

Giornate **AIEOP**

RIMINI

Hotel Savoia

13-14 aprile 2026

LINFOMI NON HODGKIN

Marta Pillon

Azienda Ospedaliera Università di Padova

Disclosures of Name Surname

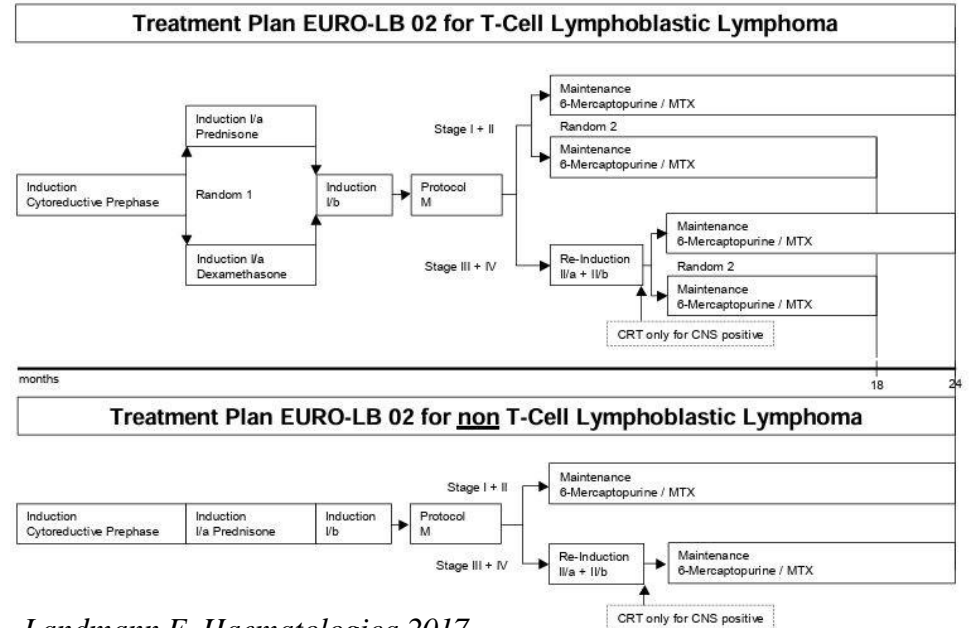
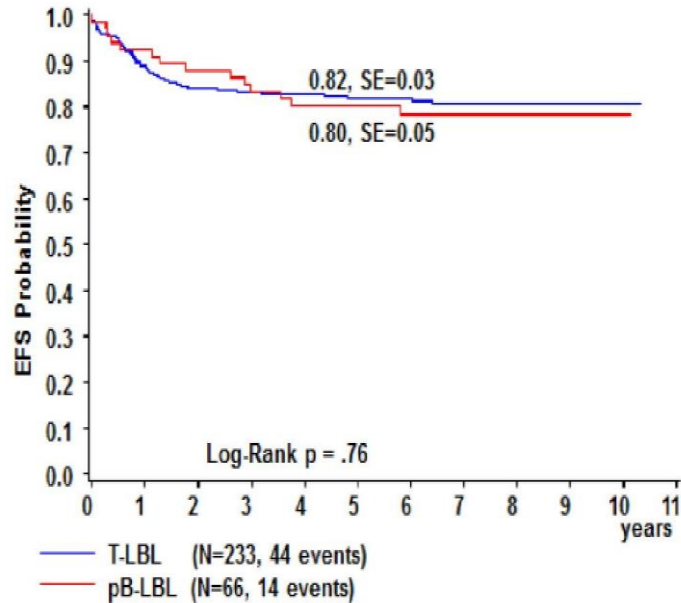
Company name	Research support	Employee	Consultant	Stockholder	Speakers bureau	Advisory board	Other
TAKEDA					x		
JAZZ						x	
PIERRE FABRE					x		

Resoconto attività 2025-26

- Gruppo europeo EICNHL (6th SIOPE), Budapest, 12-13 Maggio 2025
- The 8th International Symposium on Childhood, Adolescent and Young Adult Non-Hodgkin's Lymphoma, New York, 26-28 Settembre 2025
- XL Congresso Nazionale AIEOP, Roma, 22-23 Settembre 2025
- EICNHL meeting, Padova, 24-25 Novembre 2025
- GdL LNH 19.03.2026 – Virtual
- Riunioni del gruppo EICNHL ristretto- Virtual

Linfoma Linfoblastico

Protocollo EURO-LB02 (no random)



Landmann E, Haematologica 2017
(Stop random 2008)

LBL 2018

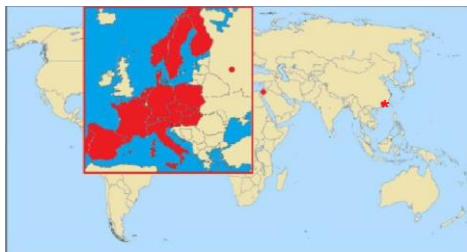
International cooperative treatment protocol for children and adolescents with lymphoblastic lymphoma

EudraCT- Nr.: 2017-001691-39
(EU-CT Nr.: 2023-508101-24-00)

Sponsor:
Universitätsklinikum Münster
Albert-Schweitzer-Campus 1
48149 Münster

core study cohort

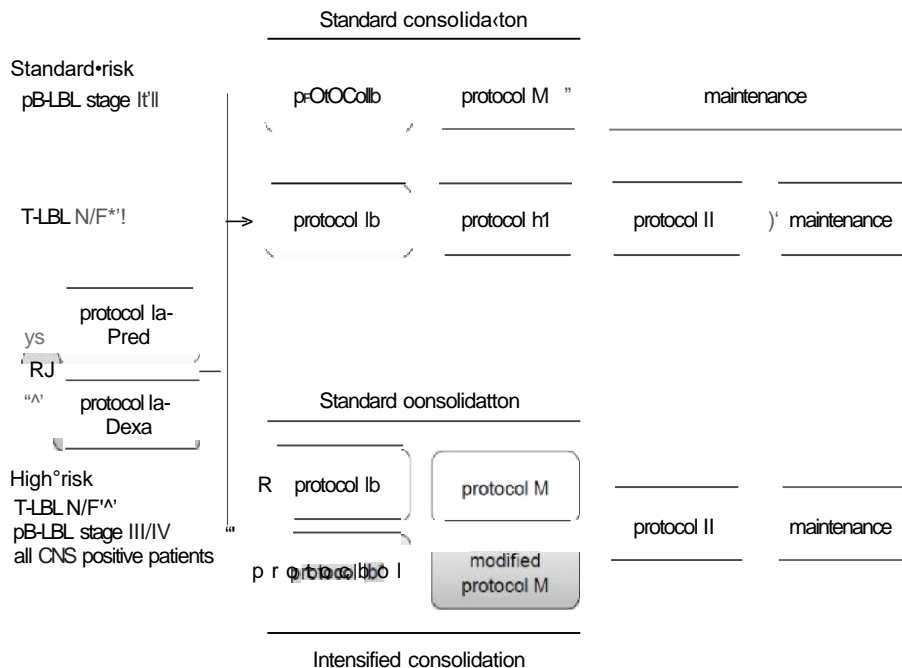
AIEOP	Italy
BFM	Austria, Czech Republic, Germany, Slovenia
BSPHO	Belgium
CoALL	Germany
DCOG	The Netherlands
NOPHO	Denmark, Finland, Sweden
PPLSG	Poland
SEHOP	Spain
SFCE	France
HKPHOSG	Hong Kong



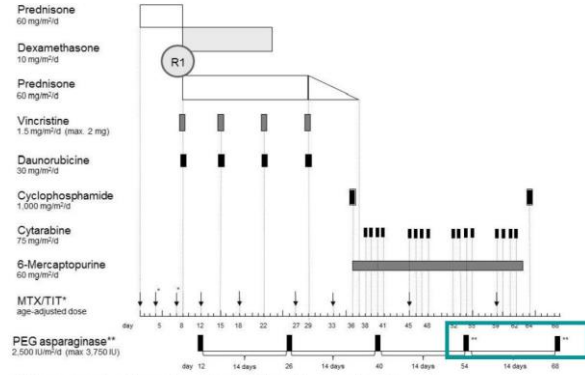
extended study cohort

HPOG	Hungary
ISPHO	Israel
NSPHO	Moscow
SHOP	Portugal
SPS	Slovak Republic

LBL 2018 - Treatment plan

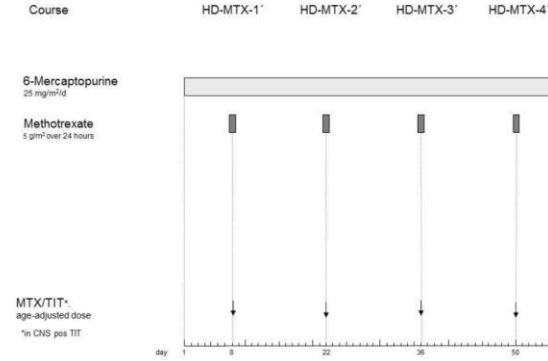


16.4 Schema of induction protocol I

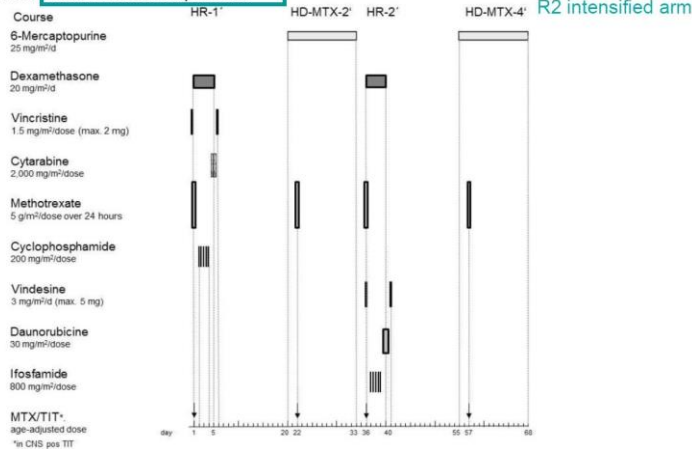


*In CNS pos pts twice weekly until clearance of blasts. **dose MTX IT, then TIT. ***please strictly adhere to 14-day interval

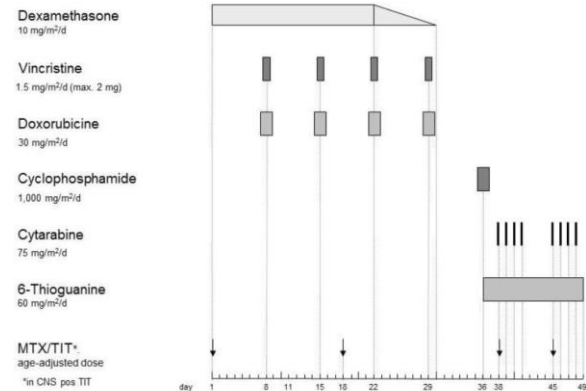
16.4.4.4 Schema of protocol M



16.4.4.5 Schema of intensified protocol M



16.4.5 Schema of reintensification phase - Protocol II



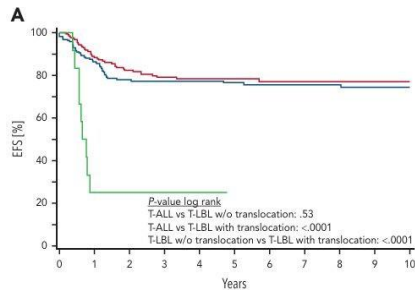
NOTCH1/FBXW7 (N/F) mutational status at diagnosis is employed for T-cell lymphoblastic lymphoma (T-LBL) patients stratification in the international protocol LBL 2018

