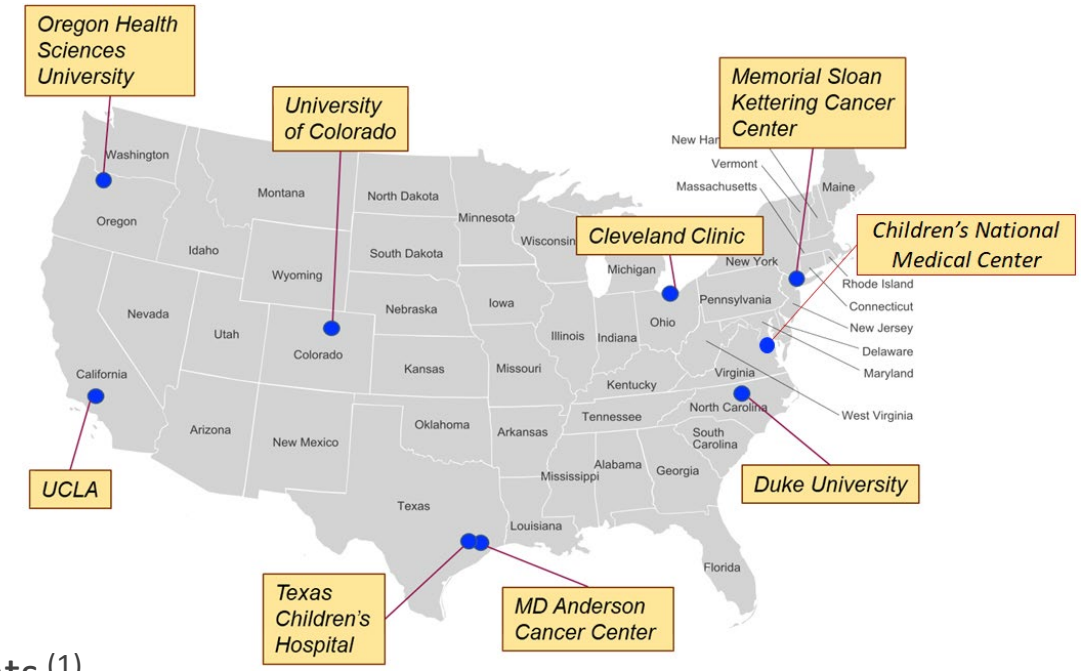
- 3+3 dose and schedule escalation cohorts completed
  - 50 evaluable patients with relapsed/refractory Ewing sarcoma
  - Average of 4 prior therapies
  - Recommended Phase 2 dose (RP2D) established: TK216 200 mg/m^2/day for 14 days + vincristine 0.75 mg/m^2 day 1

- Safety: generally well-tolerated, with dose limiting toxicity of manageable myelosuppression and no obvious off-target toxicity

- PK: drug plasma levels at RP2D exceeded those associated with anti-cancer activity in preclinical models

- Activity at RP2D: 43% disease control rate among 23 evaluable patients (1)
  - 2 durable complete responses (one surgical CR): no evidence of disease at 1.5+ years and 8+ months on study
  - 8 SD: median duration 100 days (range 49-213 days)

