

# GIORNATE EMATOLOGICHE VICENTINE

XI edizione

**9-10 Ottobre 2025**Palazzo Bonin Longare - Vicenza

## **Linfomi T Update Diagnostico - Terapeutico**

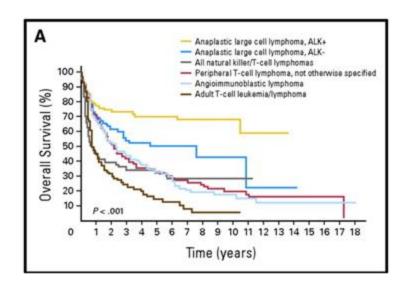
Cinzia Pellegrini IRCSS AOU Bologna

# Disclosure of Cinzia Pellegrini

Company name	Research support	Employee	Consultant	Stockholder	Speakers bureau	Advisory board	Other
Roche					х		Х
Gilead					X		X
Takeda						x	
Janssen-Cilag						x	
Abbvie					x		X
BeOne					x		

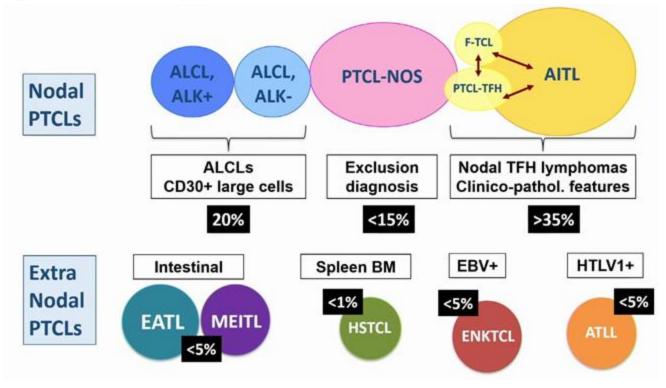
# PTCL - Background

- PTCLs are rare and very heterogenous lymphoproliferative disorders-accounting for 15% of all NHLs
- There are more than 30 different subtypes of PTCLS (WHO 2022; ICC 2022)
- 25% of patients are primary REFRACTORY to first line
- Except for ALK+ ALCL, other subtypes have poor OS with standard therapies with a 5 years OS of 15-20%



Molecular characterization → to identification of subtypes with different prognoses →development of novel pathway-directed and subtype-specific therapies

# Histological subtypes



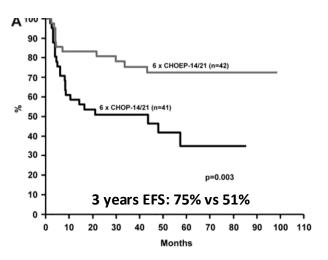
# Outline of the discussion

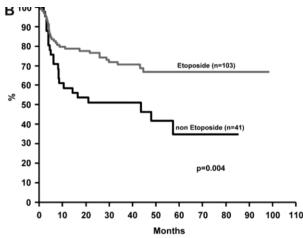
### First line treatment

- The role of etoposide
- The role of consolidation with stem cell transplantation
- The role of novel agents in combination to standard chemotherapy

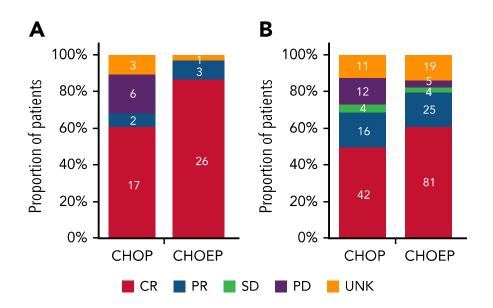
# CHOEP is better than CHOP?

- Etotopside improved 3-EFS in patients < 60 years</li>
- 6 cycles of CHOP remains the standard for patients > 60 years





# **CHOEP** is better than CHOP?



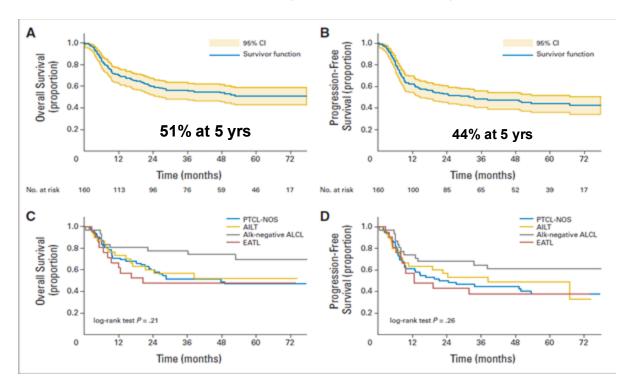
- In advanced stage PTCL, the addition of Etoposide to CHOP improved OS in ALK+ ALCL but not in ALK-, AITL,PTCL-NOS
- Consolidation with ASCT in first line setting significantly increased OS in ALK-ALCL, AITL, and PTCL-NOS

# Cautionary notes about consolidative auto-SCT in PTCL

- There are no RCT demonstrating that consolidative auto-SCT improves outcome in PTCL
- There is retrospective evidence 'for' and 'against'
- There are few prospective trials diverse subtype inclusion however,
- The relapse risk remains high with CHOP(like) chemotherapy alone thus, it is 'considered' in most subtypes (exception ALK-pos ALCL)

# Upfront transplant in PTCL: Nordic NLG-T-01 Phase 2 study

n=160 (PTCL-NOS n=62, 39%)