Immunophenotype	N	%
T-LBL	407	79
pB-LBL	103	20
MPAL	7	1

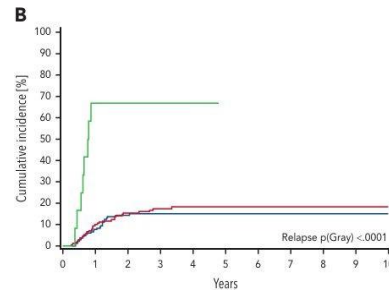


Feasibility of molecular stratification in T-LBL

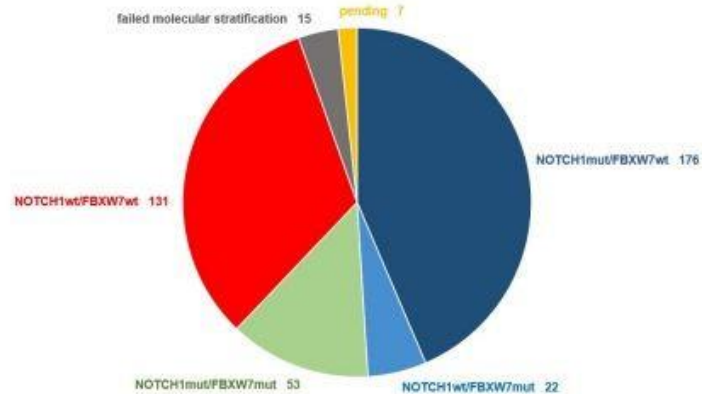
- recruited patients until August 31st, 2025: 517
- T-LBL: 407 (79%)
- successful molecular stratification: 382 (96%)
- failed molecular stratification: 15 (4%)



— T-ALL 75.6, SE = 3.4 (N = 167, 41 events)
 — T-LBL w/o TRB::NOTCH1 77.0, SE = 3.4 (N = 180, 38 events)
 — T-LBL with TRB::NOTCH1 25.0, SE = 12.5 (N = 12, 9 events)



— T-ALL 15.0, SE = 2.8 (N = 167, 25 events)
 — T-LBL w/o TRB::NOTCH1 18.2, SE = 3.0 (N = 180, 31 events)
 — T-LBL with TRB::NOTCH1 66.7, SE = 15.0 (N = 12, 8 events)



Te Vrugt et al, Blood 2024



Apertura ufficiale del primo centro AIEOP **giugno 2023**

Al 10/04/2026:

39 pazienti arruolati (4 esclusi per blasti > 25%, rev istologica)

26/28 centri aperti alla sperimentazione

STOP PREVISTO 11/11/24 → **NUOVA DEADLINE 01/04/2027**

OTTIMA COMPLIANCE ALL'INVIO DEL MATERIALE BIOLOGICO E ISTOLOGICO



TARC levels as a non-invasive diagnostic biomarker

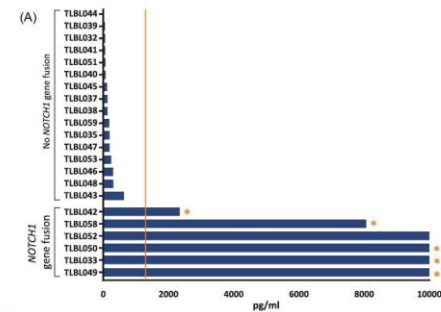
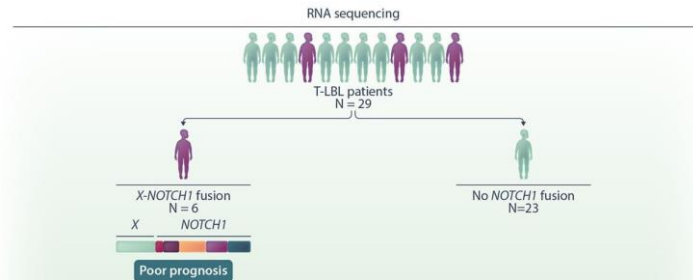


CCL17 measurements at diagnosis can be performed by ELISA assay using 100µl of serum or plasma.

- Potential of TARC levels as a non-invasive diagnostic biomarker for identifying «very high-risk» T-LBL patients

Upcoming Steps & Objective

Analyze a larger cohort of pediatric T-LBL patients to validate NOTCH1 gene fusions and TARC level results



Studi clinici di 2^a linea per r/r T-LNH

HEM-iSMART: International proof of concept therapeutic Stratification trial of Molecular Anomalies in Relapsed or Refractory HEMatological malignancies in children



- Pazienti < 18 years at first diagnosis with molecularly profiled R/R ALL/LBL
- Sponsor: Princess Máxima Center for Pediatric Oncology in collaboration with three pharmaceutical companies (Janssen, Novartis and ABBVIE).
- **Master Protocol and 4 Sub-Protocols**, each of which consists of a Phase I and a Phase II part. The sub-protocols will be running independently. The study will be open in around 36 sites in 15 countries.
- **Sub protocol A:** decitabina, venetoclax e navitoclax in r/r T-ALL/LBL in paz. apparentemente privi di alterazioni molecolari target.
- **Sub protocol B:** dasatinib, venetoclax, desametasone, ciclofosfamide e citarabina in paz. con alterazioni nella via Mitogen Activated Protein Kinase (MAPK)-SRC ([open](#))
- **Sub protocol C:** ruxolitinib, venetoclax, desametasone, ciclofosfamide e citarabina in paz. con alterazioni della via IL7-R/JAKSTAT (Janus kinase (JAK)/signal transducer and activator of transcription) ([open](#))
- **Sub protocol D:** trametinib, desametasone, ciclofosfamide e citarabina in paz. con alterazioni della via RAS-RAF-MAPK ([open](#))
- **Sub protocol E:** capivasertinib, venetoclax, desametasone ([site feasibility](#))

Non ancora aperto in Italia (Genova, Monza, Padova, Roma BG, Torino)



Recruiting



CD7-CAR-T Cells in Pediatric Relapsed/Refractory CD7+ T-ALL (CD7-CAR01)

ClinicalTrials.gov ID @ NCT06064903

Sponsor @ Bambina Gesu Hospital and Research Institute

Information provided by @ Bambino Gesu Hospital and Research Institute (Responsible Party)

Last Update Posted @ 2025-12-D2

LNH-B

PROTOCOLLI NAZIONALI ED INTERNAZIONALI IN USO:

- Protocollo **AIEOP LNH97+/- Rituximab**
- Protocollo **Inter B-NHL Ritux 2010**
(2ys EFS: 93,9% Ritux vs 82,3% no Ritux)
- Protocollo **NHL 2013** (BFM e NOPHO), in corso

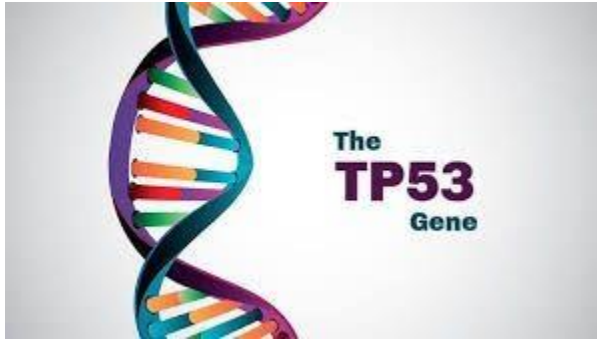
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Rituximab for High-Risk, Mature B-Cell Non-Hodgkin's Lymphoma in Children

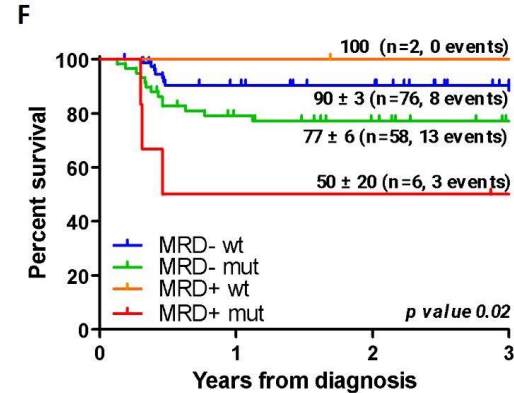
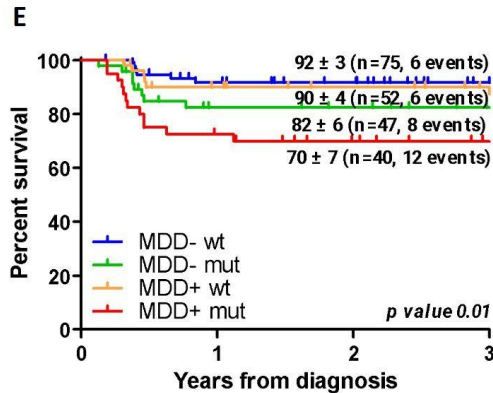
V. Minard-Colin, A. Aupérin, M. Pilon, G.A.A. Burke, D.A. Barkauskas, K. Wheatley, R.F. Delgado, S. Alexander, A. Uyttebroeck, C.M. Bollard, J. Zsiros, M. Csoka, B. Kazanowska, A.K. Chiang, R.R. Miles, A. Wotherspoon, P.C. Adamson, G. Vassal, C. Patte, and T.G. Gross, for the European Intergroup for Childhood Non-Hodgkin Lymphoma and the Children's Oncology Group²





Nuovo marcatore molecolare per la stratificazione dei pazienti pediatrici affetti da linfoma di Burkitt e DLBCL

PATIENTS STRATIFICATION ACCORDING TO TP53 MUTATIONAL STATUS AND DISEASE DISSEMINATION



UNIVARIATE AND MULTIVARIATE ANALYSIS BASED ON CLINICAL AND BIOLOGICAL CHARACTERISTICS

Patient characteristics		# Patients	# Events	3-y PFS % (SE%)	Univariate p-Value	Multivariate p-Value	Hazard Ratio (95% CI)
Gender	Male	180	24	86 (3)	0.088	n.s.	
	Female	34	8	76 (7)			
Median age (years)	<7,7	111	14	87 (3)	0.293	n.s.	
	≥7,7	103	18	85 (3)			
BM involvement*	No	188	27	80 (8)	0.518		
	Yes	26	5	77 (10)			
CNS involvement	No	200	30	84 (3)	0.968		
	Yes	14	2	85 (10)			
Risk group [†]	1-2-3 and B	45	1	98 (2)	0.01	n.s.	
	4 and C	166	30	81 (3)			
Stage [‡]	1-2	38	1	97 (3)	0.0259	n.s.	
	3-4	176	31	82 (3)			
MDD	Neg	122	14	88 (3)	0.109	n.s.	
	Pos	92	18	80 (4)			
Rituximab	No	147	26	82 (3)	0.092	0.0318	0.4 (0.1-0.9)
	Yes	66	6	90 (4)			
TP53	WT	127	12	90 (3)	0.0055	0.0247	2.3 (1.1-4.9)
	Mut	87	20	77 (5)			

TP53 DNA binding domain mutational status and rituximab-based treatment are independent prognostic factors for pediatric Burkitt lymphoma patients stratification.