- Enrollment in expansion cohort is ongoing



(1) Ludwig 2020 CTOS, efficacy data cutoff 10/16/2020

TK216 Overall Best Clinical Response and PFS in R/R Ewing Sarcoma

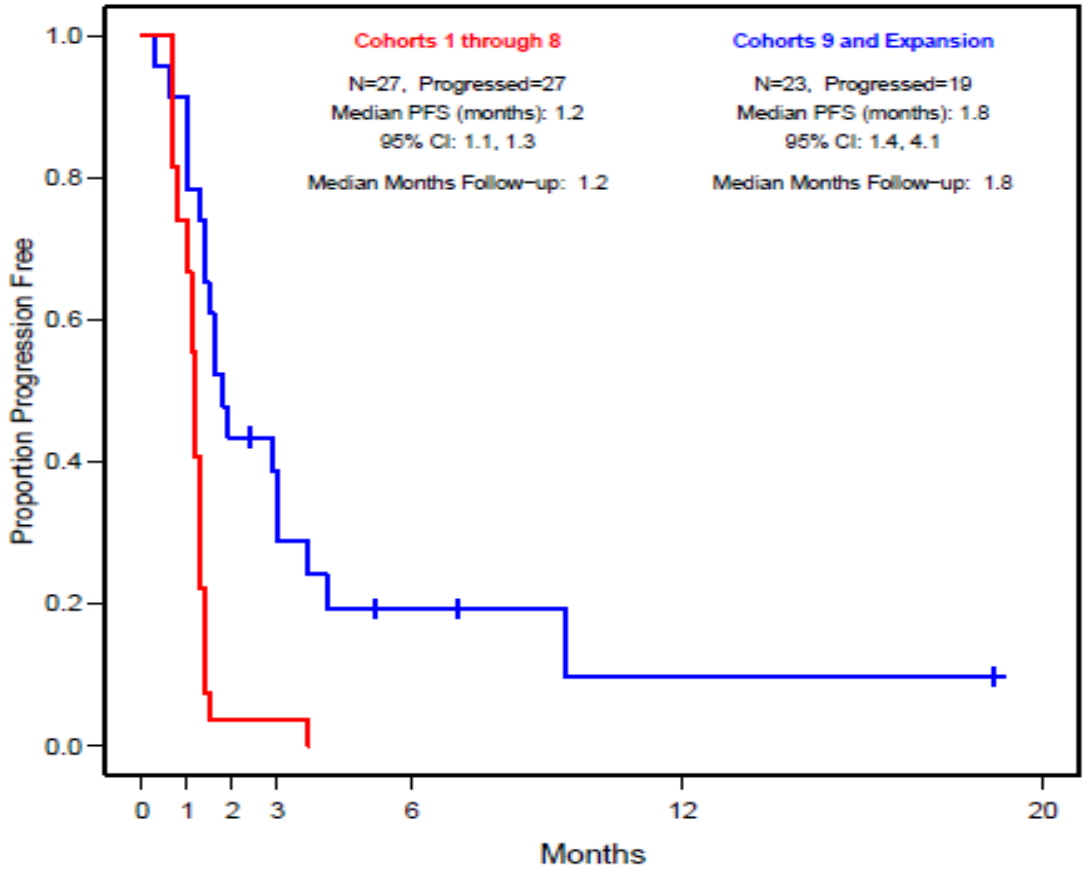
Interim Data Presented at CTOS 2020

Overall Best Clinical Response

	Evaluable Patients N= 50	ORR	CR	PR	SD	Disease Control Rate CR+PR+SD
Dose Escalation Cohorts 1-6	21	0	0	0	1	4.8%
Schedule Escalation Cohorts 7-8	6	0	0	0	0	0
RP2D Cohort 9 & Expansion	**23**	**2 (9%)**	**2 (9%)**	**0**	**8 (35%)**	**43%**

Patients were considered evaluable for efficacy if they completed 2 planned cycles of treatment and follow-up tumor assessment studies or had documented or clinical PD following a complete first cycle of therapy

Progression-free survival



(1) Ludwig 2020 CTOS, efficacy data cutoff 10/16/2020

Case Study: First Sustained Complete Response with TK216 in Patient with Metastatic Relapsed/Refractory Ewing Sarcoma

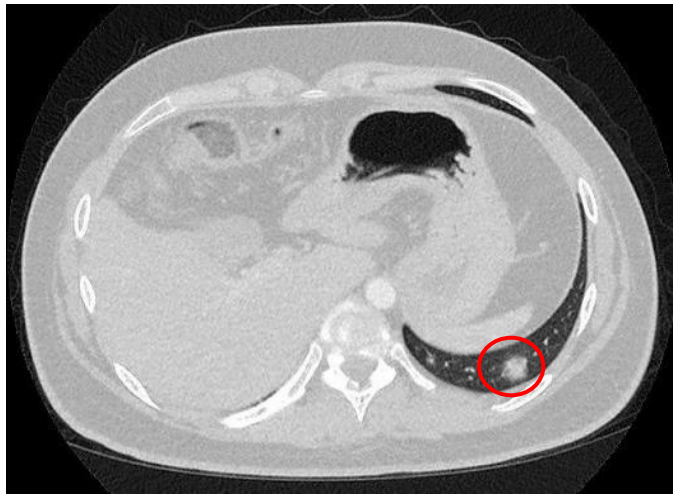
ONCTERNAL therapeutics™

Patient background

- 19-year-old male. Initially diagnosed with metastatic Ewing sarcoma involving the clavicle and lungs
- Prior treatment included VDC/IE, surgery, radiation, irinotecan/ temozolomide, bevacizumab, pazopanib
- Progressing with enlarging lung metastases when enrolled in TK216 clinical trial
- Enrolled in Phase 1 study of TK216 at MSKCC in 2019