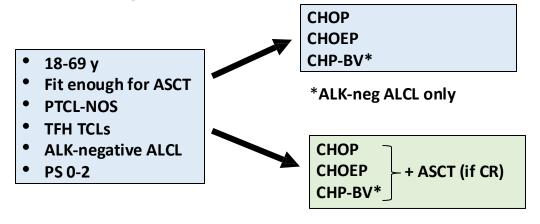
All patients



D' Amore F. et al JCO 2012

5 y OS by

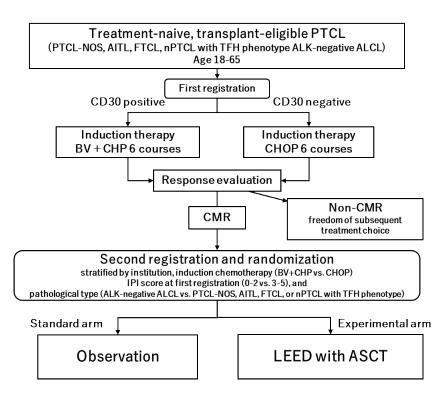
Randomized study of Auto versus NO Auto-HSCT post CR in nodal PTCLs (TRANSCRIPT)



- Enrollment goal n= 204
- Primary endpoint PFS in CR patients
- August 2022 activated (NCT05444712)
- Dr. Bachy PI (France)

### JCOG2210, TRANSER STUDY

142 patients from52 Hospitals



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### CHOP+ X = CHOP

Experimental regimen	Trial design	Outcomes	Reference
Romidepsin-CHOP	PIII	CR 41%; 2Y PFS 42%	Bachy et al. JCO 2022
Alemtuzumab-CHOP	PIII	CR 52%; 3Y EFS 35%	ACT-1 (Young) d'Amore ASH 2018
Alemtuzumab-CHOP	PIII	CR 60%; 3Y EFS 27%	ACT-2 (Elderly) ACT-2 Wulf Leukemia 2021
Lenalidomide-CHOP	PII	CR 41%; 2Y PFS 42%	Lemonnier et al. Blood Adv 2021
Lenalidomide-CHOEP	PII		Stuver BJH 2023
Denileukin diftitox-CHOP	PII	CR 55%; 2Y PFS 43%	CONCEPT Foss et al. Leuk Lymphoma 2013
Vorinostat-CHOP	PI		Oki 2013
Belinostat-CHOP	PI		Johnston Exp Hematol Oncol 2021
Chidamide-CHOP			Lu 2016
Azacytidine-CHOP	PII		Ruan Blood 2023
Everolimus-CHOP	PII		Kim 2016
Pralatrexate-CHOP	PI		Fol-CHOP Iyer Blood Adv 2024
Pralatrexate-CEOP	PII		Advani BJH 2016
Bortezomib-CHOP	PII		Kim EJC 2012
Bevacizumab-CHOP	PII	CR 49%; 1YPFS 44%	Ganjoo Leuk Lymphoma 2014
VIP-reinforced ABVD	PIII	CR 44%; 2Y EFS 45%	GOELAMS-LTP95 Simon et al. BJH 2010
Pralatrexate-CEOP	PII	CR 52%; 2Y PFS 39%	Advani et al. BJH 2016
Modified HyperCVAD	PII	CR 46%; 2Y PFS 46%	Hapgood et al. Leuk Lymphoma 2019
GEM-P	PII	CR 46%; 2Y PFS 38%	CHEMO-T Gleeson et al. Lancet Haematol 2018
PEGS	PII	CR 24%; 2Y PFS 12%	SWOG S0350 Mahadevan et al. Cancer 2013
CEOP/IVE/GDP	PII		Cai Genome Med 2020
ICED	PII		ROSE Kim Front Oncol 2023

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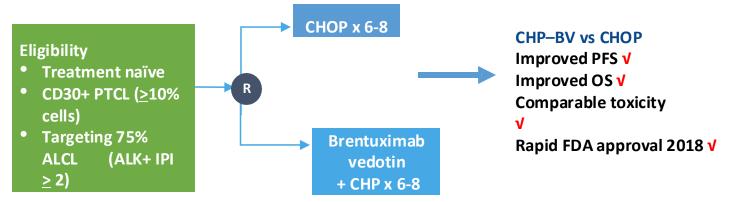
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CHOP+X=CHOPX: is it efficient enought? Or something wrong with CHOP?

Drug (n)	Dose as Single Agent	Daily DI as Single Agent (mg/kg/day)	Dose in Combination	Daily DI with CHOP (mg/kg/day)	% Dose Intensity	Reference
Romidepsin	14 mg/kg D 1, 8 and 15 Q28 day	1.5 mg/kg/day	12 mg/kg D 1 and 8	1.1 mg/kg/day	28% Reduction in DI	Bachy et al., 2021
Brentuximab vedotin	1.8 mg/kg Q21 days	0.9 mg/kg/day	1.8 mg/kg D 1	0.9 mg/kg/day	100% of planned DI	Horwitz et al. 2019 & 2022
Vorinotstat	400 mg PO QD	400 mg/day	300 mg PO tid days x 5 days	214 mg/day	47% Reduction in DI	Oki et al. 2013
Everolimus	10 mg PO QD	10 mg/day	5 mg D 1-14 Q 21 D	3.3 mg/day	66% Reduction in DI	Kim et al. 2013
Denilukein difitox	18 mcg/kg/day x 5 day Q21 D	2.1 mcg/kg/day (or 4.2 mcg/kg/day)	18 mcg/kg D 1 and 2 Q 21D	1.7 mcg/kg/day	80% of planned DI	Foss et al. 2013
Bortezomib	1.3 mg/m2 Days 1, 4, 8 and 11 Q 21 D	0.25mg/kg/day	1.6 mg/m2 Days 1 & 8	0.15 mg/kg/day	40% Reduction in DI	Lee et al., 2008
Chidamide	50 mg TIW x 3 wks Q21 D	9.5 mg/day	30 mg Days 1, 4 and 8 Q 21 days	4.3 mg/day	55% Reduction in DI	Lu et al. 2016