B-NHL 2025 - Treatment protocol for mature B-cell lymphoma and leukemia in children and adolescents

- 5 anni di arruolamento + 2 follow-up
 - 185 pazienti/anno, totale 925 pazienti
 - Paesi coinvolti/numero pazienti attesi/anno: AIEOP; NHL-BFM; NOPHO; PPLLSG; SEHOP.
 - Pazienti eleggibili: pazienti <18 aa con diagnosi di LNH-B/LLA-B (no PMLBL)
 - Braccio W&W per linfomi rari
 - Ridefinizione dei gruppi di rischio
- possibile inizio Settembre 2026

Stratification

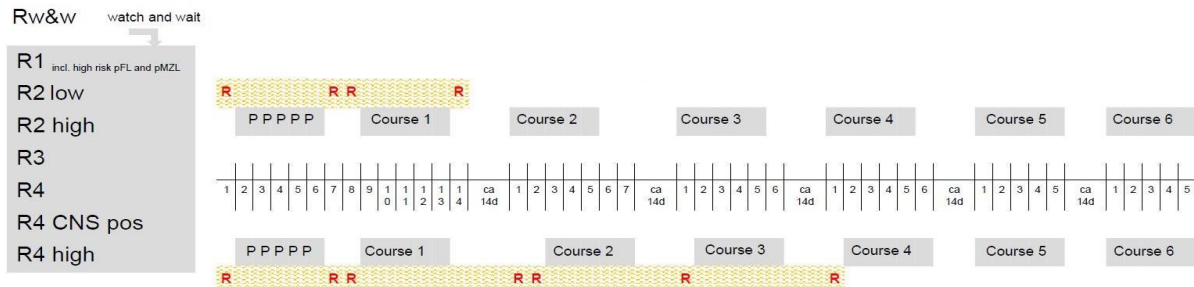
risk group (RG)	stage and initial serum LDH level
RGw&w	pMZL and pFL
RG1	stage I + II, complete resection
RG2 low	stage I + II, incomplete resection
RG2 high	stage III and LDH < 2 x ULN (upper normal limit of local reference value for adults)
RG3	all stages, CNS-, LDH ≥ 2 x ULN but < 4 x ULN and all DLBCL stage III/IV with LDH < 4 x ULN
RG4	all stages, LDH ≥ 4 x ULN
RG5	RG3 and RG4 with TP53 ^{mut} (w/o R248Q), MRD ^{pos}

B-NHL 2025



Obiettivi:

- Ottimizzazione dell'**utilizzo di rituximab** (randomizzazione 4 rituximab vs 7 rituximab per tutti)
- **Riduzione della chemioterapia** classica (randomizzazione 2 e 3 secondo nuovi GR)
- Introdurre **intensificazione terapeutica** con nuovi farmaci per pazienti ad altissimo rischio



Endpoint primari:

- EFS
- QoL
- Tasso di non aderenza alla strategia W&W

Endpoint secondari:

- OS
- Frequenza tossicità e mortalità protocol related
- CIR
- Ricostituzione immunologica
- Biomarkers per predisposizione, risposta, rischio di ricaduta o tossicità

B-NHL 2025

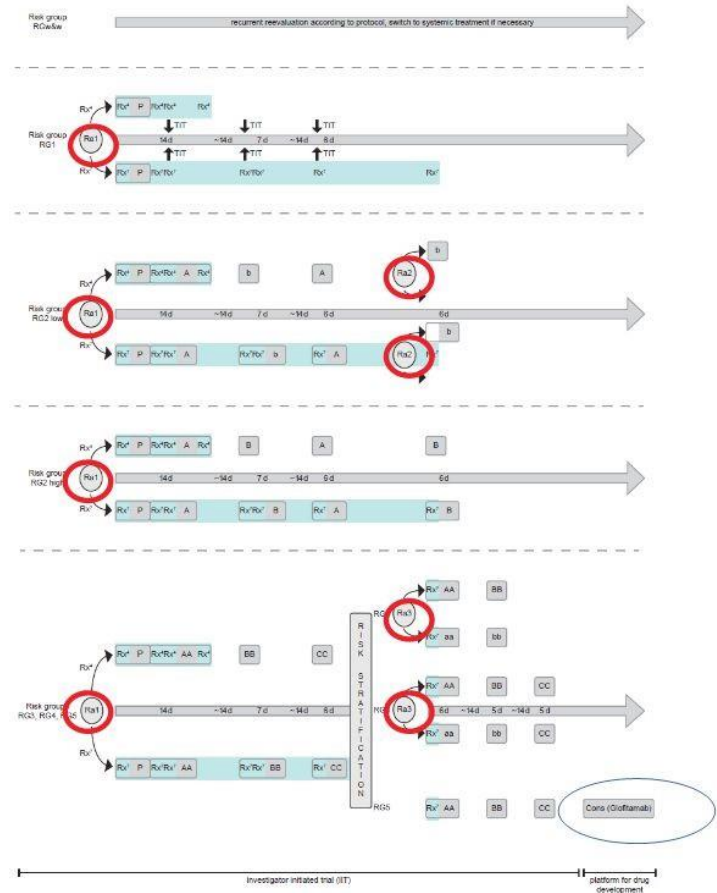
Protocollo prevede 3 randomizzazioni:

- numero rituximab
- riduzione antracicline
- intensificazione con anticorpo monoclonale bispecifico per very high risk

Stato di avanzamento:

- in lettura ai centri coordinatori partecipanti
- contatto con le aziende farmaceutiche per nuovi farmaci
- definizione di progetti ancillari

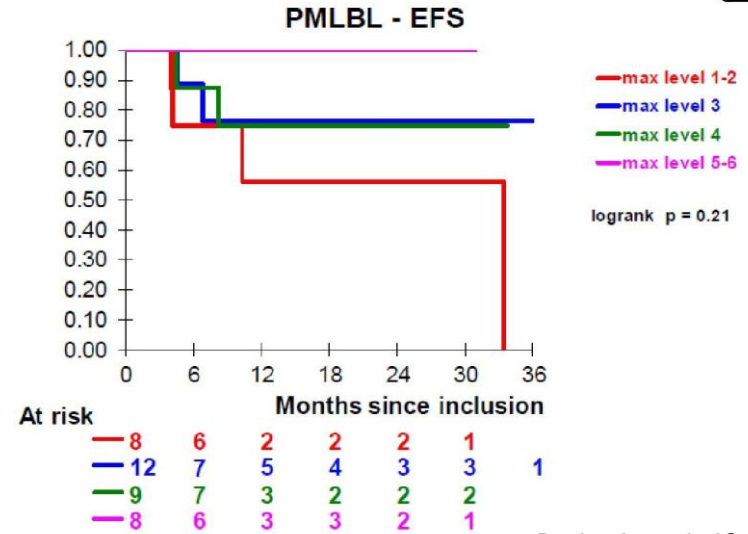
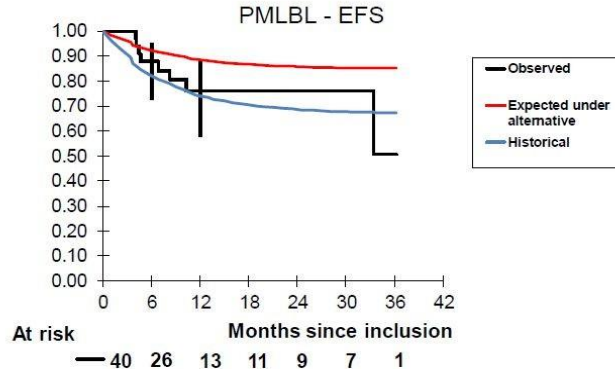
Avviate le procedure di start-up



PMLBL: R-DA-EPOCH + rachicentesi

EFS rates:

	Observed rate (95%CI)	Expected rate under alternative $[0.67 + 0.33 \{ \exp(-1.5t) \}]^{0.406}$	Historical rate $0.67 + 0.33 \{ \exp(-1.5t) \}$
At 6 months	87.8% (72.6%-95.2%)	92.5%	82.6%
At 12 months	76.2% (57.9%-88.1%)	88.7%	74.4%



Burke A et al, JCO 2021

6 courses of EPOCH with rituximab, with dose adaptation (DA) at each course based on previous course ANC nadir



Doxorubicin, VCR, VP16 infused over 96h, no IT, no HDMTX



Woessmann W, NEJM 2013

DA-EPOCH-R Standard of care in (young) adults, current BFM treatment recommendation

or

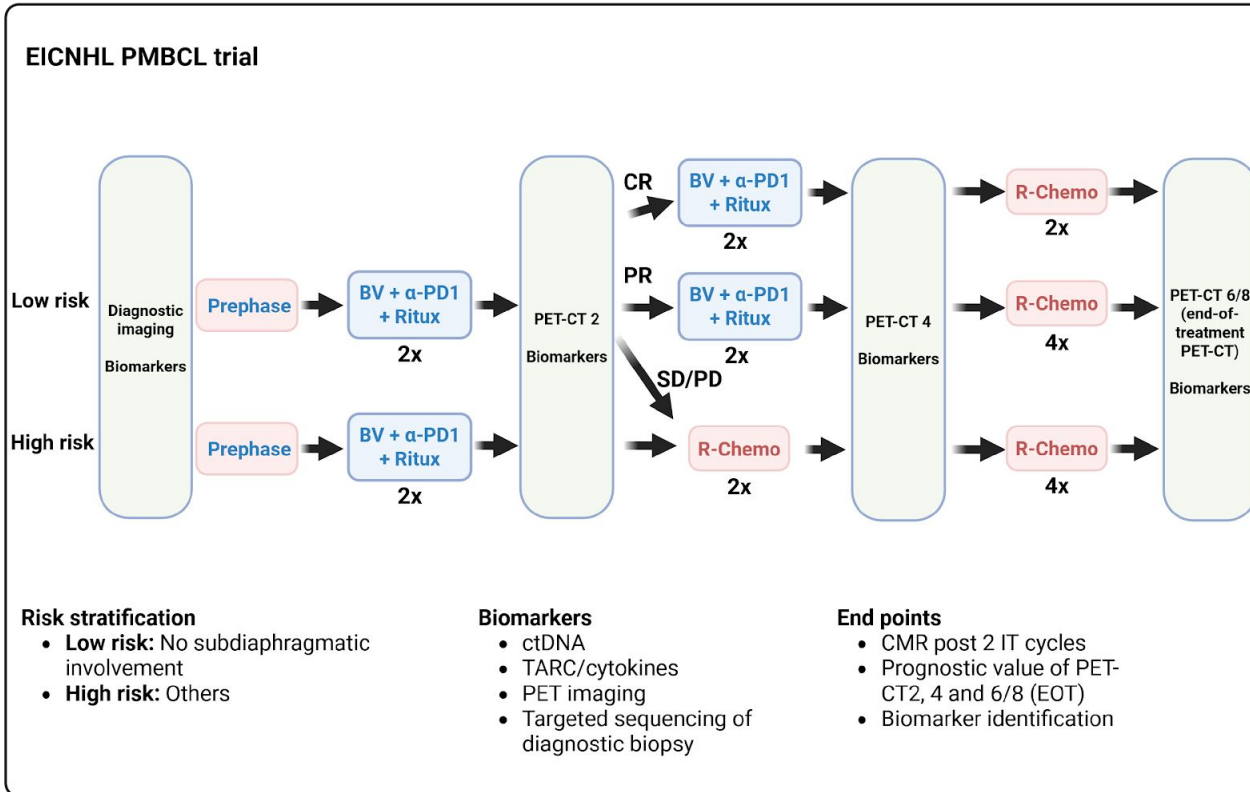
LMB-based chemotherapy + Ritux (Inter-B-NHL ritux 2010 protocol)

DA-EPOCH-R in adults, single center, uncontrolled phase II NCI study of 51 pts.: 5y EFS 93%/OS 97%

Table 2. Summary of Studies in Pediatric Patients With PMBCL

Reference	Regimen	Type of Study	n	Median Age	EFS (95% CI)	OS (95% CI)
Dourthe et al ²⁵	LMB2001	Prospective, multicenter	42	15 y	88% (75%–94.8%)	95.2% (84%–98.7%)
Knörr et al ²⁴	DA-EPOCH-R NHL-BFM-04 N95	Prospective, multicenter, retrospective comparison	116	16.2 y	DA-EPOCH-R: 84% (72%–91%) BFM-04: 59% (39%–74%) N95: 39% (19%–60%)	DA-EPOCH-R: 90% (79%–95%) BFM-04: 72% (51%–85%) N95: 70% (45%–85%)
Burke et al ¹¹	DA-EPOCH-R	Prospective, multicenter	46	15.4 y	69.6% (55.2%–80.9%)	84.8% (71.8%–92.4%)
Giulino-Roth et al ¹²	DA-EPOCH-R	Retrospective, multicenter	38	16 y	81.0%	90.7%
Gerrard et al ²³	FAB/LMB96	Prospective, multicenter	42	15.7 y	66.0% (49%–78%)	73% (56%–84%)
Seidemann et al ²²	NHL-BFM 86/90/95	Pooled analysis	30	14.3 y	70%	

PMLBL: proposal for a new treatment study



confidential

Studi clinici di 2^a linea per r/r B-LNH

RECRUITING ⓘ

A Study to Evaluate **Glofitamab** Monotherapy and **Glofitamab + Chemoimmunotherapy** in Pediatric and Young Adult Participants With Relapsed/Refractory Mature B-Cell Non-Hodgkin Lymphoma (iMATRIX GLO)

ClinicalTrials.gov ID ⓘ NCT05533775

Roma BG, Torino

RECRUITING ⓘ

A Study to Evaluate the Safety, Tolerability, Drug Levels, and Preliminary Efficacy of **Relatlimab Plus Nivolumab** in Pediatric and Young Adult With Hodgkin and Non-Hodgkin Lymphoma (RELATIVITY-069)