Treatment and outcome

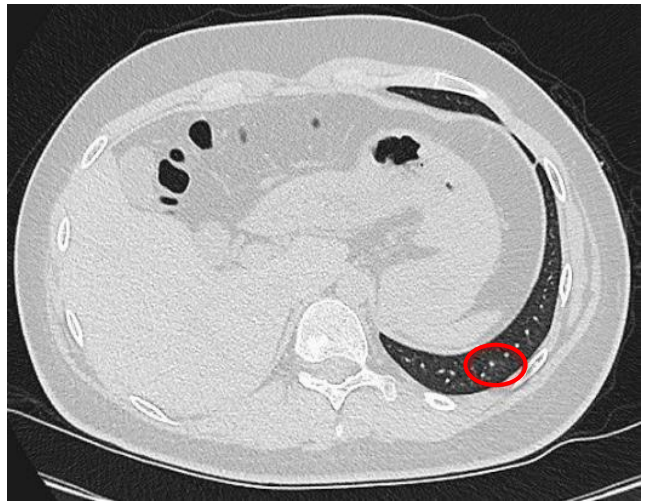
- Received TK216 in final dose-finding cohort (200 mg/m^2/day)
- **Resolution of target lesion after two cycles of single-agent TK216**
  - Treatment well tolerated, with minimal myelosuppression
  - Vincristine added starting in third cycle
- Residual non-target 7 mm lung lesion excised after 6 months of therapy, leading to **surgical complete remission**
- Treatment ongoing, **no evidence of disease at >1.5 years on study**



Baseline

2 cycles single-agent TK216

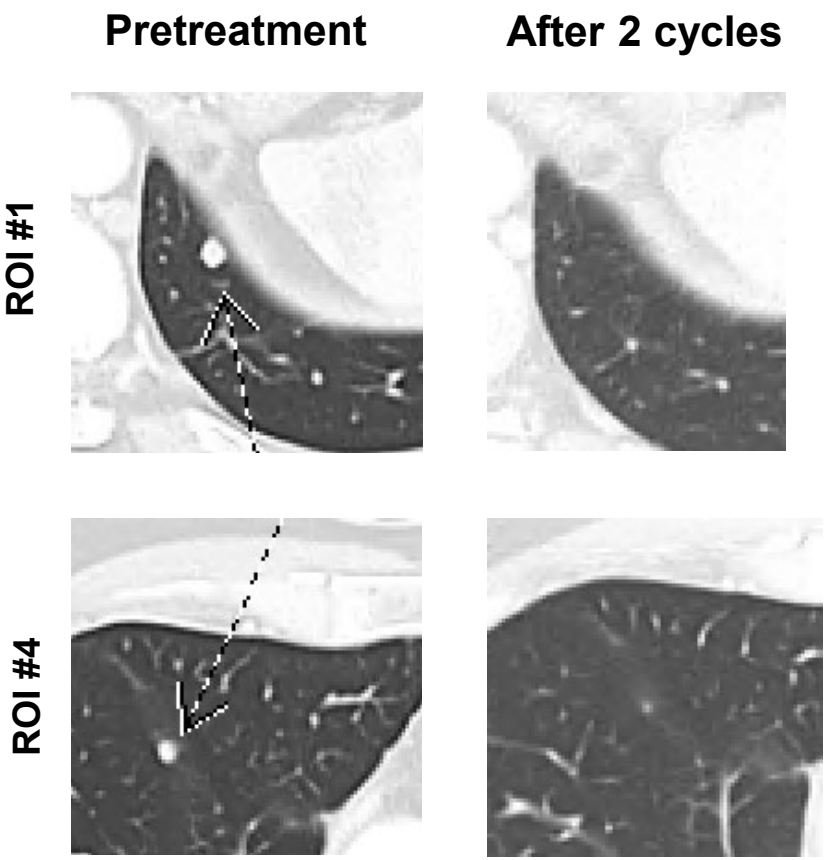
All target lesions resolved



Meyers 2019 CTOS and data cutoff 8/13/2020
MSKCC = Memorial Sloan Kettering Cancer Center