Courtesy of Owen O'Connor

### Phase 3 ECHELON-2 CHP-BV vs CHOP in CD30+ PTCLs



Primary endpoint: PFS= death, subsequent therapy to treat residual or PD

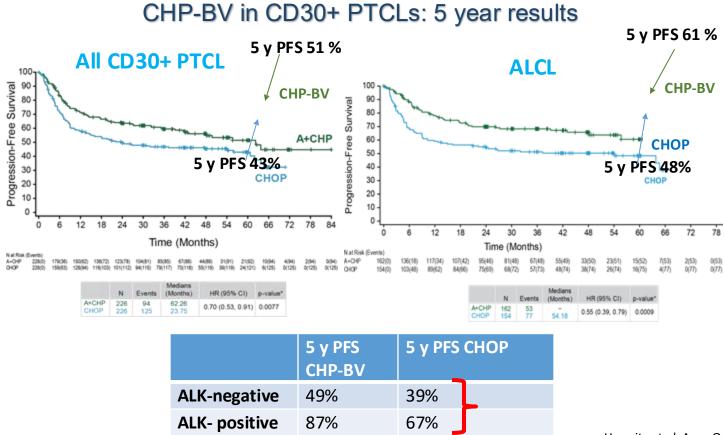
Total 552	A+CHP (N=226)	CHOP (N=226)			
Disease diagnosis, n (%)					
sALCL	162 (72)	154 (68)			
ALK+	49 (22)	49 (22)			
ALK-	113 (50)	105 (46)			
PTCL-NOS	29 (13)	43 (19)			
AITL	30 (13)	24 (11)			
ATLL	4 (2)	3 (1)			
EATL	1 (0)	2 (1)			

ALCL represents 70% of enrolled patients

PTCL-NOS n=72 (13%) AITL n=54 (~10%)

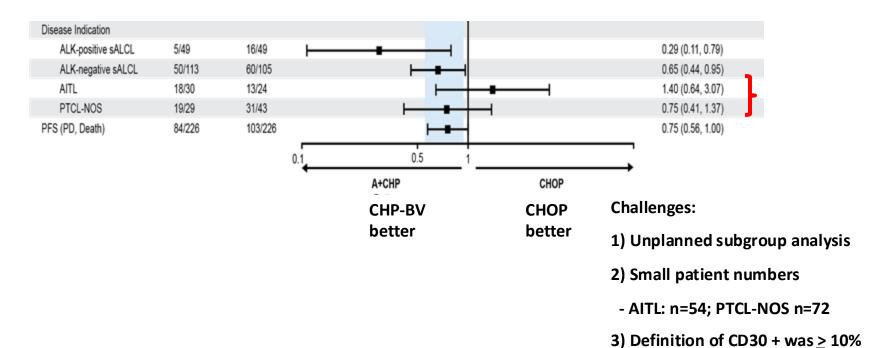
Horwitz et al. ASH 2018; Horwitz et al. Lancet Oncology 2019

<sup>\*</sup>Events do not include consolidative RT/SCT



Horwitz et al Ann. Oncology 2022

# What is the evidence for CHP-BV in CD30+ non-ALCL PTCLs? CHP-BV vs CHOP subgroup analyses



Horwitz et al Lancet Oncology, 2019

### CHP-BV in CD30+ non-ALCL PTCLs: SGN35-02 STUDY

FRONTLINE BRENTUXIMAB VEDOTIN AND CHP (A+CHP) IN PATIENTS (PTS) WITH PERIPHERAL T-CELLLYMPHOMA WITH LESS THAN 10% CD30 EXPRESSION: RESULTS FROM THE PHASE 2 SGN35-032 STUDY

Seventy pts received  $\geq 1$  dose of study drug as of June 30, 2023. Median age was 63.5 years, 57% were male, and 90% had ECOG  $\leq 1$ . Most had stage IV disease (63%) and were in the CD30 1% to < 10% cohort per local CD30 (55%).

Median treatment duration was 18 weeks (range, 0-24 weeks)

Table 1. Endpoints per BICR by cohort

	CD30 <1%	CD30 1% to <10%
Per local CD30s	N=29	N=36
ORR, % (95% CI)	79 (60.3, 92.0)	78 (60.8, 89.9)
CR rate, % (95% CI)	66 (45.7, 82.1)	67 (49.0, 81.4)
Per central CD30 <sup>a</sup>	N=19	N=25
ORR, % (95% CI)	63 (38.4, 83.7)	80 (59.3, 93.2)
CR rate, % (95% CI)	53 (28.9, 75.6)	68 (46.5, 85.1)

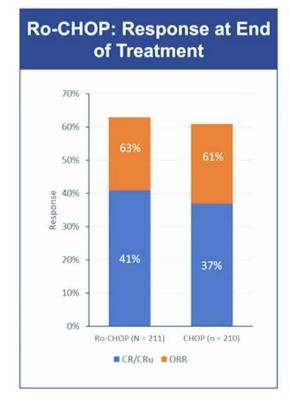
a Analysis performed among EE set, a subset of all treated pts with postbaseline response assessment or discontinue treatment.