ClinicalTrials.gov ID ⓘ NCT05255601

Roma BG, Torino, Bologna, Firenze, Milano INT, Monza, Padova

RECRUITING

A Single Arm, Open-Label, Phase 1b Trial of **Epcoritamab** (bispecific antibody anti-CD3-CD20) in Pediatric Patients With Relapsed/Refractory Aggressive Mature B-cell Neoplasms

Roma BG, Firenze



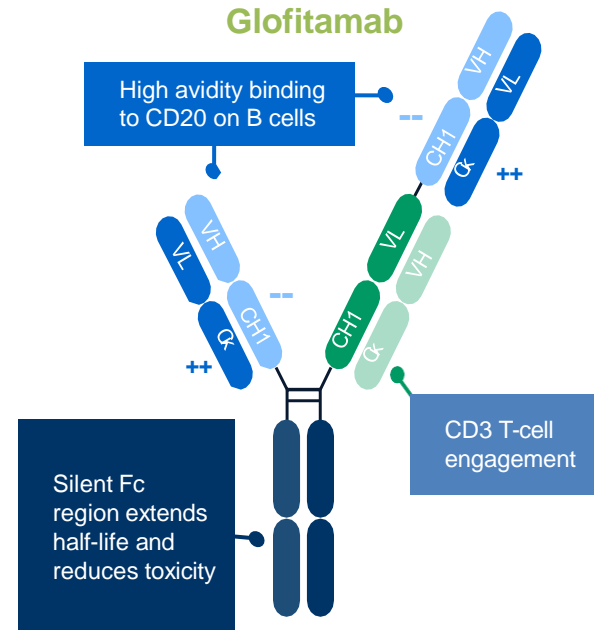
A phase I/II, open-label, single-arm, two-part trial to evaluate safety, Tolerability, pharmacokinetics, and anti-tumor activity of **Glofitamab** in Monotherapy and in combination with chemoimmunotherapy in pediatric and young adult participants with relapsed/refractory mature B-cell non-hodgkin lymphoma

Glofitamab

- T cell-bispecific antibody targeting CD20 expressed on B cells and CD3 chain present on T cells

Inclusion Criteria:

- Histologically re-confirmed diagnosis of mature B-cell non-Hodgkin lymphoma that expresses CD20 (reconfirmed by IHC) at the time of first R/R disease for Cohort A and second or greater R/R disease for Cohort B



A single-arm, multi-center, open-label Phase II study to determine the safety and efficacy of **MB-CART2019.1** in pediatric subjects with relapsed/refractory (r/r) mature B-cell neoplasms who have relapsed after one or more prior therapies, including subjects with primary refractory disease

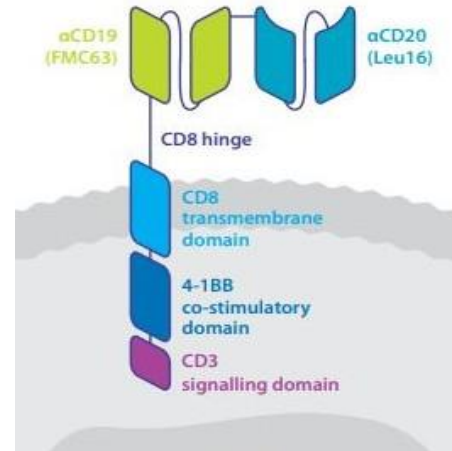
MB-CART2019.1 (*zamtocabtagene autoleucl*)

- An autologous CD4-/CD8-enriched CAR T-cell therapy genetically engineered to target CD19 and CD20 on B cells

Inclusion Criteria:

Histologically confirmed mature CD19+ and/or CD20+ B-cell neoplasm (WHO 2022 classification) such as:

- Burkitt lymphoma/Burkitt leukemia
- Diffuse large B-cell lymphoma (DLBCL), not otherwise specified (NOS)
- Primary mediastinal (thymic) large B-cell lymphoma
- Burkitt-like lymphoma with 11q aberration
- Other rare aggressive B-cell non-Hodgkin lymphoma (NHL)



FT04 PROTOCOL: ALLOGENEIC CARCIK-CD19 IN NHL

Sponsor: Fondazione Tettamanti - EU CT 2023-505511-20-00

CIK cells, non viral, transposon system, allogeneic setting

Patients

- Adult and paediatric (age ≥ 1 years)
- R/R CD19+ B-cell **NHL or CLL**
- ≥ 2 prior therapies
- Ineligible to commercially available CART due to age or comorbidities (including HIV)
- CIK cells, non viral, transposon system
- allogeneic setting, at least haplo donor

Primary objectives

- Safety and RP2D (Phase I)
- Efficacy (ORR) (Phase II)

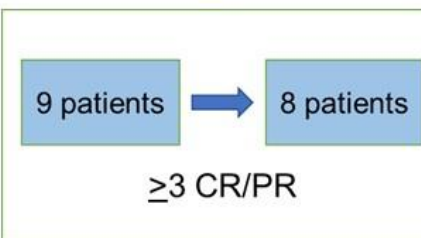
Dose escalation (Phase I) and expansion (Phase II)

Donor: at least haploidentical (i.e. 4/8 HLA matched by allele typing)

Phase I
(3+3 design)
9-12 patients



Phase II (Simon Design)
Up to 17 patients



Status: 16 adult patients enrolled, 10 infused (up to March 2026)
Pediatric enrollment expected since May 2026

Studi clinici di 2^a linea per r/r B-LNH

Glo-BNHL- prioritisation

eicnHL
European Inter-Group for Childhood
Non-Hodgkin Lymphoma

Innovative Therapies
for Children with Cancer
ITCC
European
Consortium

**CHILDREN'S
ONCOLOGY
GROUP**

- Cohort 1: bispecific T-cell engager (BiTE)
- Cohort 2: antibody-drug conjugate (ADC) with standard chemotherapy
- Cohort 3: chimeric antigen receptor (CAR) T-cells (or haematopoietic stem cell transplant (HSCT))

In Italia è in corso negoziazione del contratto con lo
Sponsor
(UK recruiting)



CANCER
RESEARCH
UK

BIRMINGHAM
CANCER RESEARCH UK
CLINICAL TRIALS UNIT

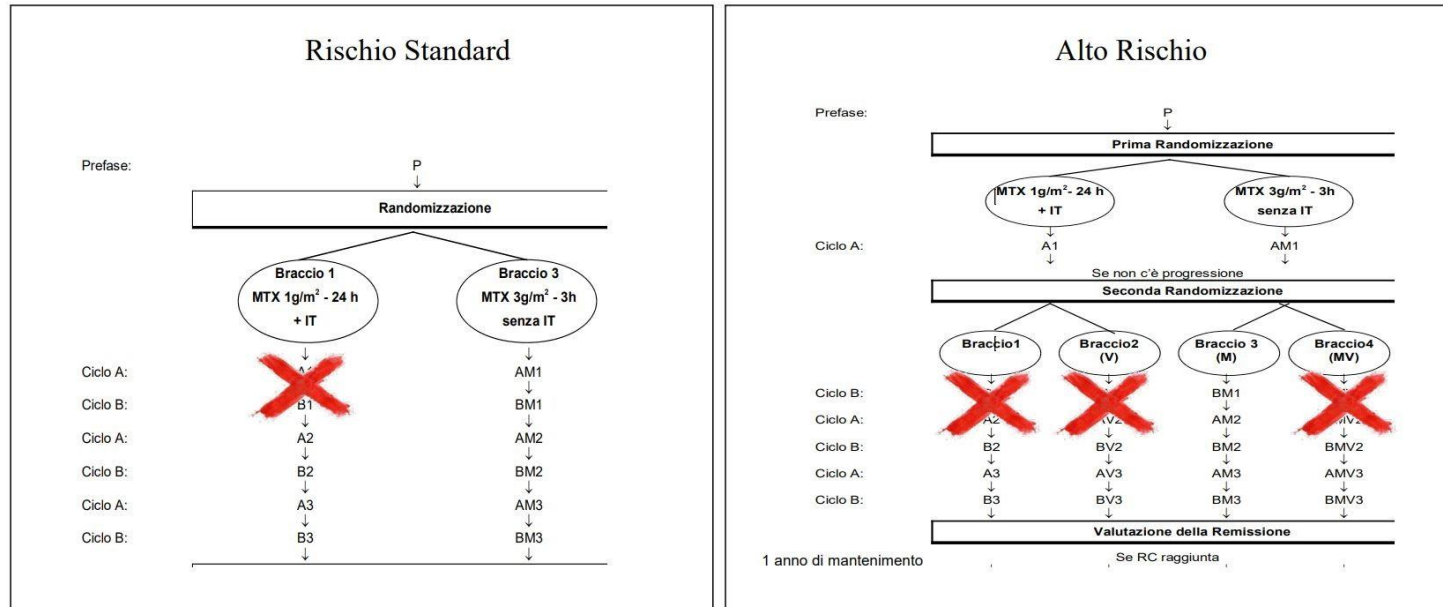


UNIVERSITY OF
BIRMINGHAM

ACCELERATE
INNOVATION FOR CHILDREN AND ADOLESCENTS WITH CANCER

Linfoma anaplastico

“INTERNATIONAL TRIAL ALCL 99” PER IL TRATTAMENTO DEGLI ALCL – SENZA RANDOM



Frontline: VBL (Basso rischio)

Linfoma anaplastico



Article

Prognostic Factors in Childhood Anaplastic Large Cell Lymphoma: Long Term Results of the International ALCL99 Trial

Lara Mussolin ^{1,2,*}, Marié-Cecilé Le Deley ^{3,†}, Elisa Carraro ¹, Christine Damm-Welk ⁴, Andishe Attarbaschi ⁵, Denise Williams ⁶, Amos Burke ⁶, Keizo Horibe ⁷, Atsuko Nakazawa ⁸, Grazyna Wrobel ⁹, Georg Mann ⁵, Monika Csóka ¹⁰, Anne Uyttebroeck ¹¹, Rafael Fernández-Delgado Cerdá ¹², Auke Beishuizen ¹³, Karin Mellgren ¹⁴, Birgit Burkhardt ¹⁵, Wolfram Klapper ¹⁶, Suzanne D. Turner ^{17,18}, Emanuele S.G. d'Amore ¹⁹, Laurence Lamant ²⁰, Alfred Reiter ²¹, Wilhelm Woessmann ⁴, Laurence Brugières ^{22,‡}, Marta Pillon ^{23,‡} and on behalf of the European Inter-Group for Childhood Non-Hodgkin lymphoma (EICNHL) [§]

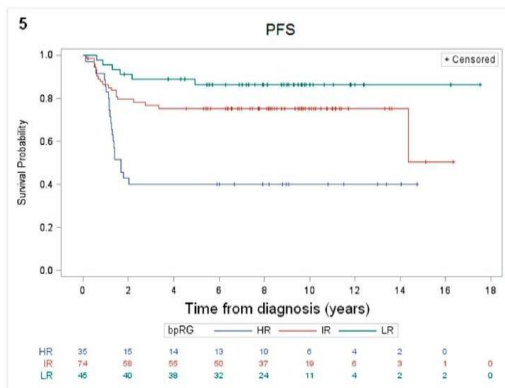
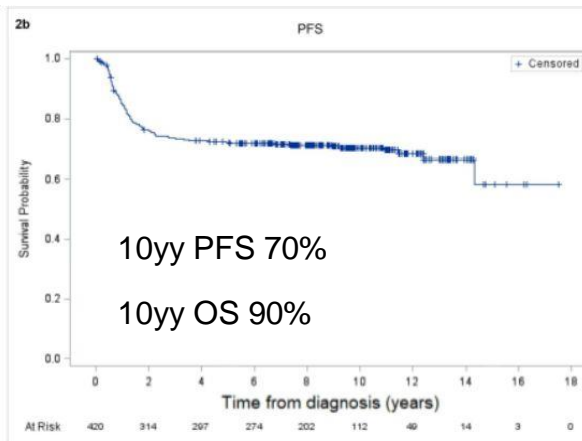


Figure 5. The 10-year PFS was 40% (SE ± 8%), 75% (SE ± 5%) and 86% (SE ± 5%) for bpHR (n = 35), bpLR (n = 74) and bpLR (n = 45), respectively (p < 0.0001).