Case Study: Second Complete Response with TK216 in Patient with Metastatic Relapsed/Refractory Ewing Sarcoma

- **Patient:** 51-year-old with Ewing sarcoma diagnosed June 2018
  - 10-cm tumor near the right kidney and multiple lung metastases
- **Extensive prior treatment:**
  - Chemotherapy: vincristine/doxorubicin and ifosfamide (VAI), high-dose ifosfamide
  - Surgery: right nephrectomy and vascular reconstruction
- **Recurrence prior to enrollment:** Multiple new and enlarging lung lesions
- **TK216:** Enrolled at MD Anderson Cancer Center in January 2020
  - Treated at RP2D (TK216 200 mg/m^2/day for 14 days + vincristine 0.75 mg/m^2 day 1)
  - Myelosuppression in Cycle 1, did not recur in Cycle 2 with growth factor support and no TK216 dose reduction
- **Clinical response:**
  - **Deep partial response after 2 cycles**, with 90% reduction of target lesions and resolution of non-target lesions
  - **Complete response after 6 cycles of therapy**
- **Treatment ongoing, with no evidence of disease at >8 months on study**



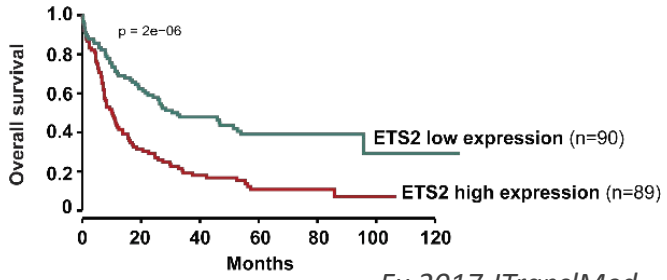
Pre-treatment: each lesion 10 mm
After 2 cycles: one lesion 0 mm, one lesion 2 mm

Data Cutoff 8/13/2020

Additional Opportunities for TK216 in Cancers with ETS Alterations

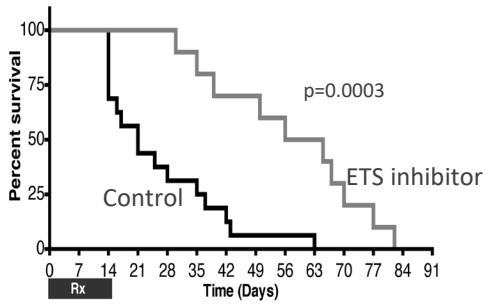
Acute Myeloid Leukemia (AML)

- ETS family proteins *overexpressed* in ~30% AML cases
- ETS2 overexpression associated w/ shorter OS



Fu 2017 JTranslMed

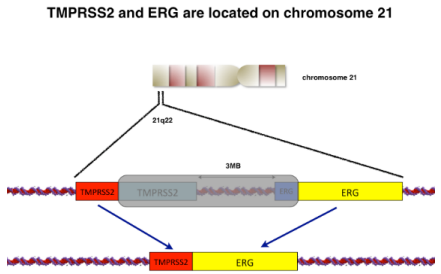
- Sensitivity of AML cell lines to TK216 was proportional to level of ETS overexpression
- ETS inhibition using TK216 precursor prolonged survival in EWS-FLI1 transgenic



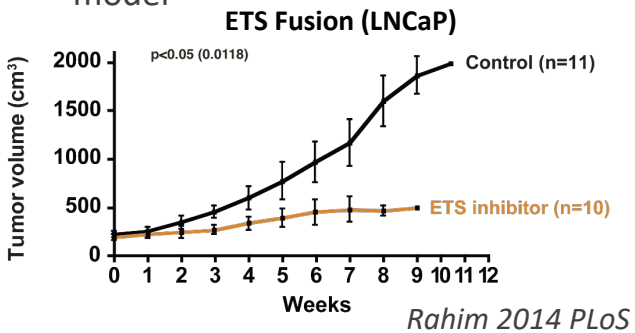
Minas 2015 Oncotarget

Prostate Cancer

- 55% of men with advanced prostate cancer carry *ETS family gene fusion* TMPRSS2-ERG associated with androgen resistance and poor clinical outcomes