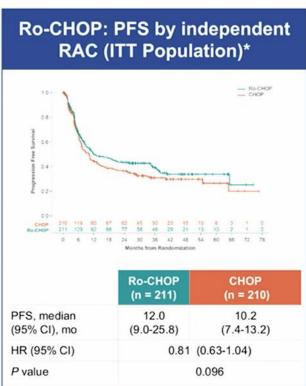
ORR 77% with CR 65%

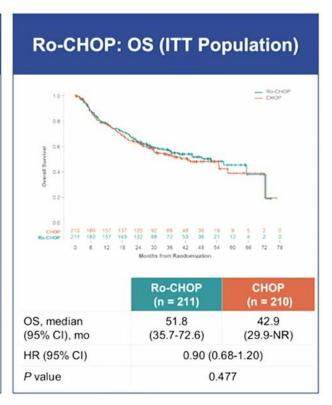
In pts with non-sALCL
PTCL with <10% CD30
expression, A+CHP as
frontline therapy
appears effective and
has a safety
profile consistent with
label.

Swaminathan Padmanabhan Iyer et Al, Poster session ASCO 2024

### Ro-CHOP Efficacy



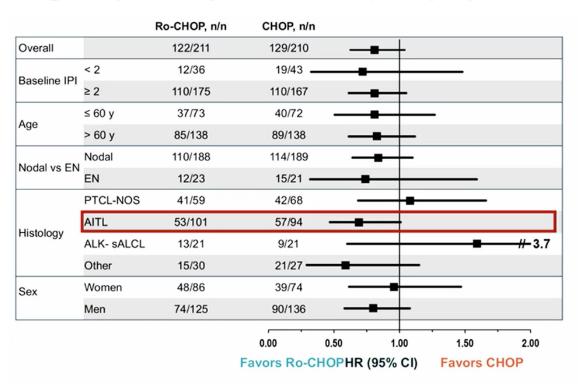




## **Ro-CHOP**

Ro-CHOP	СНОР
74%	42%
94%	70%
50%	10%
49%	33%
47%	17%
32%	20%
21%	10%
8%	NR
37%	NR
63%	NR
15%	9%
	74% 94% 50% 49% 47% 32% 21%  8% 37% 63%

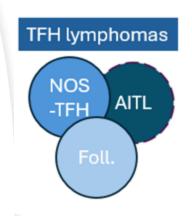
# Ro-CHOP Subgroup Analysis of PFS (ITT population) –Outcomes in AITL



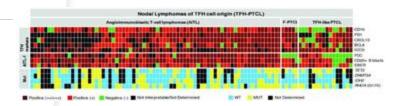
#### CHOP +/- Romidepsin Update 5 years

Regimen	No.	PFS	PFS by Subtype
Ro-CHOP <sup>7,12</sup>	421		
Ro-CHOP	211	Median PFS— 12.0 months	Median PFS TFH-19.5 months Non-TFH-8.7 months Median OS TFH-65 months PTCL-NOS-25.8 months
CHOP	210	Median PFS- 10.2 months	Median PFS TFH-10.6 months Non-TFH-9 months

# T-Follicular Helper Lymphomas and Role of Epigenetic Modifiers



•-Recurrent mutations in TET2, RHOA, IDH2, DNMT3A



### Azacitidine + CHOP: Phase II Study

#### Key Eligibility

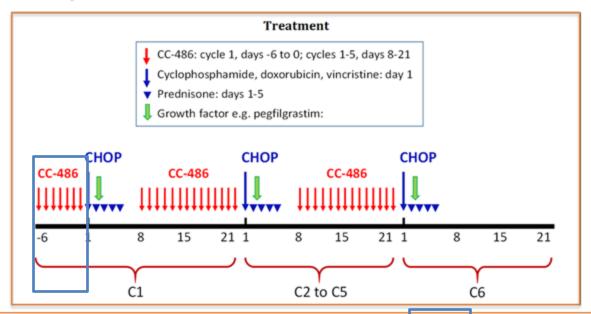
- Untreated PTCL
  - Nodal T-cell lymphoma with T-follicular helper (TFH) phenotype (WHO 2016 classification)
    - Angioimmunoblastic T-cell lymphoma
    - · Follicular T-cell lymphoma
    - 17/20 PTCL/NOS, T-follicular helper (TFH) varian
    - PTCL-NOS
  - Anaplastic large cell lymphoma, ALK negative
  - Anaplastic large cell lymphoma, ALK positive with IPI >2
  - · Adult T-cell leukemia / lymphoma

#### Objectives

1st - CRR; 2nd - ORR, safety and survival Exploratory genomic, transcriptomic and methylomic biomarkers

#### Sample Size = 20

Simon's two-stage design (alpha=10%, power=80%)



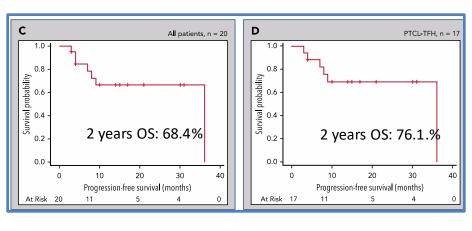
- CC486 at 300 mg daily from day -6 to day 0 for cycle 1 priming, and on days 8-21 following cycles 1-5.
- Patients in CR/PR following 6 cycles of treatment have the option to proceed to consolidative HSCT.