Histological subtype SC/LH (8 mv)	No	95	19	81 (4)	0.0006	0.009	2.4 (1.23–4.66)
	Yes	59	27	53 (7)			
MDD	Neg	75	12	83 (4)	0.001	0.038	2.15 (1.04–4.64)
	Pos	87	34	62 (5)			

Diagnosis: ALK-pos ALCL

stratification according to stage and MDD

Clinically indicated: pretherapy with (BL or 1)



STAND BY

CT (ALK ± anti CD30 ± anti ALK

WORK IN PROGRESS

WORK IN PROGRESS

Contatto con le aziende farmaceutiche per nuovi farmaci

Crizotinib in Combination With Chemotherapy for Pediatric Patients With ALK+ Anaplastic Large-Cell Lymphoma: The Results of Children's Oncology Group Trial ANHL12P1

Eric J. Lowe, MD¹; Anne F. Reilly, MD, MPH²; Megan S. Lim, MD, PhD²; Thomas G. Gross, MD, PhD²; Lauren Saguilig, MS⁵; Donald A. Barkauskas, PhD²; Rui Wu, MD, PhD²; Sarah Alexander, MD¹; and Catherine M. Bollard, MD⁶

TABLE 1. Chemotherapy Schedule

Course	Drug	Dose per Day	Schedule
Prophase (days 1-5)	Cyclophosphamide	200 mg/m ² once a day	Days 1, 2
	Dexamethasone	5 mg/m ² once a day 10 mg/m ² divided twice per day	Days 1, 2 Days 3-5
	Triple intrathecal	Age-based	Day 1
Cycles 1, 3, 5	CZ	165 mg/m ² /dose twice a day	Day 1-21
	Methotrexate	3 g/m ² over 3 hours	Day 1
	Dexamethasone	10 mg/m ² divided twice per day	Days 1-5
	Ifosfamide	800 mg/m ² once a day	Days 1-5
	Etoposide	100 mg/m ² once a day	Days 4, 5
	Cytarabine	150 mg/m ² twice per day	Days 4, 5
	Cycles 2, 4, 6	CZ	165 mg/m ² /dose twice a day
Methotrexate		3 g/m ² over 3 hours	Day 1
Dexamethasone		10 mg/m ² divided twice per day	Days 1-5
Cyclophosphamide		200 mg/m ² once per day	Day 1-5
Doxorubicin		25 mg/m ² once per day	Days 4, 5

ANHL12P1 trial: studio randomizzato di fase 2.

Obiettivo primario: determinare efficacia e tossicità di **BV (EFS 79,1%-OS 97%)** e **Crizotinib (EFS 76,8% - OS 95,2%)** in pazienti ALCL CD30+

Conclusioni:

-Previene ricadute durante il trattamento

-Risultati di EFS/OS sovrapponibili allo storico - >> eventi tromboembolici per Crizotinib

Brentuximab vedotin in combination with chemotherapy for pediatric patients with ALK⁺ ALCL: results of COG trial ANHL12P1

Eric J. Lowe,¹ Anne F. Reilly,² Megan S. Lim,³ Thomas G. Gross,⁴ Lauren Saguilig,⁵ Donald A. Barkauskas,⁶ Rui Wu,³ Sarah Alexander,⁷ and Catherine M. Bollard⁸

Table 2. Chemotherapy schedule

Course	Drug	Daily dose	Schedule
Prophase (days 1-5)	Cyclophosphamide	200 mg/m ²	Days 1 and 2
	Dexamethasone	5 mg/m ² 10 mg/m ²	Days 1 and 2 Days 3-5
	Triple intrathecal	Age based	Day 1
Cycles 1, 3, and 5	Brentuximab vedotin*	1.8 mg/kg	Day 1
	Methotrexate	3 g/m ² over 3 h	Day 1
	Dexamethasone	10 mg/m ²	Days 1-5
	Ifosfamide	800 mg/m ²	Days 1-5
	Etoposide Cytarabine	100 mg/m ² 150 mg/m ² × 2	Days 4 and 5 Days 4 and 5
Cycles 2, 4, and 6	Brentuximab vedotin*	1.8 mg/kg	Day 1
	Methotrexate	3 g/m ² over 3 h	Day 1
	Dexamethasone	10 mg/m ²	Days 1-5
	Cyclophosphamide	200 mg/m ²	Day 1-5
	Doxorubicin	25 mg/m ²	Days 4 and 5

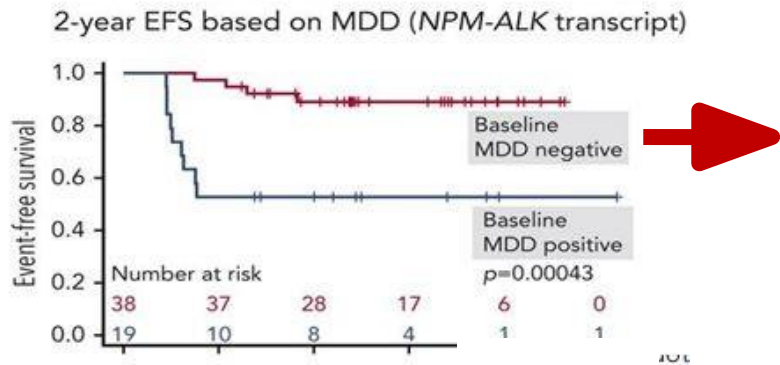
*Brentuximab vedotin was given prior to any other chemotherapy on day 1.

Lowe E, Blood 2021

Lowe E, JCO 2022

ALCL and MDD

BV



CLINICAL TRIALS AND OBSERVATIONS

Comment on Lowe et al, page 3595

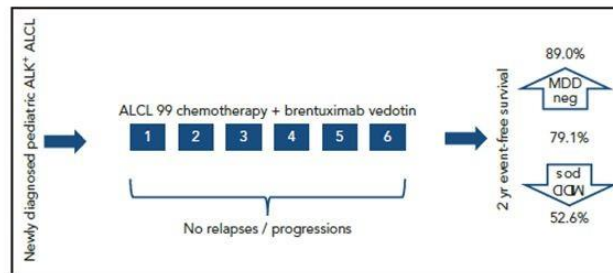
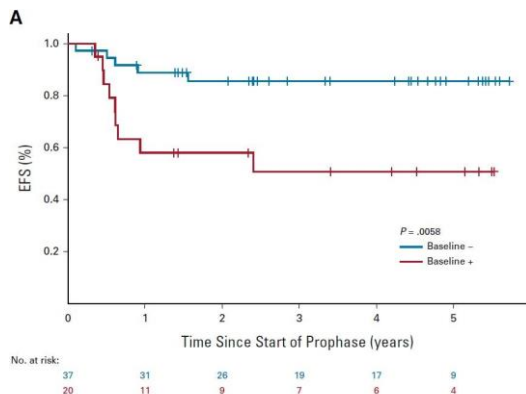
Brentuximab vedotin: frontline help in ALCL

G. A. Amos Burke | Cambridge University Hospitals NHS Foundation Trust

In this issue of *Blood*, Lowe et al present results of a phase 2 study combining brentuximab vedotin (BV) with standard chemotherapy in the treatment of newly diagnosed pediatric anaplastic lymphoma kinase-positive (ALK⁺) anaplastic large-cell lymphoma (ALCL) and observe that it eliminated almost all relapses while receiving therapy, a significant breakthrough in the management of this disease.¹

Burke GA, *Blood* 2021

CRIZO



- Importante ridurre le r/r in terapia vista la peggior prognosi
- BV può essere utilizzato in prima linea in associazione alle terapie standard o come singolo agente con l'obiettivo di ridurre la tossicità e aumentare l'efficacia
- Limite attuale: il BV non previene le ricadute SNC

Lowe E et al, *Blood* 2021; Lowe E et al, *JCO* 2022

Studi clinici di 2^a linea per r/r ALCL

ITCC
International Therapeutic
in Children with Cancer
Cooperation

ErasmusMC
Erasmus

A phase 1B of crizotinib either in combination or as single agent in pediatric patients with ALK, ROS1 or MET positive malignancies
Study ITCC 053

Protocol details

ITCC meeting 9th of November 2016
Prof. C.M. Zwaan MD, PhD
L. Moreno MD, PhD
J. van der Lugt MD, PhD

Aperto arruolamento (IT, NL, IE, GB, ES)

```
graph TD; A[Relapsed/refractory ALCL] --> B[Start treatment vinblastine/crizotinib]; B --> C[Dose escalation of vinblastine with fixed dose crizotinib 3-14 patients]; C --> D[Expansion 14 patients];
```

Efficacy analysis of crizotinib at 165 mg/m² BID in paediatric patients CRISP (ITCC-053) is scheduled to be provided to the EMA by 31 August 2027

Altre terapie di seconda linea:

- BV (Locatelli F et al, Haematologica 2018)
- - BV + Bendamustina (Vinti L et al, abs)
- VBL (Knorr F et al, JCO 2020)
- allo TCSE (Knorr F et al, JCO 2020)

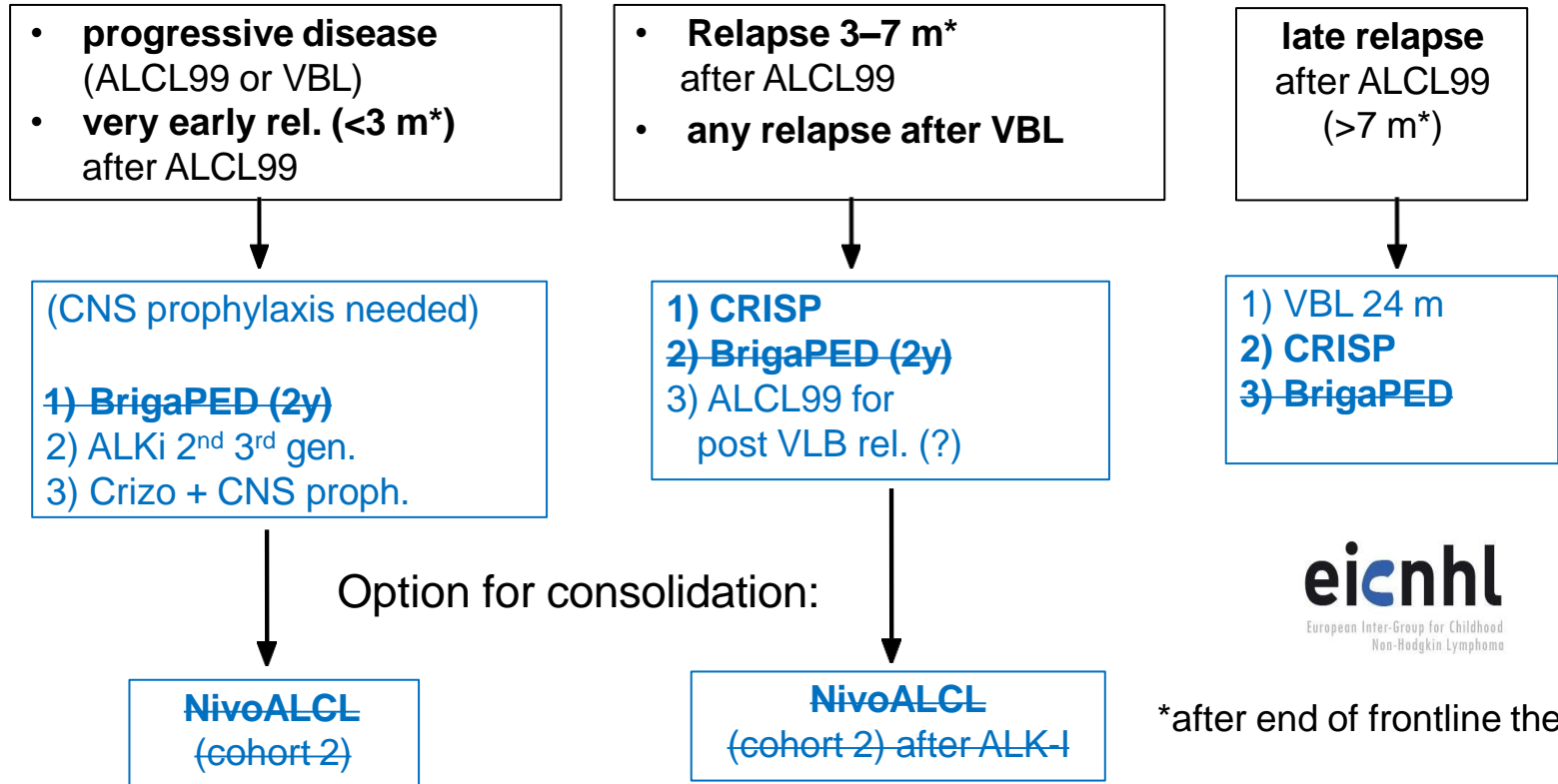
Dal 25/03/2025

Nuove Indicazioni Terapeutiche rimborsate: Xalkori (crizotinib) è indicato per il

- Il trattamento di pazienti pediatrici (da ≥6 a < 18 anni) con tumore miofibroblastico infiammatorio (Inflammatory Myofibroblastic Tumour, IMT) non resecabile, recidivante o refrattario, positivo per ALK (chinasi del linfoma anaplastico);
- Il trattamento di pazienti pediatrici (da ≥6 a < 18 anni) con linfoma anaplastico a grandi cellule (Anaplastic Large Cell Lymphoma, ALCL) di tipo sistemico recidivante o refrattario, positivo per ALK (chinasi del linfoma anaplastico).