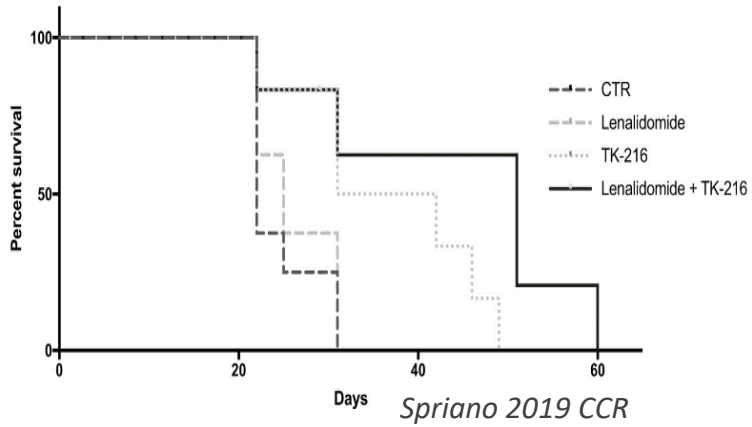
- ETS inhibition using TK216 precursor demonstrated anti-tumor activity in human prostate cancer xenograft model



Rahim 2014 PLoS One

Diffuse Large B Cell Lymphoma (DLBCL)

- ETS proteins *overexpressed* in DLBCL
- ETS family member genes are essential for activated B-cell-like (ABC) DLBCL and germinal center B-cell type (GCB) DLBCL
- Synergy with lenalidomide and venetoclax shown in preclinical models
- Single agent TK216 and combo therapy demonstrated potent anti-tumor activity in DLBCL xenograft model



Spriano 2019 CCR

BUSINESS & FINANCIALS

Financial Information

Description	Ticker: ONCT (Nasdaq)
Cash & Cash Investments @ Dec. 31, 2020 Cash Runway into 2023	$117M
Debt	$0.0M
Capitalization:	
Common Shares Outstanding	48.8M
Options / Warrants in the Money @ Dec. 31, 2020(1)	4.1M
Fully Diluted	52.9M
Non-Dilutive Support	
• CIRM Grant for CIRLL Study	~$14M
• Ibrutinib CTM for CIRLL Study	Expanded Supply Agreement

(1) Excludes out-of-the-money stock options and warrants totaling ~4.1M

Anticipated Pipeline Milestones

• Cirmtuzumab	
• MCL clinical data update for ongoing Phase 1/2	**2Q 2021**
• CLL clinical data update for ongoing Phase 1/2	**2Q 2021**
• HER2-negative breast cancer clinical data update for ongoing Phase 1b	**2Q 2021**
• Preclinical data in additional ROR1-expressing tumors	**2Q 2021**
• ROR1 CAR-T cell therapy first-in-human dosing in China	**2H 2021**
• TK216	
• Ewing sarcoma Phase 1/2 expansion cohort data update	**2Q 2021**
• Preclinical data in additional ETS-driven tumors	**2Q 2021**

Corporate Highlights

CIRMTUZUMAB: POTENTIALLY FIRST-IN-CLASS MONOCLONAL ANTIBODY TARGETING ROR1

- Ongoing clinical studies in MCL, CLL and breast cancer, and preclinical studies in additional cancer indications
- Interim Phase 1/2 results for cirmtuzumab + ibrutinib in MCL compare favorably to historical single-agent ibrutinib data
- Dialogue with FDA regarding potential accelerated approval study design in MCL

ROR1 CAR-T CELL THERAPY: AGREEMENTS WITH SHANGHAI PHARMA, KAROLINSKA INSTITUTET AND LENTIGEN

- In development to treat hematological malignancies and solid tumors

TK216: TARGETED ETS INHIBITOR

- Two durable complete responses in patients with metastatic relapsed/refractory Ewing sarcoma in ongoing Phase 1/2
- Additional opportunities in ETS-driven tumor indications

MULTIPLE DATA CATALYSTS EXPECTED IN NEXT 12 MONTHS

- Clinical data updates expected in MCL, CLL, breast cancer and Ewing sarcoma
- ROR1 CAR-T cell therapy expected to reach clinic in 2H 2021 in China

EXPERIENCED MANAGEMENT AND BOARD OF DIRECTORS