Ruan et al. Blood Adv. 2023

# Azacitidine + CHOP: Phase II Study

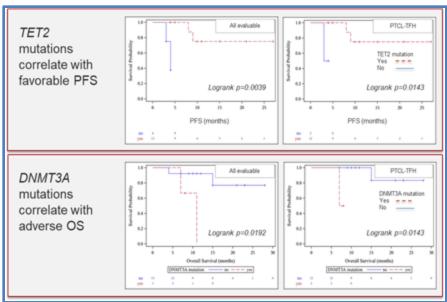
- All population ORR (n=20): 75% (75% CR)
- PTCL-THF ORR (N=17): 88% (88% CR)

#### **Overall Survival**



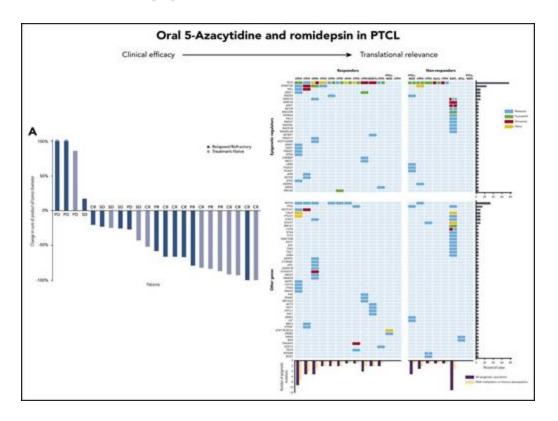
**50% received Auto-Transplant** 

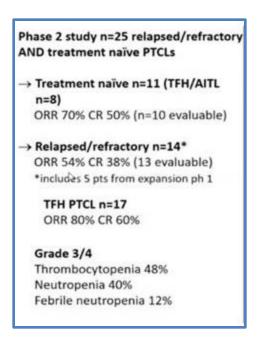
#### TET2 mutations associated with CR and favorable PFS



Ruan et al. Blood Advances 2023

# Non-CHOP Approaches





# Phase III Study: Guidance-03

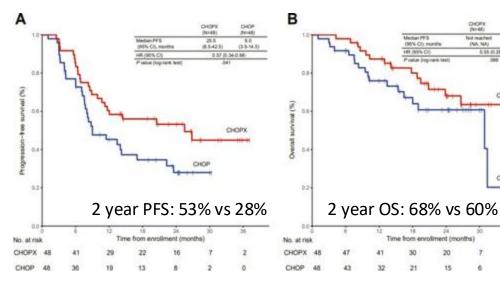
Targeted agents plus CHOP compared with CHOP as the first-line treatment for newly diagnosed patients with peripheral T-cell lymphoma (GUIDANCE-03): an open-label, multicentre phase 2 clinical trial

Ming-Gr Cai, <sup>6)</sup> Shu Cheng, <sup>6)</sup> Hong-Mei Jing, <sup>6)</sup> Yan Liu, <sup>6)</sup> Guo-Hui Cui, <sup>c</sup> Ting Niu, <sup>d</sup> Jian-Zhen Shen, <sup>c)</sup> Liang Huang, <sup>f</sup> Xin Wang, <sup>g</sup> Yao-Hui Huang, <sup>e)</sup> Li Wang, <sup>6)</sup> Peng-Peng Xu, <sup>e</sup> and Wei-Li Zhao<sup>ch, e</sup>



#### CHOP X

- -P53<sup>mut</sup>- decitabine
- -TET2/KMT2D mut azacytidine
- -CREBBP/EP300 mut tucidinostat
- -with out mutation above: Lenalidomide



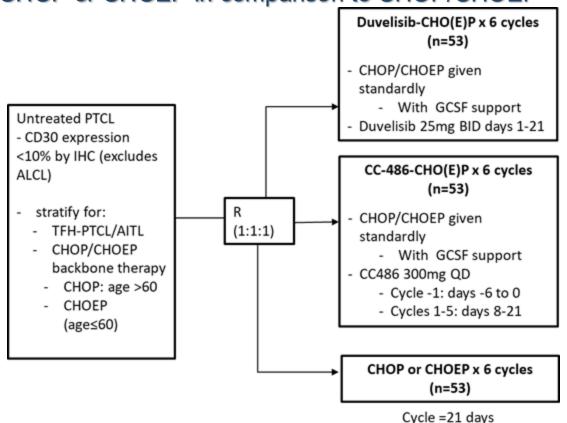
CHOPX

Lancet Regional Health Western Pacific 2024;50:101160,

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A051902: A randomized phase II study of duvelisib or 5-azacitidine in addition to CHOP or CHOEP in comparison to CHOP/CHOEP



- Primary Objective:
  - To compare the PET CR rate of duvelisib or 5-azacitidine in combination with CHOP/CHOEP compared to CHOP/CHOEP
- Primary Endpoint:
  - 25% difference PET CR rate
    - Correlative Studies:
  - Monitoring MRD
  - Gene Expression Profiling and Custom Capture Sequencing
  - Patient Reported Outcomes
  - PET/CT Evaluation

NCT04803201

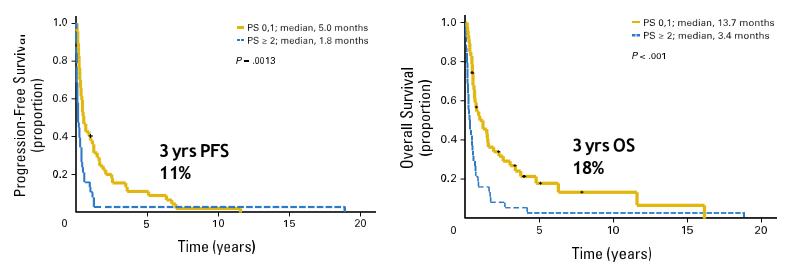
### Conclusions FIRST LINE THERAPY

- Advances in understanding the biology and molecular mechanisms of PTCL have led to improved classification and treatment strategies
- Treatment approaches have become more targeted, offering the potential for better patient outcomes
- BV-CHP has changed the treatment landscape in ALCL
- Intensification regimens-safe and effective
- Recent studies highlight the sensitivity of TFHL to epigenetic therapies
- Future research should prioritize evaluating new treatments for specific subtypes or molecularly defined subgroups

### Outcome of Relapsed/Refractory nodal PTCL lymphomas failing first-line therapy

N=153, only 7% ALCL ALK pos.