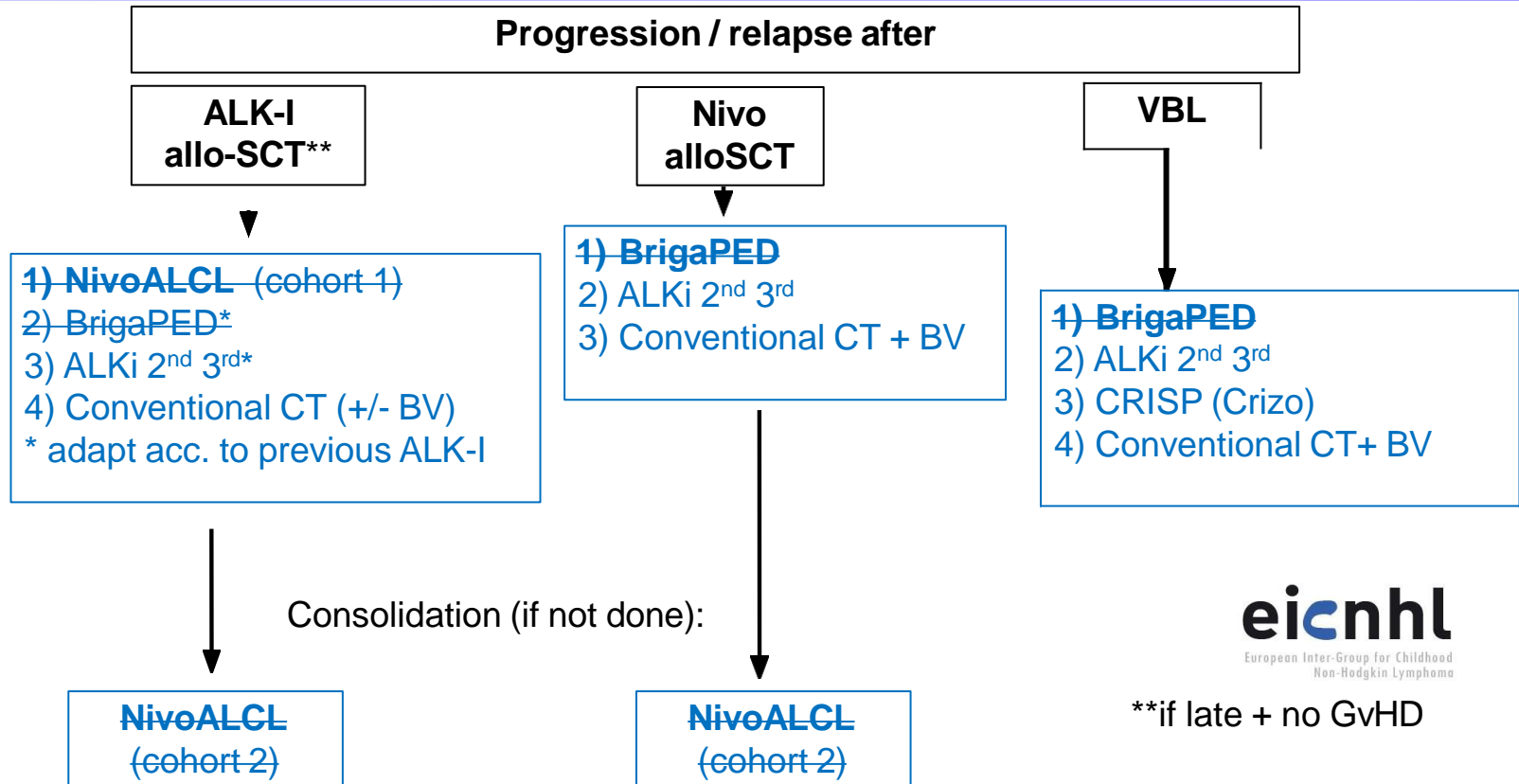
ALCL: 1. relapse

confidential



ALCL: 2. or later relapse

confidential

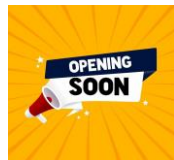




AIEOP LNH-2024

Studio Multicentrico Nazionale sul Linfoma non Hodgkin del bambino, adolescente e giovane adulto

Studio osservazionale retrospettivo e prospettico



Titolo	AIEOP LNH-2024: Studio Multicentrico Nazionale sul Linfoma non Hodgkin (LNH) del bambino, adolescente e giovane adulto (AYA). Studio osservazionale retrospettivo e prospettico
Pazienti	Pazienti di età < 18 anni con diagnosi istologica di LNH. Il limite di età può essere elevato fino ai 25 anni, per pazienti trattati all'interno di specifiche unità per AYA con diagnosi di LNH.
Obiettivo primario dello studio	Descrizione delle caratteristiche cliniche, ematochimiche, biologiche e istopatologiche all'esordio, delle terapie applicate e dell'outcome
Obiettivi secondari dello studio	<ul style="list-style-type: none">- Valutare la Sopravvivenza libera da eventi (EFS)- Valutare la Sopravvivenza globale (OS)- Valutare la Sopravvivenza libera da progressione (PFS)- Valutare la Sopravvivenza Libera da Malattia (DFS)- Studiare i fattori prognostici e le caratteristiche epidemiologiche della malattia, considerando le diverse fasce di età, le sedi di insorgenza, il sottotipo istologico della variante classica, l'estensione di malattia all'esordio.- Descrivere i trattamenti somministrati, le deviazioni dai protocolli standard e le eventuali tossicità- Correlare i dati clinici con i dati biologici/ematochimici/istopatologici e con l'outcome
Disegno dello Studio	Studio osservazionale multicentrico, retrospettivo e prospettico
Popolazione in Studio	Si stimano circa 100 pazienti all'anno a livello nazionale.
Centri Partecipanti allo Studio	Centri di cura della Associazione Italiana di Ematologia-Oncologia Pediatrica (AIEOP)
Durata dello studio	10 anni. Inizio arruolamento previsto per il 01.06.2025

- Sottomesso al CE di Padova il 13/01/2026
- In corso definizione agreement



DataRiver
big data for smart industry

Prospective Observational International Registry and biobank of Children, Adolescents and Young Adults (CAYA) with Newly Diagnosed Rare non-Hodgkin Lymphoma (NHL) sec. WHO 2022 PI: A. Attarbaschi

In female/male participants younger than 26 years of age with newly diagnosed rare forms of NHL as specified below:

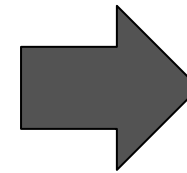
Objectives and Endpoints:

Primary

- To establish a prospective collection of data and biospecimens to allow validated information on CAYA rare NHL
- To prospectively characterize the pathology, biology, clinical features, treatment patterns, response and outcomes for rare NHL in CAYA

Secondary

- To investigate the molecular-genetic landscape of rare NHL in CAYA on an international scale
- To determine associations between clinicopathological features, disease biology, and treatment outcomes for specific lymphoma histologies
- To bank biology samples from pathology tissues in a federated manner, and make them available for biology studies aimed at identifying new molecular therapeutic targets

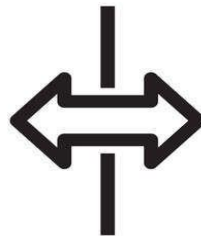


incluso in
AIEOP
LNH-2024

Advancing Pediatric Non-Hodgkin Lymphoma Research Exploring ...

Liquid Biopsy

as a source of biomarkers
and
to understand the mechanism
of aggressiveness

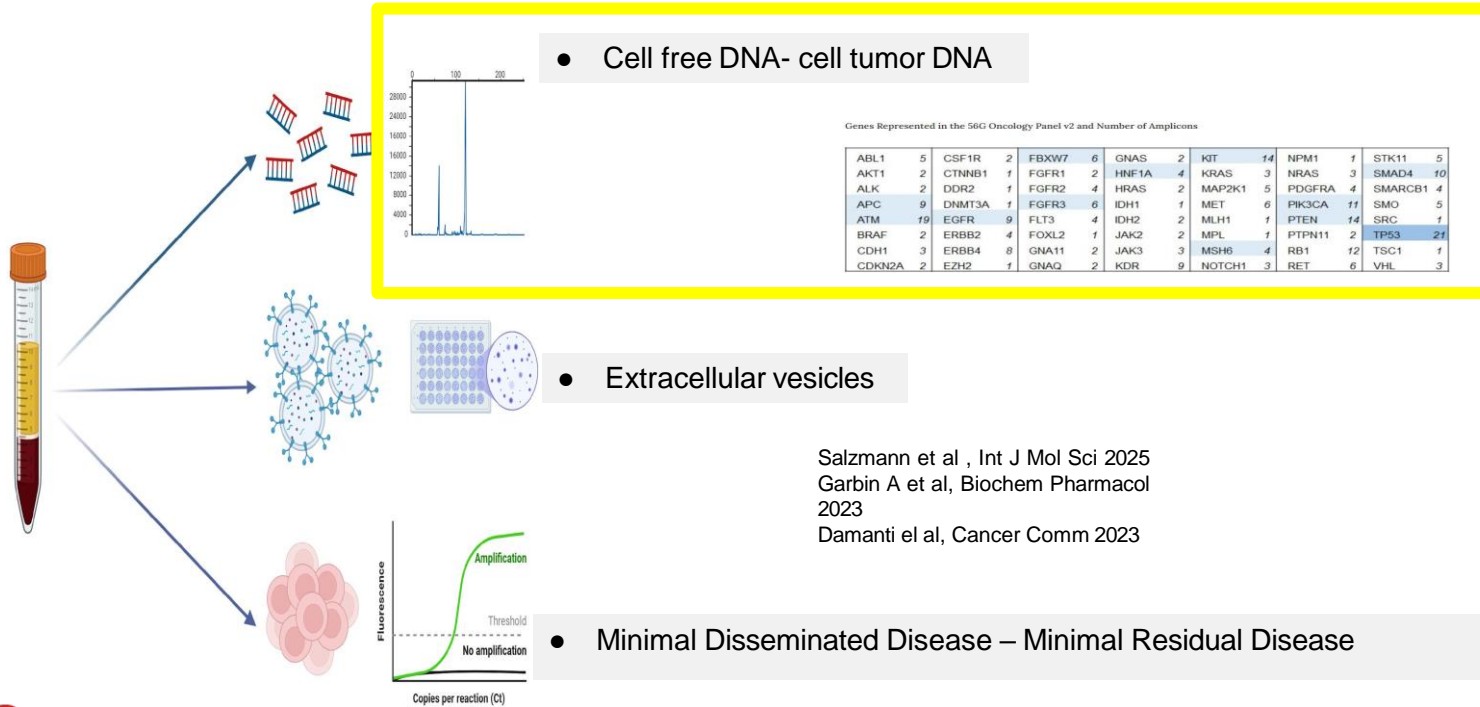


Overcoming Treatment resistance

WES and CRISPR/Cas9
Technology for genomic screening
and validation

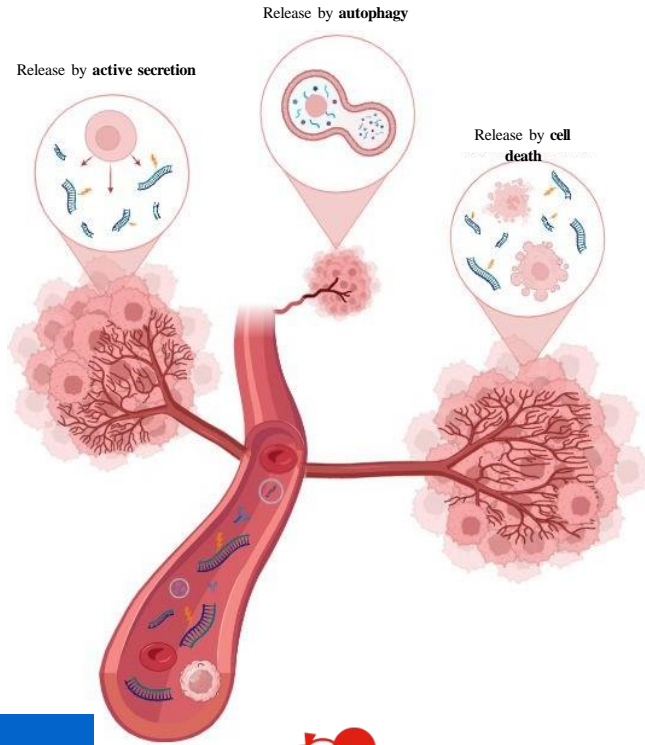
Artificial Intelligence for data
analysis and prediction