1980-2011



No New drugs, ONLY chemotherapy, exclusion of patients candidate at transplantation

Mak V, Journal of Clinical Oncology 2013

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#### Outcome of R/R TCL and NKCL: PETAL CONSORTIUM 2010-2021

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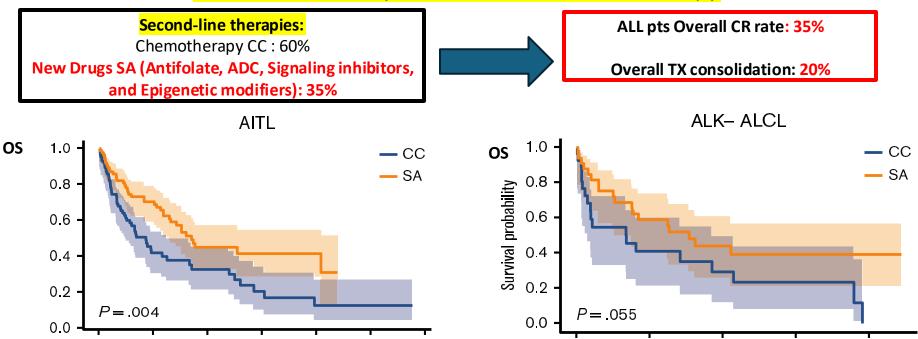
8

Time since second line treatment (years)

12

### Retrospective study N=925 Including Mature TCL and NKTCL

N=763 survival analyses from the start second therapy



0

2

Time since second line treatment (years)

8

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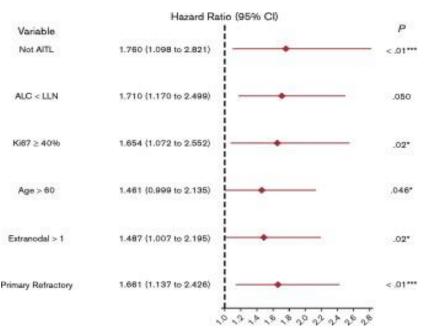
#### XI edizione

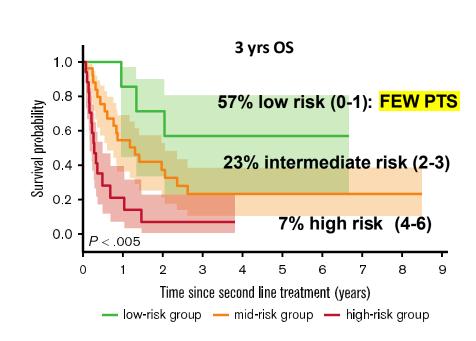
### Outcome of R/R TCL and NKCL: PETAL CONSORTIUM (2010-2021)

Retrospective study N=925 Including Mature TCL and NKTCL

N=763 survival analyses from the start second therapy

PIRT score: performed on 248 pts





Han JX, Blood Advance 2025

# **Chemotherapy Drugs**

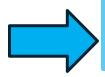
Drug	N°pts	Histological Subtype	ORR%/CR%	Median PFS Median DOR	Median OS
Gemcitabine	39	51% PTCLNOS 49% MF	55%/30% 48%/16%	-	-
ICE Tay T 2022	60	PTCL 43% 68%/45% AITL 28% ALCL 22% Others 7%		4,4 months	20 months
Bendamustine (alkyl/purine analog) prospective Damaj J 2012	60	PTCLNOS 38% AITL 53% ALCL 3,5% Others 6%	50%/28%	<b>3,63 months</b> 3,5 months	6,27 months
Pralatrexate O'Connor OA 2011	111	PTCLNOS 53% AITL 12% ALCL 15% Others 20%	<b>29%/</b> 14% 32% PTCL-NOS 35% ALCL <mark>8% AITL</mark>	<b>3,5 months</b> 10,5 months	14,5 months

# New drugs

Drug class	Target	DRUGS Name	Main Efficacy
Anti CD30 targeting therapies	CD30	Brentuximab	ALCL Alk + and Alk neg> CD30+ TCL
Signaling Pathways Inhibition	ALK Inhibitors	Crizotinib, Alectinib	ALCL ALK POS
	Jak Inhibitors	Ruxolitinib/ Golidocitinib	JAK2mutated/STAT3+
	PI3-Kinase Inhibitors	Duvelisib Tenalisib Linperlisib	TFH> others
EPIGENETIC	HDAC Inhibition	Romidepsin, Belinostat, Chidamide	
	Hypomethylating Agents	Azacytidine, Decitabine	TFHL > others
	EZH1/EZH2 Inhibitors	Valemetostat	
Immunomodulators		Lenalidomide	TFHL > others

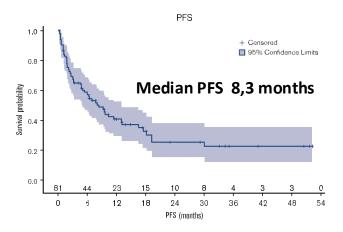
### Brentuximab+Bendamustine

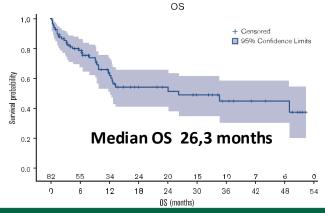
Variable	N=82
Median	60 25-86
Subtype	TFH 51% PTCLNOS 16% ALCL 27% Others 8%
CD30 Expression (>5%)	Pos 63% Neg 21% Missing 9%
Previous Exposition to Brentuximab	11%
Previous SCT	30%



30% consolidated with transplantation (6 Autologous and 16 AlloSCT)

### ORR 68%, CR rate 49%

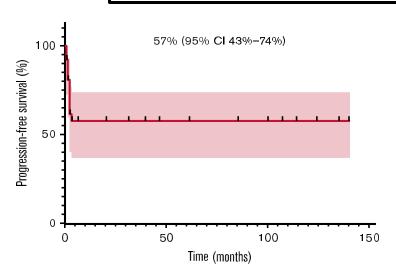


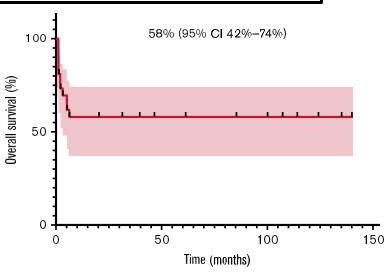


# ALK Tyrosine Kinase Inhibitors and ALCL ALK +



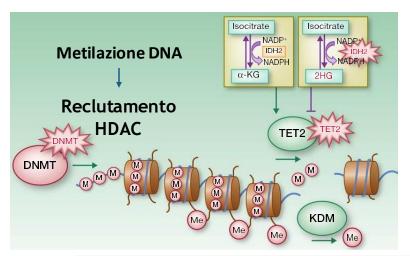
Crizotinib: N=27 (N=25 ALCL ALK+, N=1 DLBCL ALK pos; n=1 Plasmoblastic); median previous therapies 2



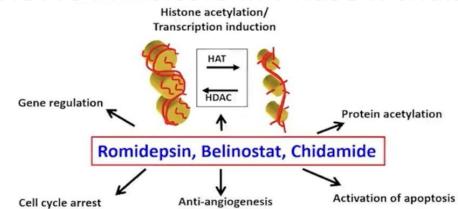


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Rindone G. Blood Advance 2023



### **HDAC Inhibitors in Phase II trials**

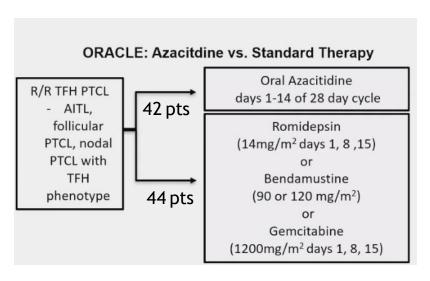


	Romidepsin* ORR (%) /CR (%)	mPFS mDOR	Belinostat ORR (%) /CR (%)	mPFS mDOR	Chidamide ORR (%)/CR%	mPFS mDOR
Overall	25%/15%	4 mo <mark>17 mo</mark>	26%/11%	1.6 mo <mark>13.6 mo</mark>	28%/14%	2.1 mo <mark>10 mo</mark>
AITL	30%/19%		45%		50%/40%	
PTCLNOS	29%/14%		23%		22%/7%	
ALK-negative	24/19%		15%		45%/36%	

<sup>\*</sup> Withdrawn 2021 for PTCL

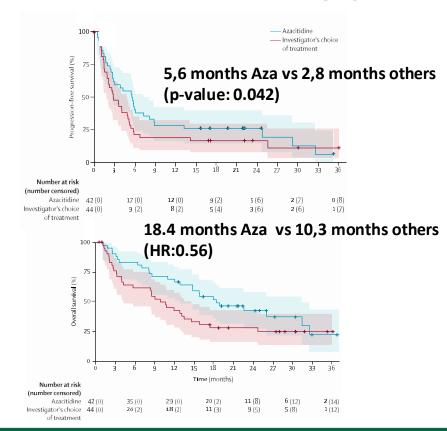
Coiffier JCO 2012; O'Connor et al. JCO 2015; Shi et al. Ann Onco 2015

### ORACLE STUDY: ORAL AZACYTIDINE VERSUS INVESTIGATOR'S CHOICE in T-FHL Lymphomas



CR RATE: 12% Aza vs 23% other therapies Median Duration of Response: 10,4 months versus 3,4 months

The primary endpoint, PFS advantage, was not met (p-value < 0.025)



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### VALENTINE-PTCL01 (VALEMETOSTAT: EZH1 and EZH2 Inhibitor phase II study

Variable	N= 133
Age, years	69 (58-74)
Sex (Male/Female)	68%/32%
<b>ECOG</b> (0-1/2-3)	93%/7%
Subtypes ALCLpos/ALCLneg TFH Lymphomas PTCL NOS Others	2%/5% <mark>40%</mark> <mark>34%</mark> 19%
Previous Lines	2 (1-3)
Previous any type Tx	26%

**Study Endpoint: Objective RESPONSE** 

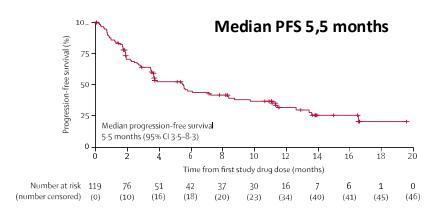
Zinzani P, Lancet Oncology 2024

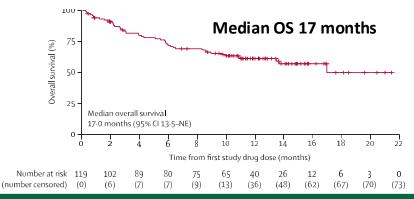
### Response and Outcome in Nodal R/R TCL

Variable	ORR/CR	DOR
Entire population	52%/2	11,9 months
	7%	
	(PET/	
	CT)	
TFH	54%	
PTCL-NOS	32%	
ALCL	33%	