Lymphoma Diagnostics evolution: from MRD to comprehensive Liquid Biopsy



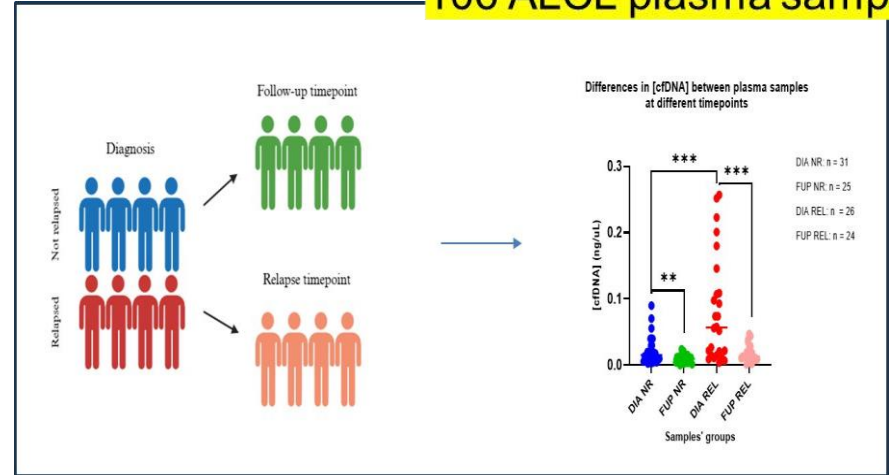
Dissecting cell-free DNA dynamics and mutational heterogeneity in pediatric ALK+ ALCL

Mechanisms of release of cfDNA into the bloodstream

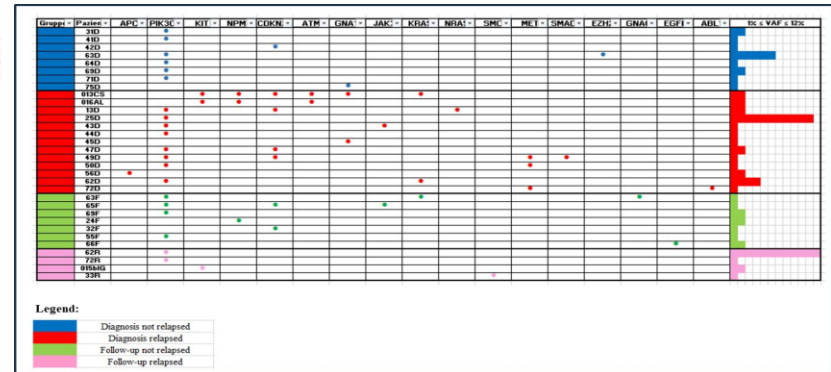


Workflow

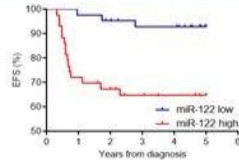
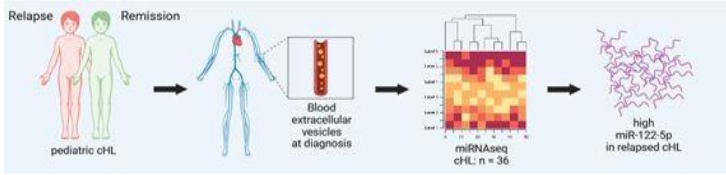
106 ALCL plasma samples



3

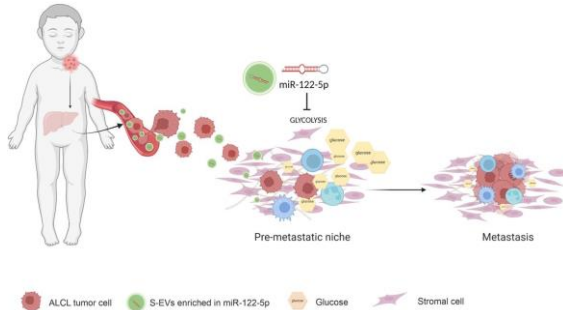


Plasma small-extracellular vesicles enriched in miR-122-5p promote disease aggressiveness in pediatric anaplastic large-cell lymphoma

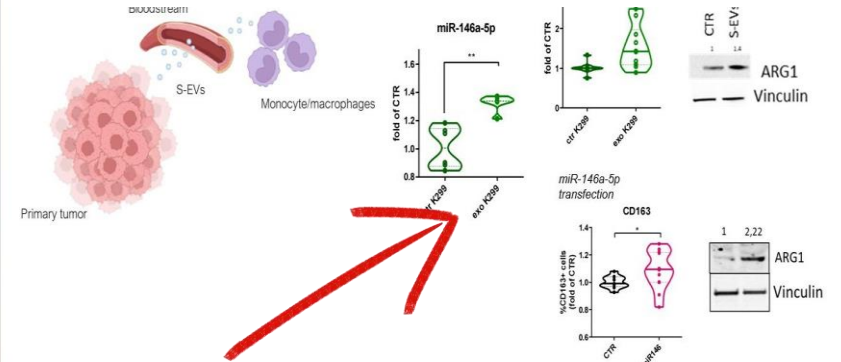


5-year event free survival
miR-122 high vs. miR-122 low

- Univariate analysis p-value: 0.0009
- Multivariate analysis p-value: 0.0037



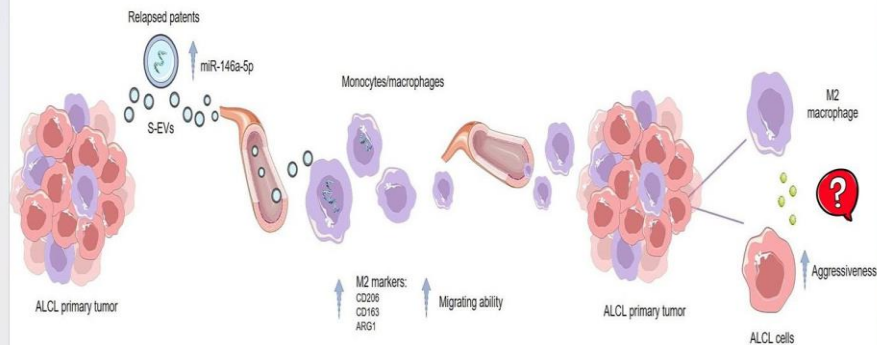
ALCL cell lines derived s-EVs increase macrophage tumor infiltration and induce M2-like differentiation through miR-146a-5p action



Salzmann et al, Int J Mol Sci 2025
Garbin A et al, Biochem Pharmacol 2023
Damanti et al, Cancer Comm 2023

Mechanisms of relapse in the cross-talk between ALK+ALCL and macrophages

What are the key factors in this cross-talk?



Investigations with primary macrophages in lymphoma microenvironment

Lipidomics

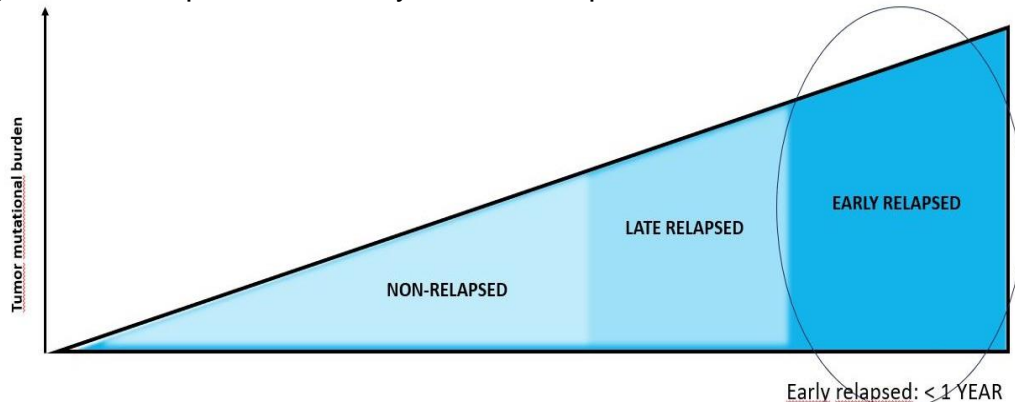
Spatial transcriptomic

Overcoming treatment resistance mechanisms in ALK-driven cancers

Association between high mutational profile and early disease relapse

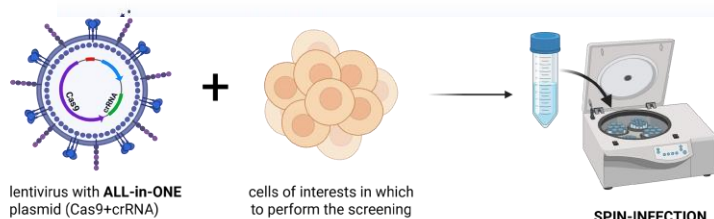
Phase1:

WES on patients DNA
(relapsed vs no-relapsed)

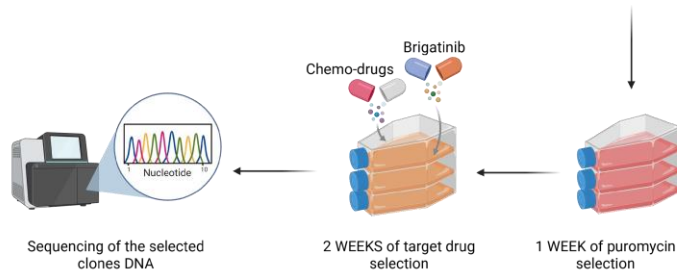
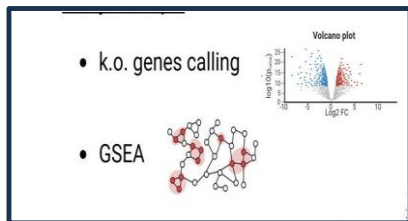


Phase2:

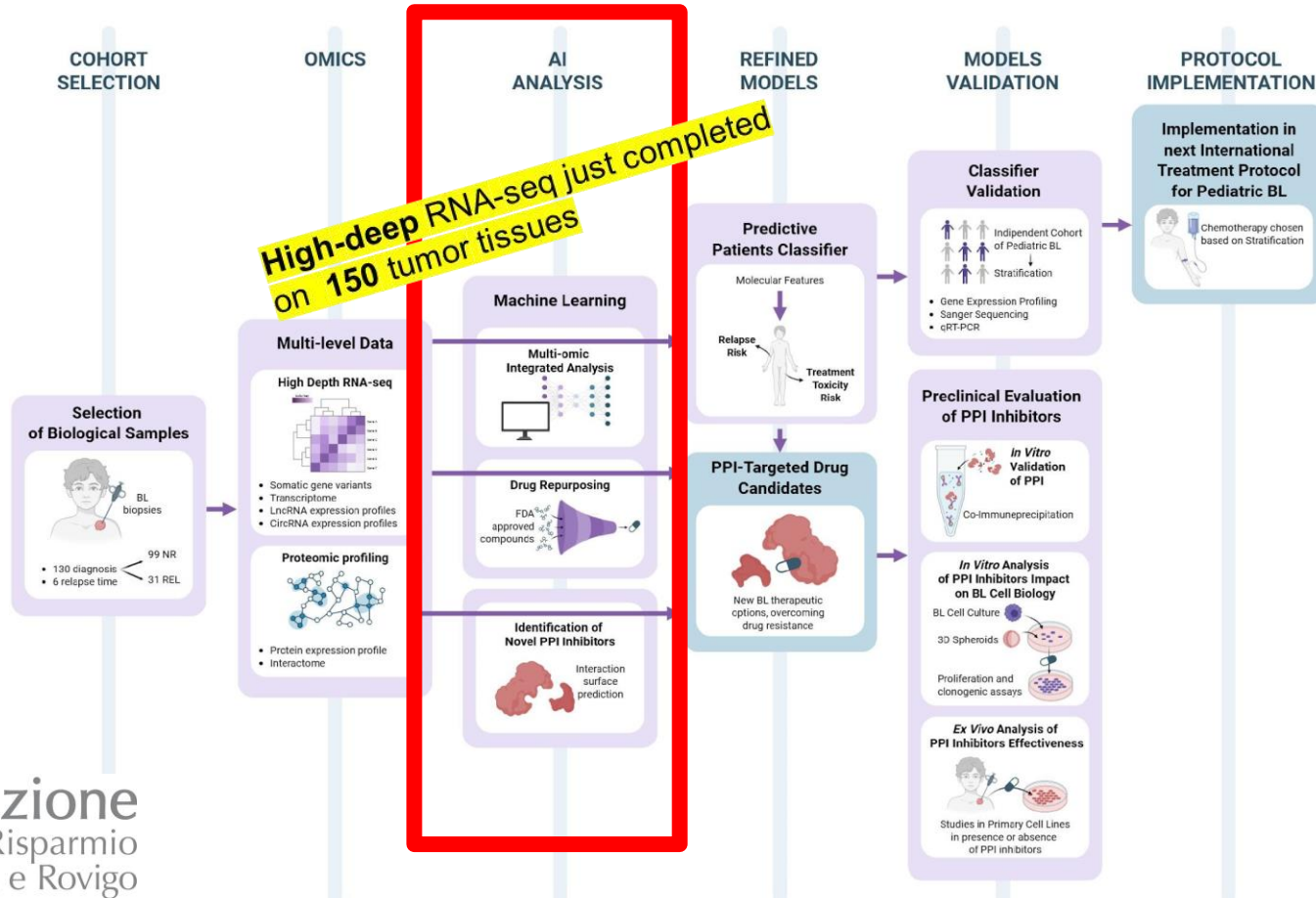
Genome-wide screening
through *CRISPR/Cas9*
technology



Finding genes responsible for ALK inhibitors resistance



Machine Learning-Based Model for the Prognosis and Treatment of aggressive Burkitt Lymphoma of Childhood



High-deep RNA-seq just completed on 150 tumor tissues



Fondazione
Casa di Risparmio
di Padova e Rovigo

Proposte di nuovi studi

- Espressione di CD20 nei LNH-B recidivati
- Terapia di seconda linea dei PMLBL
- Casistica retrospettiva LNH
- TCSE e LNH
- Linfomi ossei
- Complicanze trombotiche nei LBL-T e LLA-T
- Linfomi cutanei
- Ruolo della RMN e sequenze DWIBS nelle rivalutazioni di malattia e nel follow up dei LNH
- Immunodeficit e linfomi
-



CD20-NEGATIVE RELAPSED/REFRACTORY MATURE B-CELL NON-HODGKIN LYMPHOMA (B-NHLs) AND MATURE B-CELL LEUKEMIA IN CHILDREN, ADOLESCENT AND YOUNG ADULTS: A RETROSPECTIVE REVIEW

Luciana Vinti¹, Jolanda Pianese¹, Daniela Onofrillo², Irene D'Alba³, Raffaella De Santis⁴, Veronica Barat⁵, Elisabetta Schiavello⁶, Paola Muggeo⁷, Concetta Micalizzi⁸, Katia Perruccio⁹, Valentina Bertaina¹, Lara Mussolin¹⁰, Elisa Carraro¹⁰, Marta Pillon¹⁰, Barbara Buldini¹⁰, Rita De Vito¹, Franco Locatelli¹

PERSISTENT FDG-PET UPTAKE AFTER FIRST-LINE THERAPY IN PAEDIATRIC LYMPHOMA AND RISK OF PROGRESSION: A MONOCENTRIC RETROSPECTIVE ANALYSIS

F. Serani¹, E. Carraro², T. Cincotti², D. Cecchin¹, C. Giraud³, A. Biffi², M. Pizzi⁴, L. Mussolin^{2,5}, P. Zucchetta¹, M. Pillon²

PEDIATRIC ALK-NEGATIVE ANAPLASTIC LARGE CELL LYMPHOMA GENETICALLY DIFFERS FROM THE ADULT COUNTERPART

Emily R. James^{1*}, Julia Salmerson-Villalobos^{2*}, Ariadna Colmenero², Leonie Frauenfeld², Mara Andres³, Jamie Verdu^{3,4}, Noelia Garcia⁵, Ingrid Simonitsch-Klupp⁶, Andishe Attarbaschi⁷, Chris M. Bacon⁸, G.A. Amos Burke⁹, Brian Lockhart¹⁰, Stephen P. Ducray¹, Zhi Chen¹, Maria-Myrsini Tzioni¹, Jamie D. Matthews¹, Christopher Steel¹, Marta Pillon¹¹, Lara Mussolin¹¹, Shahid Pervez¹², Vinodh Pillai¹⁰, Jaroslav Štěrba¹³, Zdenka Krenova¹³, Margreet A. Veening¹⁴, Grazyna Wrobel¹⁵, Jana Werner¹⁶, Fabian Knorr¹⁶, Ilse Oschlies¹⁷, Wolfram Klapper¹⁷, Wilhelm Woessmann¹⁶, Olga Balague⁵, Itziar Salaverria^{2*}, Suzanne D. Turner^{1*}

QUALITATIVE AND QUANTITATIVE MINIMAL DISEASE MEASUREMENT IN ALK-POSITIVE ANAPLASTIC LARGE CELL LYMPHOMA: EFFICACY OF INTERNATIONAL QUALITY CONTROL AND EVENT-FREE SURVIVAL ACCORDING TO DIFFERENT MINIMAL DISSEMINATED DISEASE CUT-OFFS

Christine Damm-Welk¹, Cathy Quelen², Laurence Lamant², Gaia Martire^{3,4}, Lukas Duscher¹, Reiji Fukano⁵, Yuka Iijima-Yamashita⁶, Itziar Salaverria⁷, Julia Salmerson-Villalobos⁷, Liz Yuet-Ping Yuen⁸, Yu-Kwan Tong⁸, Suzanne D. Turner⁹, Rogier ten Hoopen⁹, Edwin Sonneveld¹⁰, Eric Strengman¹⁰, Maria Hansen¹¹, Guy Wayne Novotny¹¹, Megan S. Lim¹², Rui Wu¹², Ariel Long¹³, Feng Xu¹³, Marilyn M. Li¹³, Grace Kee-See Lam¹⁴, Jaime Verdu-Amoros¹⁵, Charlotte Rigaud¹⁶, Martin Zimmermann¹⁷, Marta Pillon², Wilhelm Woessmann¹, Lara Mussolin^{3,4}

MECHANISMS OF RELAPSE IN THE CROSS-TALK BETWEEN ALK+ALCL AND MACROPHAGES

R.J.S. Salzmann^{1,2}, A. Cani^{1,2}, C. Zanon^{1,2}, E. Carraro², M. Pillon², A. Corrà^{1,2}, L. Mussolin^{1,2}

WHOLE EXOME SEQUENCING IN PEDIATRIC ALCL: HIGH TUMOR MUTATIONAL BURDEN CHARACTERIZES EARLY RELAPSE PATIENTS

Matteo Marzi^{1,2}, Alessia Danieli^{1,2}, Daniele Ramazzotti³, Federica Malighetti³, Carlo Zanon^{1,2}, Carlotta Caterina Damanti^{1,2}, Gaia Martire^{1,2}, Elisa Carraro¹, Andrea Carraro⁴, Marco Pizzi⁴, Teresa Battaglia⁵, Rosa Maria Mura⁶, Annalisa Tondo⁷, Elisabetta Schiavello⁸, Marta Pillon¹, Luca Mologni³, Lara Mussolin^{1,2}

DISSECTING CELL-FREE DNA DYNAMICS AND MUTATIONAL HETEROGENEITY IN PEDIATRIC ALK+ ALCL: A COMPARISON WITH MDD LEVELS

A. Danieli^{1,2}, M. Marzi^{1,2}, M. Villa³, F. Malighetti³, G. Martire^{1,2}, C.C. Damanti^{1,2}, E. Carraro¹, S. Buffardi⁴, M. Piglione⁵, L. Lo Nigro⁶, P. Bertolini⁷, M. Pizzi⁸, M. Pillon⁹, L. Mologni³, L. Mussolin^{1,2}

EXTRACELLULAR VESICLES AS KEY ORCHESTRATORS OF BONE MARROW NICHE REMODELING IN PEDIATRIC MATURE-B-CELL ACUTE LYMPHOBLASTIC LEUKEMIA

C.C. Damanti^{1,2}, A. Cani^{1,2}, E. Gaffo³, S. Bortoluzzi³, Alessia Danieli^{1,2}, E. Carraro¹, L. Vinti⁴, A. Sala⁵, A. Biffi¹, M. Pillon¹, S. Bresolin^{1,2}, L. Mussolin^{1,2}

MUTATION SITES INFLUENCE PROGNOSTIC SIGNIFICANCE OF TP53 MUTATIONS IN PEDIATRIC B-CELL NON-HODGKIN LYMPHOMA

Marcel te Vrugt¹, Amelie Alfert¹, Lara Mussolin², Mara Andres³, Alex Blain⁴, Chris Bacon⁴, Elisa Carraro², Christine Damm-Welk⁵, Eric Hermann⁶, Marc Hotfilder¹, Fabian Knörr⁵, Luisa Kruppa⁵, Claudia Lanvers-Kaminsky¹, Sara Mato⁷, Gaia Martire², Stephanie Mueller¹, Alexander Newman⁴, Katrin Reutter¹, Elina Richter¹, Gerrit Randau¹, Vikki Rand⁸, Kenneth Scholten¹, Ida Tölle¹, Jaime Verdu-Amoros^{7,9}, Simon Bomken⁴, Itziar Salaverria^{7,10}, Martin Zimmermann¹¹, Birgit Burkhardt¹

A PEDIATRIC CASE OF MEDIASTINAL B-CELL NON HODGKIN LYMPHOMA PRESENTING WITH A RARE/COMPLEX CYTOGENETIC PROFILE

Schiavello Elisabetta¹, Aiello Antonella², Lorenzini Daniele^{2,3}, Volpi Chiara², Toma Martina², Colombo Valeria¹, Gattuso Giovanna¹, Spreafico Filippo¹, Terenzi Monica¹, Massimino Maura¹, Monti Valentina²
¹Pediatric Oncology Unit, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy; ²Department of Diagnostic Innovation, Fondazione IRCCS Istituto

PSYCHOLOGICAL WELL-BEING AND COPING STRATEGIES IN PEDIATRIC PATIENTS WITH HODGKIN AND NON-HODGKIN LYMPHOMAS AND THEIR MOTHERS: A PILOT STUDY

Marta Tremolada^{1,2}, Roberta Maria Incardona^{1,2,3}, Linda Baldon^{1,2}, Elisa Carraro², Lara Mussolin^{2,4}, Alessandra Biffi², Marta Pillon²

BEST abstract!

Publicazioni 2024-2026

[Quantitative assessment of minimal residual disease for monitoring of paediatric patients with relapsed/refractory anaplastic large-cell lymphoma treated with brentuximab vedotin: a case series.](#) Contarini G, Carraro E, Lovisa F, Martire G, Lo Nigro L, Sala A, Pillon M, Mussolin L. **Br J Haematol.** 2024 Jan;204(1):352-355. Doi: 10.1111/bjh.19151. Epub 2023 Oct 11. PMID: 37822050.

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