Median time to first response 8 weeks
Median DOR 11,9 months
Low incidence of treatment discontinuation
10% (!!! Thrombocytopenia).
8% proceed to AlloSCT

Median FUP 12,3 months





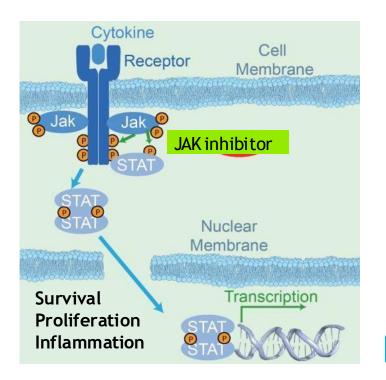
# PI3K Inhibitors

Drug	N°	ORR%/CR%	Subtype response	Median PFS	Subgroups mPFS
Duvelisib* δ/γ (PRIMO TRIAL)	123	48%/33%	<mark>AITL 62%</mark> PTCLNOS 49% ALCL 15%	3,5 months	AITL: 8,3 months PTCLNOS: 3,5 months ALCL:1,6 months.
Linperlisib δ**	35	48%/33%	AITL: 62% PTCL: 39% ALCL: 25%	3,6 months	

<sup>\*</sup> pts that proceed to SCT: 15%; !!! Infections (4.4% fatal treatment related events);

<sup>\*\*</sup> pts that proceed to SCT: 14%; only one death wound infection not drug related

# GOLIDOCITINIB, A SELECTIVE JAK1 INHIBITOR in R/R TCL



Variable	N=88
Age, median age( years)	58 (51-67)
PTCL-NOS AITL ALCL Others	<mark>57%</mark> 18% 11% 13%
Previous therapies Chemotherapy HDAC CD30-target therapies Others	100% 50% 10% 1%

Dose: 150 mg orally until PD or Toxicity

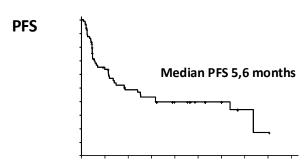
**DOR** 

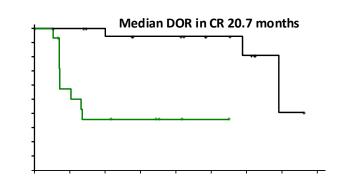
## GOLIDOCITINIB, A SELECTIVE JAK1 INHIBITOR in R/R TCL

ORR and ORR by Subtype	%
All pts ORR/CR rate	<mark>44%/2</mark> 4%
PTCL-NOS (23/50)	<mark>46%</mark> (23/50)
AITL	<mark>56%</mark> (9/16)
ALCL	10% (1/10)

Prior HDAC Inhibitor	
Yes	24/44 (55%)
No	15/44 (34%)

Median DoR (months) 20·7 months
Median follow-up time (months) (IQR) 12·5 months
Discontinuation drug 9%





# Allogeneic SCT

### Patients fit, consider comorbidities, Any donor

AITL

PTCL

ALCL alk -neg

**ALCL alk -pos** 

Sensitive Relapse: yes

Refractory Relapse: yes (in case of low burden)

Sensitive Relapse: yes

Refractory Relapse: no

Sensitive Relapse: yes

Refractory Relapse: ?

Sensitive Relapse: yes?

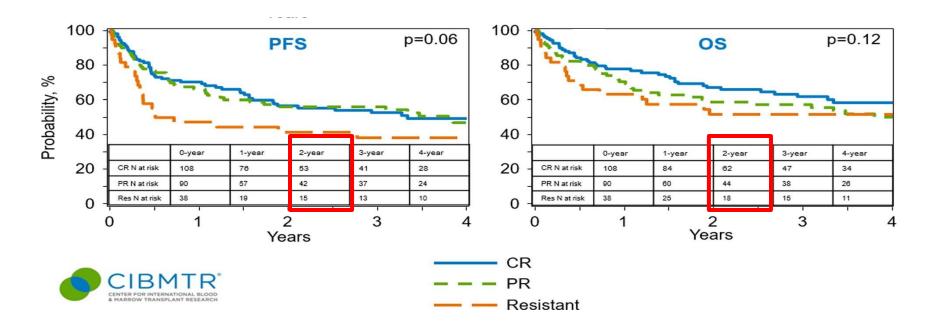
Refractory Relapse: yes

-Consolidation of "first remission" only in specific "subtype": APPROVED INDICATIONS: Hepatosplenic and ATLL Lymphomas/Acute, TO BE DEFINED: Advanced NKTCL; Monomorphic epiteliotrophic Intestinal T-cell lymphomas

### GIORNATE EMATOLOGICHE VICENTINE

#### XI edizione

### **Allogeneic SCT in Angioimmunoblastic**



N=246 (56% matched Sibling/46% MUD)

Epperla N, Journal of Hematology and Oncology 2019

# **Management of R/R PTCL**

- Eligible for a Clinical trial;
- Evaluation Expression CD30 and Mutations;
- Eligible or not eligible for Allogeneic SCT (in case ot not eligible, consider drugs with limited toxicity for long-term treatment);
- ALCL pos:
  - BV if not refractory; ALK inhibitors > AlloSCT (if eligible)
- ALCL neg:
  - BV (if not refractory) + Benda > AlloSCT (if eligibile)
- T-Follicular Helper Lymphomas and PTCL-NOS
- BV if CD30+
- CT
- TFH: Aza > AlloSCT (if eligible)

### GIORNATE EMATOLOGICHE VICENTINE XI edizione

#### SSD LINFOMI E SDR LINFOPROLIFERATIVE CRONICHE

Prof. Pier Luigi Zinzani

